SET-2020

INFORMATION BROCHURE

Centrally Funded Technical Institute (CFTI)
Estd. By MHRD, Government of India
भारत सरकार द्वारा संचालित

अखिल भारतीय स्लाईट प्रवेश परीक्षा–2020
ALL INDIA SLIET ENTRANCE TEST - 2020

संत लौंगोवाल अभियांत्रिकी एवं प्रौद्योगिकी संस्थान

SANT LONGOWAL INSTITUTE OF ENGINEERING & TECHNOLOGY

Deemed - to - be - University

LONGOWAL – 148 106, Distt. Sangrur (Punjab) INDIA

www.sliet.ac.in

भारत सरकार अधीन समविश्वविद्यालय

SET - 2020

31 May, 2020 (SET - I/IA/III)
05 July, 2020 (SET -V)

अखिल भारतीय स्लाईट प्रवेश परीक्षा
ALL INDIA SLIET ENTRANCE TEST

- Non-conventional, innovative, practical oriented containing all aspects of Education Policy of Govt. of India, educational programmes.
- Multi Entry, Multi Exit modular and flexible educational system.
- Institute is Deemed-to-be-University having all courses approved by AICTE/UGC/Board of Management of the Institute.
- Outcome Based Education (OBE) academic programmes.
- Three year Integrated Certificate-Diploma(ICD) programme with a provision for 50% of the SLIET Diploma holders fulfilling the eligibility condition for promotion to B.E. degree programme (Lateral Entry)
- Four year B.E. programme, admission through JEE (Mains).
- Lateral Entry in the B.E. programmes for the diploma holders in different disciplines.
- M.Tech. programmes, admission through CCMT.
- M.Sc. programmes, admission through CCMN.
- Ph.D. programmes, admission as per UGC rules and regulations.
- Highly Educated and experienced faculty.
- Excellent infrastructure ; class rooms, laboratories, hostels (Boys and Girls), Library, workshops, sports complex, Swimming pool, auditorium, Student activity centre and shopping complex etc.
- Training and placement department to monitor the training and placement activities of the students.

For further information

Visit www.sliet.ac.in

or contact

Prof. Mandeep Singh, Chairman, SET-2020

Tel.No. 01672-280072, 253136, Fax No. 01672-280072, 280057

Email: chairmanset20@gmail.com

CONTENTS

Chapter I	The Institute
Chapter II	Important Information
Chapter III	Three Year Integrated Certificate-Diploma (ICD) Programme :SET I
Chapter IV	B.E. Programme a) B.E.(4 Year): JEE(Main) b) B.E.(Lateral Entry): SET III
Chapter V	M. Tech. Programme: CCMT-2020
Chapter VI	M.Sc. Programme: CCMN-2020/PU-CET(PG)/CUCET/JAM-2020
Chapter VII	Ph.D. Programme: SET V
Appendix I	Instructions for filling ONLINE Application Form and send the print of Registration form by post
Appendix II	Instructions for filling up OMR Answer Sheet during Entrance Test
Appendix III	Prescribed format for OBC Certificate
Appendix IV	Admission under category- Persons with disability (PWD) scheme
Appendix V	Format for Medical Fitness Certificate
Appendix VI	Format for EWS Certificate

APPLICATION FEE FOR ALL INDIA SLIET ENTRANCE TEST

Mode of registration shall be **ONLINE** only, fee details are as follows:

General and Other Categories (Boys)	: Rs.1750/-*
General and Other Categories (Girls)	: Rs.1250/-*
SC/ST Categories (Boys & Girls)	: Rs.1000/-*

Mode of Payment: E-Challan/Net Banking/Debit card/Credit card

* **18% GST & Bank charges Extra**

For any Information Contact:

Dr. Mandeep Singh, Chairman, SET-2020

Dr. Ram Pal Chaudhary, Vice Chairman, SET-2020

Tel. No. 01672-280072, 253136

Fax No. 01672-280072, 280057

Email: **chairmanset20@gmail.com**

Help Desk Numbers: (9.00A.M. to 5.00P.M.on working days) :**01672-253178, 2531799**

For **ONLINE** Application

Institute Website/ ONLINE Application : ***www.sliet.ac.in***

IMPORTANT DATES & CHECK LIST FOR SET-2020

Last date for receipt of complete Application Form **(SET I/SET IA/SET III):**	**May 06, 2020**
Last date for Modification/correction for ICD & B.E. about Name/Category/State Quota/Income:	**May 10, 2020**
Last date for receipt of complete Application Form **(SET V & PG):**	**June 11, 2020**

DATES OF EXAMINATION

1.	3-Year ICD Program (SET-I)	May 31, 2020	Sunday	10.00 – 12.30 Hours
2.	Lateral Entry to ICD(2nd Year)(SET-IA)	May 31, 2020	Sunday	10.00 – 12.30 Hours
3.	B.E.(Lateral Entry)(SET-III)	May 31, 2020	Sunday	14.30 – 17.00 Hours
4.	Ph.D. Programme (SET-V)	July 05, 2020	Sunday	11.00 – 13.00 Hours

The answer keys will be uploaded on the same day after completion of examination and challenges will be accepted through e-mail up to 48 hours of completion of the respective examination.
SET-V for admission to Ph.D. programmes shall be conducted at SLIET Longowal only

5.	Ph.D. Entrance Examination Result	13 July , 2020	Monday	
6.	Interview for Ph.D.	16 July , 2020	Thursday	09.00 A.M. onwards

ONLINE COUNSELLING AND DOCUMENT VERIFICATION

A.	**First Phase** (SET I, SET IA & SET III) **Choice Filling**		09 (Tuesday) to 11(Thursday) June, 2020
	Round-I		
	First provisional allotment		12(Friday) June, 2020 (3.00 p.m.)
	Fee submission for seat confirmation (with choice of auto up-gradation)		12(Friday) to 15 (up to 12.00 midnight Monday) June, 2020
	Round-II		
	Up-gradation of confirmed seat in Round-I and Second provisional allotment		18 (Thursday)June, 2020
	Fee submission for seat confirmation(with choice of auto up-gradation)		18 (Thursday) June to 22 (Monday) (up to 12.00 midnight) June, 2020
B.	**Document Verification/Fee Deposit at SLIET Longowal**		
i	**3-year ICD Program: SET-I**	Punjab (All Categories)	25 (Thursday) June, 2020
		Other States (All Categories)	26 (Friday) June, 2020
	Lateral Entry to ICD(2nd Year): SET-IA		26 (Friday) June, 2020
ii	**B.E.(Lateral Entry): SET-III**	All Vertically Promoted Students	29 (Monday) June, 2020
		All Categories	30 (Tuesday) June, 2020
C.	**Second Phase SET-I (ICD) & SET-III Choice Filling** (for those candidates who have not filled their choices earlier) /modification of choice for non allottees		02(Thursday) to 03(Friday) July, 2020
i.	First provisional allotment		06 (Monday) July, 2020 (3.00 p.m.)
ii.	Fee submission for seat confirmation (with choice of auto up-gradation)		06 (Monday) to 09 (Thursday) July, 2020 (up to 12.00 midnight)
D.	**Document Verification/Fee Deposit at SLIET Longowal** Verification of Documents and deposit of fee at SLIET, Longowal		13 (Monday) July, 2020
E.	Up-gradation/Provisional Allotment for Spot round (online)		15 (Wednesday) July, 2020
	Payment of Seat confirmation fee for spot round		Online up to 20 (Monday) July, 2020 (up to 10 a.m.)
F.	**Document Verification/Fee Deposit for Spot Round at SLIET Longowal**		
	ICD SET I Document verification of the online seat allotted candidates and the vacant seats will be allotted offline on the spot.		21(Tuesday) July, 2020
	SET III Document verification of the online seat allotted candidates and the vacant seats will be allotted offline on the spot.		22(Wednesday) July, 2020
	Spot Round for SET III will be held offline for vacant seats if any		27 (Monday) July, 2020

- **Only those candidates will be considered for up-gradation who will pay the seat confirmation fee (which includes Rs.1000/- counseling fee and remaining amount is adjustable in admission fee) i.e. Rs.20500/-+(GIS premium as applicable) for ICD programmes and Rs.51000/-+(GIS premium as applicable) for B.E. programmes. In case the candidate does not report/join the institute after seat confirmation the refund will be made after deduction of Rs.2500/- from the adjustable amount on written request of the student.**
- **The candidate who will be allotted any seat and did not pay seat confirmation fee shall not be considered for further allotment or up-gradation. The authority reserves the right to consider such candidates for further allotment as per availability of seats.**
- **The confirmation of the online payment shall reflect in the login account of the candidate. The institute shall not be responsible for the failed or unsuccessful transactions. It is mandatory to fill the choices for vertical and direct entry and to appear in person during the document verification.**

Admission to B.E. (4 Year), M. Tech. and M.Sc. programmes will be as per details given below:

Programme	Name of Written Test	Counseling
B.E. (4 Year)	JEE (MAIN) -2020	JoSAA/CSAB -2020
M. Tech.#	Valid GATE Score	CCMT-2020
M.Sc.#	PU-CET (PG)-2020, Panjab University, Chandigarh/CUCET-2020/JAM-2020	CCMN-2020

#In case, the seats remain vacant in any of the programmes the institute will conduct its own Entrance Test at SLIET, LONGOWAL ONLY. The detailed information about this test will be given separately and shall be uploaded on the institute website in due course of time.

NOTE-1: DATES FOR COUNSELING/DOCUMENTS VERIFICATION ARE TENTATIVE/PROVISIONAL FOR UPDATES VISIT INSTITUTE WEBSITE FROM TIME TO TIME.

2. Candidate must provide the correct information to avoid disqualification for admission. The Correspondence address, Landline/Mobile Phone Numbers and Email ID should be checked thoroughly as any of these mode(s) will be used for contacting the candidate and in case of wrong information in this regard, the responsibility lies with the candidate ONLY. The failure in receiving of the Correspondence by the candidate due to the fault of the third party will not be the responsibility of the institute.

DECLARATION OF RESULT

SET I/SET IA/SET III: **June 08, 2020 (Monday)**

Ph.D. Programme : **July 20, 2020 (Monday)**

COUNSELLING FOR Ph.D. PROGRAMMES

23.07.2020 (THURSDAY)

Abbreviations Used:

SLIET : Sant Longowal Institute of Engineering & Technology
SET : All India SLIET Entrance Test
ICD : Integrated Certificate-Diploma
CCMT : Centralized Counseling for M.Tech./M.Arch./M.Plan
JEE(Main) : Joint Entrance Examination(Main)
CSAB : Central Seat Allocation Board
PUCET(PG) : Punjab University Common Entrance Test(Post Graduate)
CUCET : Central Universities Common Entrance Test
JAM : Joint Admission Test
GATE : Graduate Aptitude Test in Engineering
AICTE : All India Council for Technical Education
CCMN : Common Counseling for M.Sc. programmes
DASA : Direct Admission of Students Abroad
JoSAA : Joint Seat Allocation Authority

CHAPTER - I

THE INSTITUTE

1.1 INTRODUCTION

Sant Longowal Institute of Engineering & Technology (SLIET), established by the Government of India and it is **Centrally Funded Technical Institute** (CFTIs), which provides technical education in emerging areas of Engineering & Technology. It caters to the requirement of technical manpower at various levels by adopting the concept of modular system in imparting technical education with emphasis on practical training in industry. The institute was set up in 1989 under Rajiv Gandhi-Longowal accord with an aim to fulfill the cherished dreams of Late Sant Harchand Singh Longowal. It has carved for itself a niche amongst the professional institutes and universities of the country and is fully funded by Ministry of Human Resource Development, Government of India. The educational programmes of this institute are non-conventional, innovative, practical oriented and contain all aspects of new education policy, Govt. of India. The Institute offers programmes at Certificate, Diploma, Degree, Post-graduate (M.Tech. and M.Sc.) and Ph.D. levels in Engineering and Technology, Science and Humanities.

Sprawling over more than four hundred acres of land, the institute is wonderfully blessed with natural beauty, greenery, serene and pollution free atmosphere. Live atmosphere is conducive to work environment and gives softening touch to the surroundings. Campus has water bodies and is a paradise for bird watchers. Institute plays a host to a number of migratory birds giving the glimpse of some of the rarest species in the world. Splendor and beauty of nature offers a serene setting for better learning in natural environment. It provides an atmosphere wherein a person becomes free from worries, converges his/her desires and start thinking and analyzing for making him/her physically fit, ethically strong and academically sturdy.

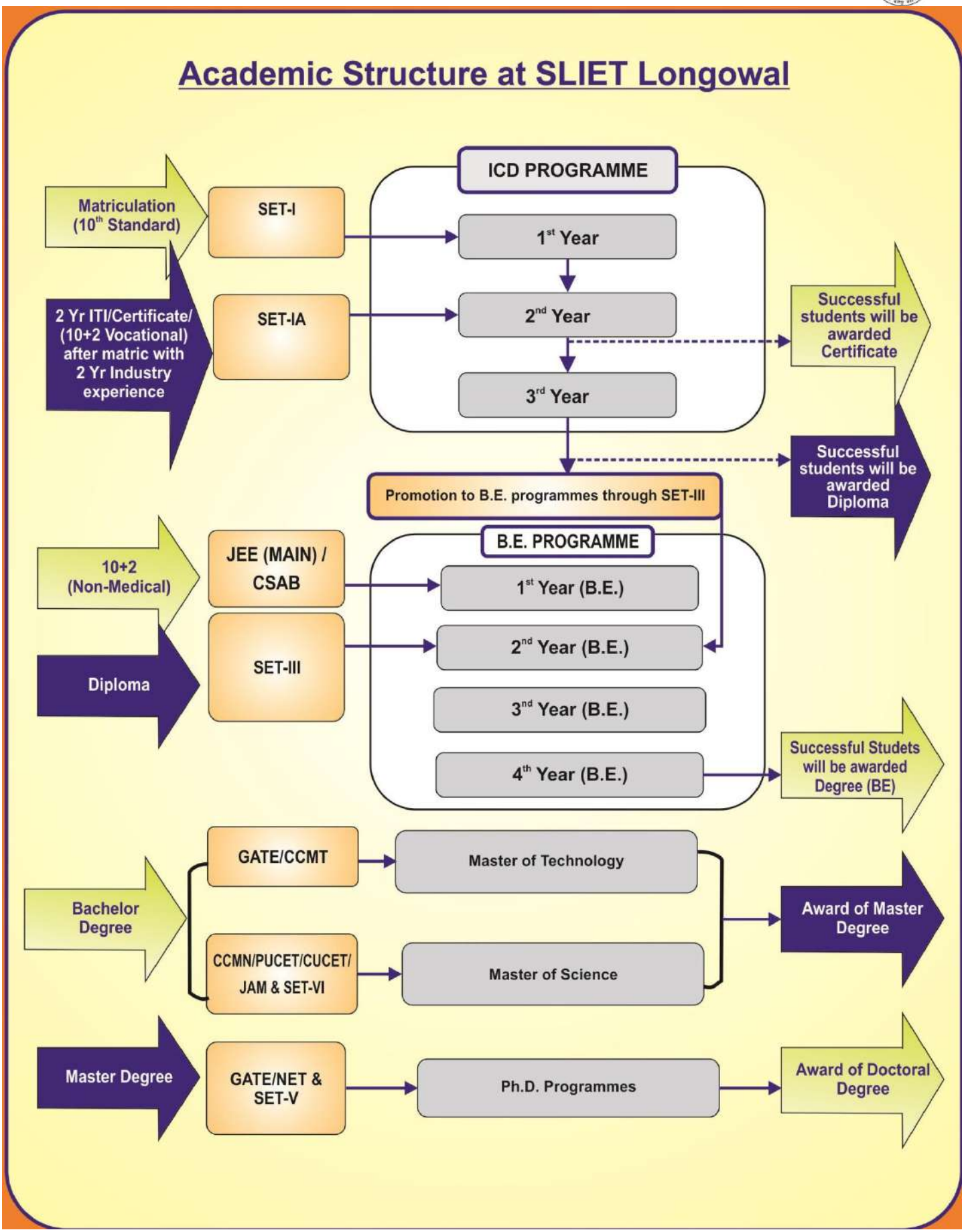
Enough avenues for channelizing youth energy in extracurricular activities such as NSS, NCC, Industrial visits, educational tours, departmental societies, SPICMACAY chapter, technical & cultural festivals, night playing facilities, eating points and reading rooms during the extra hours are available. The Institute has acquired the status of **DEEMED- TO- BE -UNIVERSITY** in the year **2007** (Notification No.F.9-42/2001-U.3). In its Silver Jubilee year, Institute has taken a giant leap by introducing a new academic structure from the session 2014-15. The details of the new academic structure are given in the next section.

The candidates may visit Institute website **www.sliet.ac.in** for complete details about the Institute.

1.2 NEW ACADEMIC STRUCTURE

SALIENT FEATURES:

- Admission to ICD (Integrated Certificate-Diploma) programme (3 year) through All India SLIET Entrance Test (SET) after Matric exam from a recognized Board/University (Pass in English, Mathematics and Science is compulsory).
- Provision of voluntarily exit after successfully completing 2 years (with requisite number of credits) of ICD Programme.
- Provision of entry in 2nd year of ICD after ITI/Certificate with two years industrial experience.
- Diploma will be awarded to students who will complete 3 years of ICD with the prescribed credits as per teaching scheme successfully.
- 50% of the SLIET Diploma holders fulfilling the requisite criteria will be promoted to 2nd year of B.E. on the basis of All India SLIET Entrance Test (SET) conducted by SLIET, Longowal.


Academic Structure at SLIET Longowal
ICD PROGRAMME
Matriculation (10th Standard)
SET-I
1st Year
2nd Year
3rd Year
2 Yr ITI/Certificate/ (10+2 Vocational) after matric with 2 Yr Industry experience
SET-IA
Successful students will be awarded Certificate
Successful students will be awarded Diploma
Promotion to B.E. programmes through SET-III
B.E. PROGRAMME
10+2 (Non-Medical)
JEE (MAIN) / CSAB
1st Year (B.E.)
2nd Year (B.E.)
Diploma
SET-III
3nd Year (B.E.)
4th Year (B.E.)
Successful Studets will be awarded Degree (BE)
GATE/CCMT
Master of Technology
Bachelor Degree
Award of Master Degree
CCMN/PUCET/CUCET/ JAM & SET-VI
Master of Science
Master Degree
GATE/NET & SET-V
Ph.D. Programmes
Award of Doctoral Degree

1.3 OBJECTIVES

The objectives of the Institute are:

(a) Education and Training:

(i) To offer flexible, modular, layered, multipoint entry/exit programmes in Engineering & Technology.

(ii) To promote "Self-employment" in all programmes by introducing a component of entrepreneurship & providing guidance and counseling services to help students to take-up self employment ventures.

(iii) To offer non-formal programmes in different areas of technology to strengthen the scope of Institutional programmes.

(iv) To provide Technical Education facilities for women, through specially designed courses.

(v) To offer continuing education programmes for working personnel from industries at different levels.

(vi) To meet the requirements of small, medium and large scale industries.

(vii) To offer higher level programmes after acquiring necessary competence at lower level programmes of the Institute.

(viii) To provide non-formal education and training to the persons from unorganized sectors and school drops-out through its extension services, to enable them to acquire basic technical skills, so that they are successfully employed.

(b) Extension Services:

To offer services to:

(i) Industries in the neighborhood and in the region
(ii) Working personnel
(iii) Passed out students
(iv) I.T.I.'s and Polytechnics
(v) Research and other institutes of higher learning

(c) Research & Development:

(i) To conduct exploratory research to assess manpower requirement leading to integrated educational planning, curriculum development & instructional material development in the identified areas of Science & Technology.

(ii) To conduct research in the inter-disciplinary areas aimed at solving the problems of industry and community. The concept of practice school introduced in the Institute will enable the students to attain the knowledge of modern technology practices in the Industries within reasonable time frame.

(d) Collaborations:

Number of M.O.U.'s with reputed industries and institutes of higher learning have been signed and some more are in pipe-line, for the purpose of drawing the expertise available with them, for the overall development of the Institute.

1.4 STATUS

The Institute is an autonomous body having the status of Deemed-to-be-University and fully funded by the Government of India. It is controlled by SLIET Society, registered under Societies Registration Act, 1860. The Institute awards its own Certificates, Diplomas and Degrees including M.Tech., M.Sc. and Ph.D. Further, it is clarified that:

(a) The courses run by SLIET are duly approved by AICTE / UGC.

(b) Certificates awarded by SLIET are recognized by All India Council for Technical Education (AICTE), New Delhi (Letter No.F-765-65-031(E)/ET/97 dated July 4, 1997 and Letter No.F-765-65/ ET/97 dated April 15, 1997). Certificate courses of SLIET are equivalent to 10+2 qualification. Panjab University, Chandigarh vide its letter No.ST/8374 dated 21.9.1999 has recognized the Certificate courses of SLIET for the purpose of admission to B.A./B.Sc./B.C.A. courses (1st year). Department of Technical Education & Industrial Training, Govt. of Punjab, Chandigarh vide its Memo No.13/23/05-1 T.S.2/32 dated 4.1.2006 has recognized Certificate Course of SLIET equivalent to 10+2. According to the notification, SLIET students are eligible for the admission to B.E./B.Tech. Programmes of Punjab Technical University, Jalandhar (state-wise).Vide notification no. Notification 42 No.F 18-8/93 T.D.V./T.S. IV dated March 8, 1995, the certificate courses are declared as equivalent to 10+2 for job purpose.

(c) 3 year Integrated Certificate Diploma (ICD) courses.

(d) B.E. (4 Years) Courses through JEE mains.

(e) M. Tech. Courses are recognized by AICTE, New Delhi.

(f) M.Sc. (Physics, Chemistry & Mathematics) is approved by the UGC, New Delhi vide letter no. F 6.66/2004 (CPP-I) dated 04 March, 2011.

Note: All the Engineering courses are approved by AICTE vide F.No.North-west/1-4267012211/2019/EOA Dated 29 April, 2019

1.5 LOCATION

The Institute is situated at Longowal (about 8 km from Badbar on Chandigarh-Bathinda Highway) in the District of Sangrur, Punjab. It is well connected by road with Sangrur (18 km), Ludhiana (100 km), Chandigarh (150 km) and Delhi (360 km). The nearest railway stations are Sangrur (18 km), Dhuri (30 km) & Sunam (16 km) on the Northern Railway. The nearest airports are at Chandigarh, Ludhiana and Bathinda.

1.6 FACILITIES

Institute provides an atmosphere which means oneself away from the worries, converging desires promoting the values of thinking and analysis. While a cool shade never fails oneself, a nice and comfortable well-equipped guest house adds to the charm of staying at the Institute. Dotted with green parks, strolling areas, gymnasium, swimming pool, herbal nursery, a lake with a created home for doves, the Institute is a mini-paradise extending a warm welcome and symbolizes the 'Modern Gurukul' of 21st Century. All modern facilities to the residents in the campus are available.

(a) Hostels: SLIET is a residential campus with ten hostels for boys and four for girls, accommodating about 3400 students which include about 1000 girl students. The hostels have been designed with proper kitchens, comfortable dining halls and indoor games facilities, Wi-Fi Internet connectivity, Newspapers/Magazines and Cable T.V. facilities. Hostel facility, in general is provided to all willing students except a very few due to non-availability. Girl students (including Ph.D. Scholars) will be considered for accommodation only in Girls Hostels. All the hostellers will have to maintain discipline and will abide by the rules framed by the office of Dean (SFW) from time to time.

(b) Teaching Departments & Workshop:

The Institute has well-established departments enlisted below:

(i)	**Computer Science & Engineering**	**(vii)**	**Electronics & Communication Engineering**
(ii)	**Electrical & Instrumentation Engineering**	**(viii)**	**Mechanical Engineering**
(iii)	**Civil Engineering**	**(ix)**	**Chemical Engineering**
(iv)	**Food Engineering &Technology**	**(x)**	**Physics**
(v)	**Chemistry**	**(xi)**	**Mathematics**
(vi)	**Management and Humanities**	**(xii)**	**Disability Studies**

All the departments have well qualified faculty and supporting staff with laboratories equipped with the modern equipments. An exhaustive practical training is imparted to the students to develop their working skills in well equipped workshops.

(c) Central Library: The Central Library under CCTV surveillance is housed in a modern building having all kinds of facilities for its best utilization by the faculty, staff and students. It has a rich collection of book on technical sciences, literature, general awareness, management, social sciences and humanities. This has also subscription of 15 daily newspapers, numerous national and international magazines & periodicals. The faculty, staff and students have an easy access to full text of journals from Science Direct, ASTM standards & Digital Library. The Central Library is INDEST Consortium member and through INDEST, the faculty, staff and students have online access to the journals from IEEE, Springer, ASME, ASCE, ACM and Nature etc. The NPTEL lectures had been added to the collection, which can be viewed online within the campus. The Library has a book bank and the students are issued books throughout the academic session subject to availability.

(d) Computing Facilities: The Institute is equipped with latest hardware & software. The computer laboratories provide computing environment (Linux and Windows Platforms) to the students and faculty for the pursuit of academic excellence. The various software are catering to the need of students such as Oracle 10g, MATLAB 2015, Visual Studio Power Builder, Developer 2000, Net, Qualnet etc. Hardware such as IBM Blade Server, Video conferencing server, IBM xSeries Server, Acer G510 series Server, workstations and PCs are also available. The computer laboratories are equipped with high end printers, plotters and scanners. All servers, PCs and peripherals are connected to the campus-networking for sharing the resources. Academic Blocks, Administrative Block, other Institute buildings and all hostels are connected through optical fiber to share the resources and exchange the data. Wi-Fi facility is available in all the hostels and departments.

(e) Health Centre: The Institute has Health Centre to provide necessary medical aid as and when required to the students and staff in the campus. Apart from the Medical Officers, specialists are also approved as AMA's for providing consultation to the residents. Ambulance facility is available round the clock to shift the serious patients to the nearby hospitals.

(f) Bank, Post Office, Telephone Exchange and Shopping Centre: A fully computerized branch of Central Bank of India with ATM facility and a post office are functional in the campus to cater the needs of the faculty, staff and the students. A 800 line EPABX internal telephone facility is available in the institute. Each hostel has been provided with a telephone facility. A moderate shopping centre caters the needs of the residents. All major players of mobile companies have established their network around the campus.

(g) Sports: Adequate provisions for extra-curricular activities are available in the Institute. At present, facilities are available for Table Tennis, Badminton, Swimming, Volley-Ball, Football, Hockey, Cricket, Basketball, Lawn Tennis and other indoor games. A 400 meters Athletic Track is also available. The playground are also equipped with the floodlights.

(h) Students Activity Centre: A modern Students Activity Centre (SAC) have 02 Squash courts, Gymnasium equipped with latest Physical Fitness Machines, indoor games such as Table Tennis, Chess & Carom etc. and is fully functional.

(i) Extra Curricular Activities: Students are encouraged to participate in extra curricular activities. Music and hobbies clubs are functioning very effectively. Literary society is organizing various literary activities from time to time. Almost all the departments have their own technical societies which organize technical seminars, quizzes and other competitions in the departments to give a thrust to the development of academic potential of the students. NSS & NCC units have also been rendering valuable service by inculcating the habits of social & national responsibilities amongst the students. The NSS unit also organizes the blood donation camps at SLIET Health Centre. ISTE-SLIET Students Chapter organizes a number of events on various aspects of personality and skill development and other areas of students' interest.

(j) Equal Opportunities Cell: The equal opportunities cell has been established in the Institute to oversee the effective implementation of policies and programmes for deprived groups [SC's, ST's, OBC's (non-creamy layer, minorities)] as per Government of India guidelines in order to enhance their employability.

(k) Internet: At present, the Institute has offered 01Gbps internet connectivity for the benefit of the students and faculty. Internet facility has been extended to all Academic Blocks, Administrative Block, Hostels and other Institute buildings through campus wide networking.

(l) Training and Placement Cell: A centralized department of Training & Placement is established in the Institute to meet its students' placement and industrial training requirements. The department is keeping strong liaison with reputed industries to provide placement opportunities and impart industrial training to the students of the Institute. The department also provides the inputs on soft skills, personality development, leadership, motivation and communication skills etc. to the students in order to meet the expectations of the industry. A good number of industries conduct campus placements at the institute. The department is having state-of-the-art infrastructure viz. a group discussion room, interview room and a seminar hall. TCS, iGate-Patni, M&M, L&T Infotech, Birlasoft, Infosys, Trident India, ISGEC Yammunanagar, Punj Lloyd, Honda Siel Cars India Ltd., ESSAR, CIMCOO, J.P. Group of Industries, Nestle, Hindustan Unilever, SANMAR Group of Industries, L&T, Godrej and Boycee Mfg. Co., Sona Koya, i-Tech Vardhman etc. are some of the recruiting industries of SLIET students through Campus Placement.

1.7 THE FACULTY AND ADMINISTRATION

The Faculty of the institute is the core of the academic programme and guardian to maintain the high academic standards. Several academic distinction honors and awards, fellowships of professional societies, books/monographs and patents have been bestowed on our faculty in recognition of their academic achievements. The institute is administrated by dynamic team of Director, Deans, Head of the Departments and Section In-charges.

DIRECTOR

Shailendra Jain, Ph.D.

DEANS

A. S. Arora, Ph.D., Dean (Academics)
Harish Kumar Chopra, Ph.D., Dean (P&D)
J. S. Dhillon, Ph.D., Dean (FSW)
D. C. Saxena, Ph.D., Dean (SW)
P. S. Panesar, Ph.D., Dean (R & C)

DEPARTMENT OF CHEMICAL ENGINEERING

Professor:
Avinash Thakur, Ph.D. (H.O.D.)
H. R. Ghatak, Ph.D.
Kamlesh Kumari, Ph.D.
Pushpa Jha, Ph.D.
Sandeep Mohan Ahuja, Ph.D.

Associate Professor:
A.S.K. Sinha, Ph.D.
Gulshan Kumar Jawa, Ph.D.

Assistant Professor:
Nikhil Prakash.,Ph.D
Subita Bhagat, M.Tech.
Vinod Kumar Meena, M.E.
Amit Rai, Ph.D.

DEPARTMENT OF CHEMISTRY

Professor:
B.K. Kanungo, Ph.D.
Dhiraj Sud, Ph.D.
Harish Kumar Chopra, Ph.D.
Ram Pal Chaudhary, Ph.D.

Associate Professor:
Damanjeet Singh Cannoo, Ph.D.(H.O.D.)

Assistant Professor:
Hemant Kumar, Ph.D.
Himanshu Rani, Ph.D.
Payal Malik, Ph.D.

DEPARTMENT OF COMPUTER SCI. & ENGG.

Professors:
Birmohan Singh, Ph.D.
Damanpreet Singh, Ph.D.
Major Singh Goraya, Ph.D.
Manoj Kumar Sachan, Ph.D. **(H.O.D)**

Associate Professor:
Gurjinder Kaur Cheema, Ph.D.

Assistant Professor:
Jaspal Singh, M.Tech.
Manminder Singh, Ph.D.
Preetpal Kaur Buttar, M.Tech.
Rahul Gautam, M.Tech.
Vinod Kumar Verma, Ph.D.

DEPARTMENT OF ELECTRICAL & INSTRU. ENGG.

Professor :
Ajat Shatru Arora, Ph.D.
Jaspreet Singh Dhillon, Ph.D.
Manpreet Kaur, Ph.D.
Sanjay Marwaha, Ph.D., (H.O.D.)
Surita Maini,Ph.D.
Vijender Kumar Jain, Ph.D.

Associate Professor:
Anshuka Bansal, M.Tech.
Ashwani Kumar Aggarwal, Ph.D.
Asim Ali Khan, M.Tech.
Charanjiv Gupta, M.E.
Diljinder Singh, M.E.
Gurmeet Singh, M.E.
Manpreet Singh Manna, Ph.D.
Pratibha Tyagi, Ph.D.
Rajinder Kaur, M.Tech.
Raj Kumar Garg, Ph.D.
Sanjeev Singh, Ph.D.- (on lien)
Manmohan Singh, Ph.D.

Assistant Professor:
Sunil Kumar, M.Tech.
Barasha Mali, M.Tech.

DEPARTMENT OF ELECTRONICS & COMM. ENGG.

Professor:
Ajay Pal Singh Chauhan, Ph.D.
Amar Partap Singh Pharwaha, Ph.D.
Anupma Marwaha, Ph.D. (H.O.D)
Dilip Kumar, Ph.D
Jagpal Singh Ubhi, Ph.D.
Surinder Singh, Ph.D. (On deputation)

Assistant Professors:
Alka Singla, M.Tech.
Kuldip Singh, M.Tech.
Pankaj Kumar Das, M.Tech.
Sarbjeet Singh, M.Tech.
Vipul Singhal, M.Tech.
Vivek Kumar, M.Tech.

DEPARTMENT OF FOOD ENGG. & TECH.

Professor:
C. S. Riar, Ph.D
Charanjeev Singh Saini, Ph.D.
D. C. Saxena, Ph.D.
H. K. Sharma, Ph.D.(On Deputation)
Kamlesh Prasad, Ph.D. (H.O.D.)
M. B. Bera, Ph.D.
P. S. Panesar, Ph.D.
Pradyuman Kumar, Ph.D.
Sukhcharn Singh, Ph.D.
Vikas Nanda, Ph.D.

Associate Professor:
Navdeep Jindal, Ph.D

DEPARTMENT OF MANAGEMENT & HUMANITIES

Professor:

Jappreet Kaur Bhangu, Ph.D.
Mahesh Kumar Arora, Ph.D.
Pardeep Kumar Jain, Ph.D.
Parveen Kaur Khanna, Ph.D. (H.O.D)
Pawan Kumar Dhiman, Ph.D.
Sanjeev Bansal, Ph.D

Associate Professor:

Mandeep Ghai, Ph.D.
Sanjeev Kumar Garg, Ph.D.

DEPARTMENT OF MATHEMATICS

Professor:

Janak Raj Sharma, Ph.D.
Mandeep Singh, Ph.D.
R.K. Guha, Ph.D.
Ravi Kant Mishra, Ph.D.
S.S. Dhaliwal, Ph.D.
Sushma Gupta, Ph.D. (H.O.D.)
Vinod Mishra, Ph.D.
V.K. Kukreja, Ph.D.

Associate Professor:

Raj Kumar Goyal, M.Phil.

Assistant Professor:

Yogesh Kapil, M.Sc.

DEPARTMENT OF MECHANICAL ENGINEERING

Professor:

Amandeep Singh Shahi, Ph.D.
Arvind Jayant, Ph.D.
Jagtar Singh, Ph.D.
Kulwant Singh, Ph.D.
Pardeep Gupta, Ph.D.
P.K. Singh, Ph.D.
Rajesh Kumar, Ph.D., (H.O.D.)
Raj Kumar Yadav, Ph.D.
Ravindra Kumar Saxena, Ph.D.
Shankar Singh, Ph.D.

Associate Professor:

Amrik Singh, Ph.D.
Anil Kumar Singla, M.E.
Indraj Singh, Ph.D.
Jaspal Singh Gill, Ph.D.
M.A. Akhtar, M.Tech.
Manoj Kumar Goyal, Ph.D.
Rakesh Kumar, Ph.D.
Suresh Chandra Verma, M.E.

Assistant Professor:

Ankita Omer, M.Tech.
Anuj Bansal, M.E.
Harish Kumar Arya, Ph.D.
Jonny Singla, M.Tech.
Lalit Ahuja, M.Tech.
Mohd. Majid, M.Tech.
Surinder Kumar, M.Tech.
Sunil Kumar, Ph.D.
Sumit Kumar, M.Tech.
Vivek Kumar, Ph.D.

DEPARTMENT OF PHYSICS

Professor:

A. S. Dhaliwal, Ph.D.
Kiranjit Singh Kahlon, Ph.D.
K. S. Mann, Ph.D.
M. M. Sinha, Ph.D. (H.O.D.)
S. S. Verma, Ph.D.

Associate Professor :

S. S. Ghumman, Ph.D.

Assistant Professor:

Kanika Aggrawal, M.Sc. M. Tech.
Prabhdeep Kaur, Ph.D.

DEPARTMENT OF CIVIL ENGINEERING

Sanjeev Kumar Garg, Ph.D.(H.O.D.)

DEPARTMENT OF DISABILITIES STUDIES

Pradyuman Kumar, Ph.D. (H.O.D.)

TRAINING & PLACEMENT CELL

Ravi Kant Mishra, Ph.D.(Head)

WORKSHOP

J. S. Gill, Ph.D. (WS)

CENTRAL LIBRARY

Librarian :

Prithvi Singh Bamnia, Ph.D.
Sanjay Gupta, Ph.D (Admn. Incharge)

SPORTS DEPARTMENT

S. S. Punia, S.P.I., M.P.Ed.

REGISTRAR

Ravinder Kumar, MBA

Deputy Registrar (Administration):

Mohanakrishnan C.,MBA, CAIIB

Deputy Registrar (Accounts):

Jawala Singh, M.Com.

Deputy Registrar (Academics)

Navdeep Jindal, Ph.D.

Deputy Registrar (Store & Purchase):

Amrik Singh, Ph.D.

Medical Officer:

Jasdeep Kaur, MBBS
Devinder Sharma, M.B.B.S. (visiting consultant)

In-charge Estate:

A. S. Shahi, Ph.D. (Civil Wing)
Raj Kumar Garg, Ph.D.(Elect. wing)

Estate Officer:

Avinash Thakur, Ph.D.

CHAPTER - II

IMPORTANT INFORMATION

The Institute offers modular pattern of education in emerging areas of Engineering, Technology, Sciences, Humanities and Management. Following Programmes are offered by the institute:

(a) Integrated Certificate-Diploma (ICD) (b) Bachelor of Engineering (B.E.) (c) Master of Technology (M. Tech)
(d) Master of Science (M.Sc.) (e) Doctor of Philosophy (Ph.D.)

2.1 SLIET ENTRANCE TEST-2020 Schedule

Entrance Test conducted for admission to various programmes is termed as **SLIET ENTRANCE TEST (SET)** and the details are given in **Table 2.1**.

Table 2.1

Name of Programme	Entrance Test	Date	Time
3 year ICD Programme	SET I	31 May, 2020	10.00 – 12.30 Hours
ICD-Lateral Entry	SET IA	31 May, 2020	10.00 – 12.30 Hours
B.E.(Lateral Entry)	SET III	31 May, 2020	14.30 – 17.00 Hours
M. Tech Programme	CCMT/Valid GATE Score/SET	Please refer page 3 for admission to various programmes.	
M.Sc.	CCMN/PUCET (PG)2020/JAM 2020/CUCET 2020/SET		
Ph.D. (Full/Part Time)	SET V	05 July, 2020	11.00-13.00 Hours

2.2 Pattern of Examination

For SET I, SET IA & SET III, there will be only one paper of two & half hours duration and of 150 marks. For SET V, the paper shall be of two hours duration and of 100 marks.

The syllabi and distribution of marks for SET I, SET IA & SET III and SET-V are given in the Chapter III, IV and VII respectively and all the syllabi are given therein.

Note : There will be objective type questions with four options having single correct answer. ***For each incorrect response, one fourth (1/4th) of the total marks allotted to the question would be deducted for SET-I, SET-IA and SET-III. There shall be NO NEGATIVE marking for SET-V (Ph.D. Programmes).*** No deduction of marks will be made in case of no response is indicated for a question in the OMR Answer Sheet.

2.3. Application Fee

Process of registration shall be **ONLINE** only.

Online Application Fee

General and Other Categories (Boys)	: Rs.1750/-*
General and Other Categories (Girls)	: Rs.1250/-*
SC/ST Categories (Boys & Girls)	: Rs.1000/-*

Mode of payment

E-Challan/Net-banking/Debit Card/Credit Card ***18% GST & Bank charges Extra**

2.4 Examination Centres of SET-2020: (Numbers before the name of the city in following table indicate centre code)

CODE	NAME	CODE	NAME	CODE	NAME	CODE	NAME
01	Amritsar	11	Gandhinagar	21	Jammu	31	Nagpur
02	Bangaluru	12	Gangtok	22	Kolkata	32	Patiala
03	Bathinda	13	Gorakhpur	23	Kurukshetra	33	Patna
04	Bhagalpur	14	Guwahati	24	Longowal	34	Ranchi
05	Bhopal	15	Hamirpur	25	Lucknow	35	Shillong
06	Chandigarh	16	Hisar	26	Ludhiana	36	Shimla
07	Chennai	17	Hyderabad	27	Mandi	37	Trivandrum
08	Darbhanga	18	Imphal	28	Meerut	38	Varanasi
09	Dehradun	19	Jaipur	29	Mumbai		
10	Delhi	20	Jalandhar	30	Muzzaffarpur		

***Note:** Director, SLIET/Chairman, SET reserves the right to scrap any centre and allot any other centre to the candidates without assigning any reason.*

2.5. Admit Cards

Admit Card can be downloaded from Institute website **www.sliet.ac.in**. All the candidates are required to take a printout of their Admit Cards from the respective login *after* ***25.05.2020***. In case of any difficulty in printing /downloading the Admit Card, the candidate should contact / inform the issuing authority immediately but not later *than* ***29.05.2020***. The form/roll number is the prime means for locating the application and it should always be quoted in all correspondence and enquiries. No candidate will be permitted to enter the examination hall without a valid admit card. The admit card meant for candidate should be preserved carefully.

2.6. Merit List

- All admissions will be made purely on merit determined for admission. In case of tie among two or more candidates, elder candidate in age as per the relevant entry in the matriculation certificate shall be placed higher in merit. Again, if there is tie in age (date of birth), candidate having higher marks in qualifying examination shall be placed higher in merit. Wrong filling of Date of Birth in Application Form will lead to disqualification of candidature.
- A candidate has to obtain a minimum marks in SLIET Entrance Test for inclusion in the merit list. Candidates who fail to appear in Entrance test SET-2020 will not be included in the merit list.
- **For admission in ICD programme**, a common merit list for each programme shall be prepared and the candidate will be allotted trade/branch/specialization as per his/her merit in order of choices and the availability of seats.
- **For admission in ICD (2nd Year) under lateral entry, candidate has to appear in test.**
- **For admission to B.E. Programme**
    - **B.E. Programme (4 Year):** Admission to B.E. will be based on JEE (Main)-2020 and counseling through CSAB/JoSAA-2020. For Institute spot admission CSAB/JoSAA-2020 schedule will be followed. Please refer Institute website **www.sliet.ac.in** from time to time.
    - **B.E.(Lateral Entry) :** Merit list will be prepared in three broad categories separately i.e. **Group A –** Electronics / Computer/Instrumentation **Group B –** Mechanical, **Group C** – Chemical & Food as mentioned in **Table 4.2**. The Candidate who qualifies in SLIET Entrance Test (SET III) will be admitted in the same Group in which he/she has appeared and qualified.
- **For admission to M.Tech. programme** It will be through Centralized Counseling for M. Tech. / M. Plan (CCMT-2020) in NITs and CFTIs to be conducted by **MNIT, Jaipur** for the session 2020-21 (***website:*** **www.ccmt.nic.in**). For spot admission CCMT-2020 schedule will be followed. Refer Institute website www.sliet.ac.in from time to time.

For admission to M.Sc. programmes, Admission to M.Sc. will be through CCMN-2020. The candidates will also be considered based on PU-CET (PG)-2020 Panjab University, Chandigarh, CUCET or JAM. There shall be a minimum cut off marks for admission to M.Sc. Programmes. Candidate will be admitted in the same discipline in which he/she has applied and appeared and qualified. For Admission/counseling schedule follow Institute website www.sliet.ac.in.

For admission to Ph.D. programmes:

Admission to the Ph.D. programmes will be based on **TWO STAGE PROCESS** as per UGC guidelines through:

(i) An **ENTRANCE TEST (SET-V)** shall be **QUALIFYING** with qualifying marks as 50% (45% for SC/ST/PWD/OBC NCL). The syllabus of the Entrance Test shall consist of 50% of research methodology and 50% shall be subject specific. The Entrance Test shall be conducted at **SLIET, Longowal only.**

(ii) An **INTERVIEW** wherein the candidates are required to discuss their research interest/area through a presentation before a duly constituted Department Research Committee. The interview/viva voce shall also consider the following aspects, viz. whether:

- the candidate possesses the competence for the proposed research;
- the research work can be suitably undertaken at the institution;
- the proposed area of research can contribute to new/additional knowledge.

The lists of qualified candidates as per their rank/merit will be displayed on the notice board of the Institute. **Result will also be available on Institute Website : www.sliet.ac.in**

2.7. Counseling and Document Verification

There will be **ONLINE COUNSELLING** for all the programmes (except for PG and Ph.D.). The exact schedule of ONLINE COUNSELLING, document verification and submission of admission fee will be displayed on the Institute website **www.sliet.ac.in**. After provisional allotment of seat, the candidate is required to report for document verification and depositing the balance admission fees (if any) at SLIET Campus, Longowal. The seat allotted provisionally will be cancelled if the candidate fails to get the documents verified and fee deposited during the prescribed period. **No separate Call Letters will be sent to the candidates for Counseling/Document Verification/Deposit of Admission Fee.** However, if a candidate fails to participate in counseling in time due to any reason, he/she may appear in the next available counseling. Such candidates will have to keep track of the next available counseling schedule which will be displayed on Institute website and participate therein without waiting for any intimation in this regard. His/her claim in such subsequent counseling in which he/she may participate be considered in accordance with his/her merit/choice and availability of seats in a particular trade/ branch/specialization. Candidate will be required to submit academic copy of fee deposit receipt and obtain a Final Seat Allotment Card after document verification and fee deposit to complete the admission process. **The steps to be followed for ONLINE COUNSELLING and eligibility conditions for participating in each round of Counseling will be made available before the start of ONLINE COUNSELLING at www.sliet.ac.in.**

For Ph.D. programmes OFFLINE counseling will take place on July 23, 2020 and qualified candidates has to appear personally on the day of counseling and bring original documents mandatory for the admission, which will be displayed on website at time of declaration of result.

2.8. Medium of Examination:

The medium of entrance examination for SET-IA, SET-III and SET-V will be English. However, for candidates appearing in the entrance test for 3 Year ICD Program (SET-I), question paper for Physics, Chemistry & Mathematics will be provided in English, Hindi & Punjabi language as per choice of the candidate filled in the application form at the time of registration.

2.9 RULES OF RESERVATION APPLICABLE TO ALL ADMISSIONS

2.9.1 Reservation* of Seats:

i) The distribution of seats and admission procedure for Direct Entry seats and Vertical Entry seats is given in Chapter III & IV for 3 year ICD Programme & B.E. Programme respectively.

Note: The procedure for vertical promotion shall be as per policy framed by Institute from time to time

ii) **Seats to which reservation apply:** There shall be no reservation (SC / ST / OBC / PH) in case of admission by vertical promotion from certificate course to diploma course and diploma course to B.E. (Lateral Entry) course. The reservation of seats shall be available only in the direct entry seats meant for admission to ICD/B.E./Post-graduate/Ph.D. programmes.

iii) Extent of Reservation: The extent of reservation will be as under:-

a) For Scheduled Caste (SC) **15%**

b) For Scheduled Tribes (ST) **7.5%**

c) For Physically Handicapped (PH) **5%** (within respective category including General Category)

d) For Other Backward Classes (OBC) **27%**

[OBC reservation will be available to non-creamy layer only. The details of non-creamy layer will be as per the stipulations set out hereunder at 2.9.3 (v)].

e) EWS reservation **5%**

f) Few seats are available to NRI/Foreign Nationals in UG/PG programmes under DASA scheme. No vertical promotion system is available to the students admitted under NRI Category.

g) Students admitted in 2nd year of ICD programme through SET-IA shall not be considered for promotion to the higher module under the vertical promotion scheme of the institute.

***Reservation will be as per latest guidelines issued by the Government of India from time to time.**

2.9.2. Territorial Quota

Seats meant for 3 Year ICD(SET-I) courses are bifurcated for the candidates of the State of Punjab and for the candidates belonging to other States, respectively in the following proportion:

3-Year ICD (Integrated Certificate Diploma) Programme	
Quota for Punjab State (excluding Chandigarh)	75%
Quota for Other States and U.T. (including Chandigarh)	25%

NOTE: THERE SHALL BE NO TERRITORIAL RESERVATION FOR ADMISSION TO SET-IA, B.E., POST-GRADUATION (M. Tech, M.Sc.) AND Ph.D. PROGRAMMES. ALSO, THERE SHALL BE NO TERRITORIAL RESERVATION FOR VERTICAL ENTRY SEATS.

2.9.3. Procedure for reservation

i) Candidate passing qualifying examination from the Schools/Institutes falling in Punjab (excluding Chandigarh) will be eligible for reservation under Punjab State and all others will be eligible to claim reservation for Other States (including Chandigarh), for admission to 3 year ICD Programmes. Candidates passing qualifying examination from National Open School or as private candidate will be eligible to claim territorial quota on the basis of their domicile.

ii) Seats remaining unfilled in OBC category will be offered to general category, as per instructions of Govt. of India.

iii) The vacant seats in ICD programme under territorial quota of Punjab, will be transferred to other state quota and vice versa to the respective category.

iv) **Eligibility for SC/ST Reservation**: For applying to avail reservation under SC/ST category, the candidates will be required to submit adequate proof / certificate, issued by the competent authority as may be prescribed from time to time in evidence of his/her belonging to respective category.

v) **Eligibility for OBC (Non Creamy Layer) Reservation**: For applying to avail reservation under OBC category, the candidates will be required to submit adequate proof /certificate, issued by the competent authority as may be prescribed from time to time in evidence of his/her not belonging to creamy layer. The criteria of creamy layer will be applied as may be prescribed by the Govt. of India from time to time. At present, notification issued by the Ministry of Human Resource Development, New Delhi, prescribes that the candidates whose family income does not exceed Rs 8 lacs per annum as per OM No. 36033/1/2013-Estt.(Res) dated 13 September, 2017 (the amount will be governed by latest guidelines of Govt. of India) and do not fall within the category of creamy layer.

The above proof/certificate should pertain to the financial year 2019-20 and certificate issued on or after 01.04.2020 in the given format (Appendix-III) will be considered.

vi) For claiming seats reserved for Physically Handicapped candidates, the minimum Degree of disability should be 40%. Seats falling to the share of Physically Handicapped candidates in various branches are interchangeable depending upon the availability/suitability of candidates. However, in any branch (as well as in the total seats meant for direct entry) number of seats will not exceed the prescribed quota of 5%. To claim reservation under Physically Handicapped category, the candidate is required to submit a certificate from the Chief Medical Officer of the district concerned clearly mentioning about the extent/degree of disability. The admission to this category will be governed by the rules of Govt. of India, applicable from time to time. The decision of admission committee, regarding the suitability of a candidate for a particular branch for claiming reservation under this category, shall be final and binding on the candidates.

vii) The seats remaining vacant in any branch due to non availability/suitability of eligible candidates belonging to physically handicapped category will be shifted to the respective main category in that branch.

viii) A candidate seeking admission against any reserved seat/ territorial quota if fails to get admission against the said reserved seat/quota for any reason, may immediately apply to the Chairman SET for consideration of his claim for admission in non-reserved category/quota. For considering the said claim, however, no separate call letter shall be issued to such candidates and he/she will have to appear in the counseling for filling up the seats other than reserved seats/quota at his/her own responsibility. The claim of such candidate shall be considered in order of his/her merit and choice of trade/branch/specialization as well as availability of seats in the said trade/branch/specialization in the unreserved category/quota aforesaid.

ix) Director, SLIET reserves the right to transfer the unfilled seats of one quota/category to another quota/category as per existing rules/norms.

Note: Being Centrally Funded Technical Institute, candidates would be considered for reservation and other benefits under SC/ST/OBC quota as per the guidelines issued/list published by Government of India for the purpose. In qualifying examinations, where applicable, 5% relaxation in percentage will be given to SC/ST/OBC/PH candidates

2.10 THE FOLLOWING CONDITIONS SHALL APPLY FOR ADMISSION TO THE CONCERNED PROGRAMME:

(a) During counseling, the candidates shall be admitted **PROVISIONALLY** in all the programmes subject to verification of result and eligibility on the last day of submission of documents i.e. **15.09.2020**. Candidates must ensure their eligibility for the programme in which they are getting admission. The admission shall be liable to be cancelled due to non-fulfillment of requisite qualification at any stage.

(b) Semester system will be followed for all the Programmes.

(c) The medium of instructions is English for all the Programmes.

(d) It is expected that the applicants will have good general physique with normal vision and hearing. In case of defective vision, it must be corrected to 6/9 in both eyes or 6/6 in the better eye. Defective hearing should also be corrected. There should not be any abnormality in heart and lungs and history of mental disease /chronic disease and epileptic fits. The candidate must attach a medical certificate (Appendix-V) of fitness from a Govt. Doctor not below the rank of A.M.O.

(e) Scholarships are provided to the meritorious candidates as per norms of Government of India notified from time to time.

(f) Tuition Fee Waiver (TFW) Scheme of AICTE, New Delhi shall be applicable in all Diploma(3 Year) & B.E. Courses only to the meritorious candidates as per norms of the scheme notified from time to time. Candidates must produce income certificate as applicable to the scheme and issued on or after 01.04.2020.

(g) Post-matric scholarship

- The students belonging to Schedule Caste Category (other than Punjab) and Scheduled Tribes/Other Backward Class category belonging to other states eligible under Post Matric Scholarship scheme will be charged normal fee at the time of admission. Reimbursement of fee of eligible students will be as per existing practice being followed by the institute.
- No tuition fee and other non-refundable charges will be charged from the students belonging to Schedule Caste category of Punjab domicile who are eligible under the Post Matric Scholarship Scheme at the time of admission. Candidates must produce income certificate as applicable to the scheme and issued on or after 01.04.2020.
- All the students belonging to SC category of Punjab Domicile eligible under Post-Matric Scholarship Scheme are required to submit the following documents at the time of admission/Counseling
  - (i) Caste Certificate
  - (ii) Domicile Certificate of Punjab State
  - (iii) Income Certificate issued by competent authority
  - (iv) UID/Aadhaar Card
  - (v) Bank Account in the name of student.
  - (vi) It will be the responsibility of the candidate to apply online and submit the documents to avail the respective scheme

(h) There shall be a minimum number of students to run the course.

(i) Request for re-evaluation of the answer sheets will not be entertained.
(j) There will be a cutoff mark for all type of tests conducted by SLIET through SET.

2.11 FEE STRUCTURE FOR ACADEMIC YEAR 2020-21

INSITUTE FEES		ICD (3 Year)	B.E.	PG (M. Tech.)	PG (M.Sc.)
A. REFUNDABLE CAUTION MONEY: (WITHOUT ANY INTEREST) To be paid at the time of admission	Caution Money Institute/Hostel	5000	5000	5000	5000
	Total (A)	**5000**	**5000**	**5000**	**5000**
B. NON REFUNDABLE FEES (To be paid at the time of admission)	Admission Related Fee	1000	2000	2000	2000
	Students Activity Related Fee	4000	10000	7000	7000
	Library Related Fee	600	2000	2000	2000
	Total (B)	**5600**	**14000**	**11000**	**11000**
C. OTHER FEE PER SEMESTER (Non-Refundable)	Development Fee	1500	3000	3000	3000
	Tuition Fee	6000	25000	15000	11000
	Other Charges	1400	3000	3000	4000
	Total (C)	**8900**	**31000**	**21000**	**18000**
(i)Grand Total (A+B+C) (in ₹)		**19500**	**50000**	**37000**	**34000**

HOSTEL FEES *		ICD (3 Year)	B.E.	PG (M. Tech.)	PG (M.Sc.)
D. REFUNDABLE CAUTION MONEY: (WITHOUT ANY INTEREST) To be paid at the time of admission		10000	10000	10000	10000
Hostel Fee Per Semester (Non Refundable)	Single Occupancy** (E)	N.A.	4500	4500	4500
	Multiple Occupancy(F)	2500	3500	3500	3500
(ii) Total (D+E)	**Single Occupancy**	**N.A.**	**14500**	**14500**	**14500**
(iii) Total (D+F)	**Multiple Occupancy**	**12500**	**13500**	**13500**	**13500**

(i+ii) Grand Total	**Single Occupancy**	**N.A.**	**64500**	**51500**	**48500**
(i+iii) Grand Total	**Multiple Occupancy**	**32000**	**63500**	**50500**	**47500**

* Applicable to those students only who opt to reside in hostels.

**Only for Pre-Final year or Final year students subject to availability of rooms in the hostel.

The fee for SC category candidates of Punjab State shall be charged as applicable under Dr. Ambedkar Scholarship scheme (PMS) of Punjab Government (or any other latest guidelines from Govt. of Punjab) subject to submission of relevant documents.

For NRI candidates the fee shall be charged as follows:

Name of Program	Tuition fee	Other charges
ICD	US$ 1750 per annum (US$ 900 per annum for SAARC countries)	US$ 550 per annum
B.E./M.Tech.	US$ 7700 per annum(US$ 4000 per annum for SAARC countries) or as applicable for candidates admitted under DASA	US$ 1100 per annum

The fee structure may be revised from time to time with the approval of competent authority.

Note: Amount for Group Insurance Scheme (GIS) is to be paid annually by each student as decided by the Institute at the time of admission.

2.12 WITHDRAWAL FROM ADMISSION and REFUND OF FEE

Withdrawal: The candidate has to make a written request to the **Chairman, SET-2020** in the prescribed performa available in SET office for the withdrawal of his/her admission and get the same approved.

Refund of Fee: After approval of withdrawal of admission from **Chairman, SET-2020**, the candidate is required to obtain blank Performa of "No Dues Certificate" from the Academic Section of the Institute. After getting "No Due Certificate" completed from all the Departments/Sections concerned of the Institute, this is to be submitted in **Original** in Accounts Section with a copy in academic section. **No refund will be initiated in case of incomplete "No Dues Certificate". The refund will be made as per Institute norms.**

Note: ***In case, the admission is withdrawn before the start of academic session/classes, then there is no need to submit "No Dues Certificate" for refund of fee.***

2.13 LEGAL JURISDICTION

All disputes pertaining to the counseling and admission for all ICD/B.E./Post-Graduate(M.Tech./M.Sc.) and Ph.D. Programmes of SLIET, Longowal shall fall within the jurisdiction of Sangrur (Punjab) only.

2.14 WOMEN SAFETY

UGC notification dated 02nd May, 2016 (Prevention, Prohibition and redressal of sexual harassment of women employees and students in higher educational institutions) Regulation 2015 shall be applicable in the institute.

2.15 ANTI RAGGING

AICTE notification dated 01st July, 2009 (Prevention and prohibition of Ragging in technical Institutions, Universities including Deemed-to-be-Universities imparting technical education.) & amendments shall be applicable in the institute.

2.16 DISCLAIMER

The statement made in the information brochure and all other information contained herein is believed to be correct at the time of publication. However, the Institute reserves the right to make changes at any time without notice, in and additions to the regulations, conditions governing the admission, requirements, seats, fees and any other information, or statements contained in this information brochure. No responsibility will be accepted by the Institute for hardship or expenses encountered by candidates / any other person for such changes, additions, omissions or errors, no matter how those are caused.

CHAPTER - III

Three Year ICD (INTEGRATED CERTIFICATE DIPLOMA) PROGRAMME (SET I & SET IA)

The objective of the ICD Programme is to produce technically skilled manpower in appropriate areas.

(a) Eligibility:

(I) For admission to 3 Year ICD Programme, the candidates should have passed their 10th class (Pass in English, Mathematics and Science is compulsory) from a State Education Board/CBSE/ICSE/ National Open School or an equivalent examination recognized/approved by MHRD, Government of India. Those who are appearing in matriculation examination may also apply subject to producing the result at the time of admission.

(II) For admission to Lateral Entry **ICD (2nd year)** in addition to 10th passed as above, must have passed full time 2 years ITI course/Certificate/10+2 (vocational) in relevant trade with 50% marks (45% for reserved categories) from Govt./Semi Govt Institute along with 2 years industrial experience from Govt./Semi Govt. and Private Industry of repute.

(b) Duration: The duration of the ICD programme is 3 years. However, in case a student is willing to exit after successfully completing 2 years in the prescribed course of study with required credits (earning 96 credits), he/she will be awarded Certificate in the respective course of ICD programme. He/ She will be allowed to exit only after completing all the formalities as per the norms of institute. Further, on completion of the required credits (142 credits) diploma will be awarded after three years.

(c) Disciplines & Seats: Admission is available in the following disciplines of ICD Programmes. ***General principles relating to reservations are given in Section 2.9.***

INTAKE AND DISTRIBUTION OF SEATS FOR 3-Year ICD IN THE ACADEMIC SESSION 2020-21

Sr. No.	Department	Name of Diploma Programme	Intake *	Name of Certificate Programme	Total Seats*
1.	Chemical Engineering	Chemical Technology (DCT)	34	Paper Technology (CPT)	34
2.	Food Engineering and Technology	Food Technology (DFT)	34	Food Processing & Preservation (CFP)	34
3.	Computer Science and Engineering	Computer Science & Engineering (DCS)	68	Data Entry & Word Processing (CDE)	68
4.	Electronics and Communication Engineering	Electronics & Communication Engineering (DEC)	33	Television Mechanic CTV)	16
				Servicing & Maintenance of Electronic Instruments (CSME)	17
5.	Electrical and Instrumentation Engineering	Instrumentation & Process Control (DIN)	33	Servicing & Maintenance of Medical Instruments (CSMM)	33
		Electrical Engineering (DEE)	34	Electrician (CEN)	34
6.	Mechanical Engineering	Mechanical Engineering (DME)	135	Welding (CWG)	27
				Foundry and Forging (CFF)	27
				Tool & Die Technology (CTD)	27
				Auto & Farm Equipment Mechanic (CAF)	27
				Air Conditioning Mechanic (CAC)	27
7.	Civil Engineering**	Civil Engineering(DCE)	34	Building Maintenance	34

Considering different supernumerary schemes of scholarship as per Govt. norms, the number of seats may increase.

*** It is clarified that the institute is not running B.E. course in Civil Engineering at this stage, hence the students admitted in ICD in Civil Engineering shall not be considered for vertical promotion to the B. E. programme in the Institute. However, in case B.E. (Civil Engineering) is started during the coming academic session, the policy of the vertical promotion shall be applicable for ICD (Civil Engineering) students.***

Fifty percent (50%) of the sanctioned strength in 3-Year ICD programme in the respective batch fulfilling the institute Academic norms/criteria shall be promoted in order of merit to higher module in the respective year. Students admitted under NRI category/PWD scheme shall not be considered under 50% quota of promotion.

(d) Territorial Quota:

Seats meant for 3 Year ICD (SET-I) courses are bifurcated for the candidates of the State of Punjab and for the candidates belonging to other States, respectively in the following proportion:

Quota for Punjab State (excluding Chandigarh)	75%
Quota for Other States and U.T. (including Chandigarh)	25%

The detailed conditions to avail territorial quota are given in section 2.9.3. However, admission under SET-IA will be purely on open merit.

(e) Admission Procedure :

1. Admission to all ICD courses shall be made on the basis of All India SLIET Entrance Test (SET-I).
2. Admission to (ICD 2nd year Lateral Entry) shall be through SET-IA test. Candidate shall register himself/herself online.

(f) Entrance Test Schedule:

Test	Date	Time
SET I (ICD)	31st May, 2020	10.00-12.30 Hours
SET IA (ICD) Lateral Entry	31st May, 2020	10.00-12.30 Hours

(g) Fee Structure for 3 Year ICD Programme : Detailed fee structure is given in ***Section 2.11***.

Note: The fee structure may be revised from time to time with the approval of competent authority.

Seats for ICD (lateral entry) based on SET IA in the academic session 2020-21 shall be filled based on the available vacant seats in the respective trade/class.

SYLLABUS OF SLIET ENTRANCE TEST SET I & SET IA FOR ADMISSION TO 3-Year ICD PROGRAMME, 2020

PATTERN OF SET I & SET IA

SLIET Entrance Test SET I & SET IA for admission to ICD Programme will consist of one paper of two & half hours duration. This paper will have 150 objective type questions of 150 marks from English, General Knowledge, Mental Aptitude, Mathematics, Physics & Chemistry.

Note: Answers of all the objective type questions are to be filled in the OMR answer sheet given separately during the Examination. There will be 25% negative marking for wrong answers.

SYLLABUS AND MODEL QUESTIONS

Marks : 150 **Time : 2½ Hours**

ENGLISH, GENERAL KNOWLEDGE, MENTAL APTITUDE

Marks: 20 (20 Questions)

Syllabus: Usage of Tenses; Fill in the Blanks with Prepositions; Active Passive Voice; General Knowledge / Awareness; Aptitude Test

MATHEMATICS

Marks: 50 (50 Questions)

ALGEBRA : Polynomials, GCD and LCM of Polynomials by factorization method. Linear equations in one variable; solution of simultaneous equations. Quadratic equations and their solutions. Law of indices .Arithmetic progression;

TRIGONOMETRY: Trigonometric ratios-sin x, cos x, tan x, cot x, cosec x and sec x for 0^o, 30^o, 45^o, 60^o and 90^o. Trigonometric Identities. Use of Trigonometric tables. Simple problems on heights and distances;

MENSURATION : Perimeter and area of a triangle, square, rectangle, rhombus, trapezium, quadrilateral and circle.
Volume and surface area of cube, right prism, cylinder, cone and sphere.

GEOMETRY : Point, line, collinear points, intersecting and non-intersecting lines in a plane. Family of lines, concurrent lines, distance between two parallel lines. Angle-acute, obtuse and right angles. Triangle, its sides and angles. Similarity of triangles. Congurence of triangles. Pythagoras theorem and its converse. Circle. Diameter and circumference of a circle. Arc and sector of a circle. Chord and segment of a circle. Tangent to a circle. Family of concentric circles. Direct and transverse common tangents. Centroid, and orthocentre.

STATISTICS : Collection and tabulation of statistical data. Graphical representation of statistical data, bar diagram, histograms, pie-charts. Measures of central tendency (mean, median, mode).simple problems on probability.

PHYSICS

Marks : 40 (40 Questions)

Motion : Uniform and non-uniform motion (qualitative idea only), displacement, speed and velocity, acceleration, equations of motion;

Force : Definition, Inertia of a body, balanced and unbalanced forces, relationship between force, acceleration and mass of an object, action and reaction of forces;

Gravitation : Laws of gravitation, acceleration due to gravity;

Work : Work done by a force, relation between work and energy, kinetic energy and potential energy;

Wave Motion : Nature of wave, propagation of a wave through a medium, type of waves; longitudinal, transverse, simple harmonic motion (graphical representation), amplitude of wave, relationship between wave length, frequency and velocity of wave.

Light : Perception of energy carried by light waves, human eye structure and function of human eye, focal length of eye-lens, image formation on the retina, perception of color-composition of white light.

Heat : Mechanical work and heat, heat and temperature, measurement of temperature, specific heat, thermal expansion, change of state, idea of latent heat, idea about relative humidity.

Electricity : Conductors and resistors, measurement of current, potential difference and resistance. Heating effect of electric current, quantitative relationship between heat, current, resistance and time of flow of current, electric appliances based on heating effect of current, measurement of electric energy, units of electric power and energy;

Magnetic effects of Electric Current : Magnetic field of a current carrying conductor, coil and solenoid, electric motor & its applications, Electromagnetic induction.

Reference Book : Science: for Class-IX and X, Published by NCERT.

CHEMISTRY

Marks: 40 (40 Questions)

Matter-Nature and Behaviour : Nature and behaviour of different types of substances, elements, compounds and their mixtures, structure of matter, atomic theory, molecules and atom; Structure of atom-electrons, protons and neutrons; composition of nucleus-atomic number and mass number, distribution of electrons in different energy levels in an atoms, valence electrons and valency.

Atomic Mass and Molecular Mass: Mole concept; percentage composition of compounds.

Physical and Chemical Changes: Combination, displacement, decomposition, slow, fast, exothermic and endothermic reactions, catalyst; chemical equations.

Electrochemical Cell: Construction and working of a simple voltaic cell; lead storage battery and dry cell; electrolysis-movement of ions during electrolysis; Faraday's Laws; electroplating.

Classification of Elements: Periodic Law, periods & groups; General trend in properties of elements in periodic table.

Fuel : Type of fuels, coal; natural fuels, conditions for combustion, heat produced during combustion, combustion of food in living organisms.

Mineral Cycles : Carbon cycle, role of carbon and its compounds, nitrogen cycle, nitrogen fixation, oxygen cycle, oxidation process, water cycle, role of energy in different cycles.

Water : Water a natural resource, origin of life in it, a medium for the activity of the living, a solvent, uses, saturated and unsaturated solution, sea water as habitat of organism, salts from sea.

Air : Composition, Atmosphere & its role in radiation, Carbon dioxide and its diverse effects on living organism, role of trees, release of carbon dioxide from fossils, fuels and automobiles, corrosion of metals, damage of historical monuments from acidic gases, effect of metallic particles, asbestos, etc., on living organisms. Carbon monoxide and its ill effects, air pollution and its effects on human beings.

Dependence of Man on Natural Resources : Minerals from earth, metals and non-metals, uses of non-metals.

Carbon and its Compounds : Introduction, allotropes of carbon and their occurrence, structure, related properties and uses; hydrocarbons - their elementary structure, properties and uses; isomerism (elementary idea); simple compounds of carbon, hydrogen and oxygen and their uses; petroleum products; introductory account of synthetic fibres, plastics, rubber, soaps and detergents.

Extraction of Metals : Metals and non-metals (Si, P,S) occurrence, properties and uses; general metallurgical operations for extraction of pure metal (extraction of copper, iron and aluminum). Properties of metals, uses of metals and non- metals; properties of some alloys (brass, gunmetal, German silver, Solder, bronze), uses at home and in industry.

Reference Book : Science-A Text Book for Class IX & X, Published by NCERT.

Sample Objective Type Questions:

Fill the choice of the alternative you think to be correct answer in the OMR answer sheet.

Q.1 The name of the city which is known as a pink city.
(a) Chandigarh (b) Mumbai (c) Jaipur (d) Delhi

Q.2 In a right angled triangle the sides perpendicular to each other are 15 cm and 8 cm. Its perimeter is :
(a) 46 cm (b) 60 cm (c) 120 cm (d) 40 cm

Q.3 The least distance of distinct vision of normal eye is
(a) 30 cm (b) 25 cm (c) 15 cm (d) 20 cm

Q.4 To remove hypermetropia, lens used is
(a) concave (b) convex (c) cylindrical (d) plano-concave

Q.5 Isotopes of an atom have
(a) same mass number (b) different atomic number (c) same atomic number (d) none of the above

Q.6 Chemical name of baking soda is
(a) sodium chloride (b) sodium carbonate (c) sodium bicarbonate (d) none of the above

CHAPTER - IV

[A] B.E. (4 Year) (ADMISSION THROUGH JEE (Main))

4.1 B.E. PROGRAMME (4 Year)

Institute runs B.E. (4 Year) programme in various disciplines of Engineering and Technology.

(a) Eligibility: Candidates are advised to refer to JEE (Main)-2020 website. The eligibility conditions of JEE (Main) -2020 will be applicable.

(b) Duration: The duration of B.E. Programme is 4 years.

(c) Disciplines & Seats: Available disciplines of study and information regarding distribution of seats are given in **Table 4.1.**

Reservation of seats will be as per Govt. of India norms (Refer section 2.9)

Table 4.1 Intake and Distribution of Seats for BE (4-Year) in Academic Session 2020-21

Sr.No	Branch of Engineering	TOTAL SEATS*
1.	Chemical Engineering	28
2.	Food Technology	28
3.	Computer Science & Engineering	56
4.	Electronics & Communication Engineering	28
5.	Instrumentation & Control Engineering	28
6.	Electrical Engineering	29
7.	Mechanical Engineering	70
	Total	**267**

Considering different supernumerary schemes of scholarship as per Govt. norms, the number of seats may increase.

(d) Admission Procedure: Admission will be done through JEE (Main) – 2020. Eligible candidates will fill the application form of JEE (Main) – 2020. Subsequently counseling will be done by JoSAA/CSAB-2020. All candidates are advised to refer to website of JEE (Main) – 2020 ***(www.jeemain.nic.in)*** and CSAB -2020/JoSAA-2020 website for further details.

(e) Fee Structure for B.E. (4 Year.): Detailed fee structure is given in **Section 2.11**.

[B] B.E. (Lateral Entry) (SET III)

4.2 B.E. (Lateral Entry)

Bachelor of Engineering is a continuation of technical expertise acquired in corresponding Diploma programmes and offers an opportunity to Diploma holders to obtain Bachelor Degree in Engineering.

(a) Eligibility: All candidates who have passed Diploma courses in any discipline from SLIET or from any other polytechnic affiliated with any State Board of Technical Education and approved by All India Council for Technical Education (AICTE) securing **55% marks or CGPA 5.5 on 10-point scale or equivalent (50% or CGPA 5.0 on a 10-point scale or equivalent in case of candidates belonging to reserved categories, SC/ST/OBC(Non Creamy Layer)/PH)** are eligible to compete for admission to the appropriate B.E. programmes as given in **Table 4.2**.

Those who are appearing in final examination may also apply.

(b) Duration: The candidates who get admission to B.E. through lateral entry will have to spend 3 Years to complete their course.

(c) Disciplines & Seats: Available disciplines of study and information regarding distribution of seats are given in **Table 4.3.**

General principles relating to reservations are given in Section 2.9.

(d) Admission Procedure: There are two categories of seats in this programme as given in **Table 4.3.**

(i) Vertical Entry Seats (ii) Direct Entry Seats

The admission to both the categories will be based on All India SLIET Entrance Test (SET-III). There will be cutoff marks for admission. The admission procedure to these two categories is as under:-

(i) ***Vertical Entry Seats (Only for SLIET students admitted in ICD-2017):*** There shall be vertical mobility of 50% of the sanctioned strength in each ICD programme of SLIET to B.E. programme. The linkage between Diploma and B.E. modules is illustrated in **Table 4.4.** For vertical promotion from ICD to B.E against these reserved seats, the ICD students shall apply for Entrance Test (SET-III). The students are required to apply through online mode. However, the students admitted under Persons with Disabilities (PWD) and Non Resident Indians (NRI) category will not be eligible for Vertical Entry Seats. A SLIET student will be eligible for admission under this category who had got admission to ICD course in 2017-18 and not earlier and had completed the ICD course in the prescribed period of normal study, i.e. three years and by availing only prescribed number of chances to clear a subject. The admission to these seats will be on the basis of merit of All India SLIET Entrance Test (SET-III) and linkage is shown in **Table 4.4.** In case, any Vertical entry seats remain vacant, it shall be filled by Direct entry category.

(ii) ***Direct Entry Seats (For outside candidates and SLIET students):*** All candidates possessing entry qualification (Diploma) prescribed as per **Table 4.2** are eligible to compete for direct entry seats for various B.E. programmes as per **Table 4.3**. The admission to these seats is on the basis of merit of the All India SLIET Entrance Test (SET-III) conducted by the institute.

(e) Principles of Vertical Admission (from Diploma to B.E. Programme)

Admission to the vertical entry seat in B.E. programme shall be 50% of the sanctioned strength of the students in a particular ICD 2017-18 and not earlier. If a student from promoted candidates do not claim admission in a trade or a seat falls vacant afterwards in a trade, then that seat will be offered to next eligible candidate in order of merit in that trade.

(f) Entrance Test Schedule:

Test	Date	Time
SET-III (B.E. (Lateral Entry))	31st May, 2020	14.30 – 17.00 Hours

NOTE: SLIET STUDENTS OF ICD-2017 BATCH APPEARING FOR SET-III UNDER LATERAL ENTRY SHALL BE ALLOWED TO APPEAR IN SET EXAMINATION AT SLIET, LONGOWAL CENTRE ONLY.

(g) Fee Structure for B.E. Programme : Detailed fee structure is given in Section 2.11

Table 4.2

Engineering Group	Diploma Stream
GROUP-A : Electrical, Electronics & Computer Group For Group-A, admission will be in following courses : 1. Computer Science & Engineering (GCS) 2. Electronics & Communication Engg. (GEC) 3. Instrumentation & Control Engineering (GIN) 4. Electrical Engineering (GEE)	Information Technology, Computer Science & Technology, Computer Engineering, Hardware Engineering / Technology, Software Engineering /Technology, Bio-Computer Engineering, Instrumentation & Measurement, Instrumentation Biomedical Engineering, Applied Electronics & Instrumentation, Telecommunication Engineering, Microwave Technology, Power Engineering, Electrical & Electronics Engineering, Instrumentation & Control Engineering, Electrical Engineering, Electronics & Communication Engineering, Computer Science & Applications, Instrumentation & Process Control OR Equivalent*
GROUP-B : Mechanical Group For Group-B, admission will be in following courses : Mechanical Engineering (GME)	Material Science & Technology, Metallurgical Engineering, Metallurgy & Materials, Ceramic Engineering & Technology, Industrial Engineering, Automation and Robotics Engineering, Industrial Engineering & Management, Automobile Engineering, Energy Management Technology, Non-conventional Engineering Technology, Manufacturing Engineering, Mechanical Engineering, Foundry Technology, Industrial & Production Engineering, Maintenance & Plant Engineering, Welding Technology OR Equivalent*.
GROUP-C : Chemical & Food Group For Group-C, admission will be in following courses : 1. Chemical Engineering (GCT) 2. Food Technology (GFT)	Petroleum, Petrochemical, Biotechnology, Food Technology, Biochemical Engineering, Pulp and Paper Technology, Sugar Technology, Leather Technology, Plastics & Rubber Technology, Polymer Engineering, Polymer-science & Rubber Technology, Oil Technology, Paint Technology, Food Engineering, Agricultural Engineering, Agricultural & Food Engineering, Food Processing, Chemical Engineering & Technology OR Equivalent*.

The decision of Admission Committee regarding equivalency shall be final and binding upon the candidate.

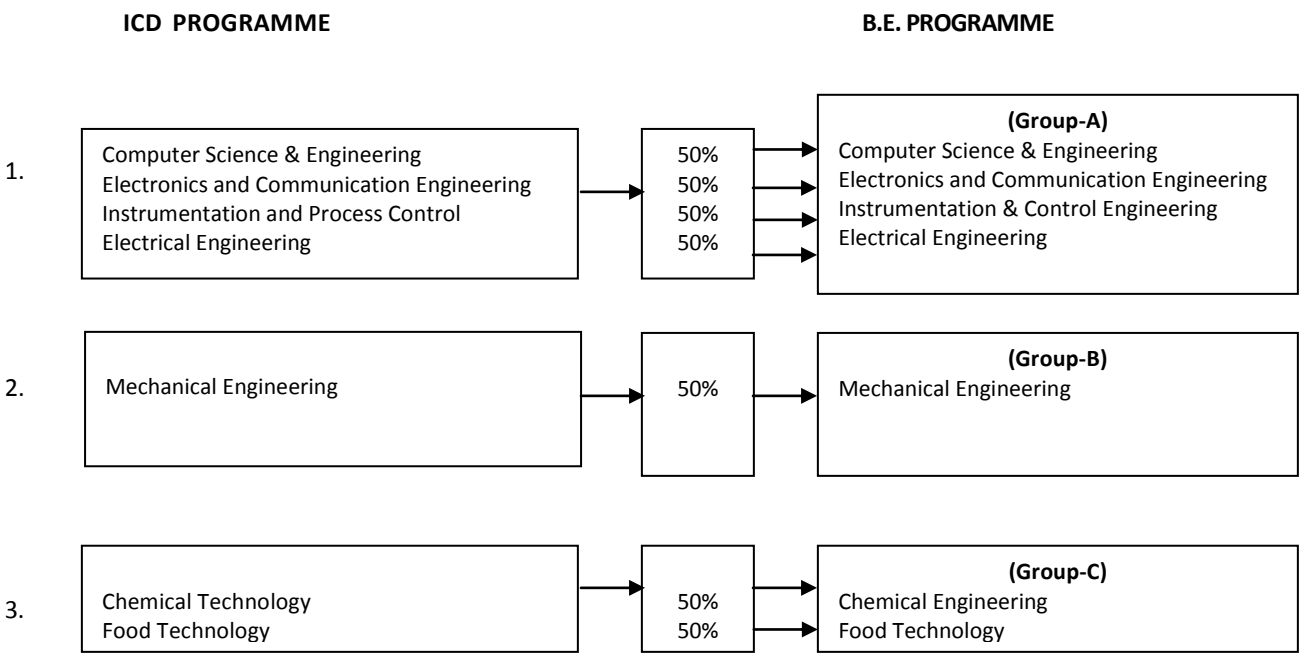
TABLE 4.3: Distribution of Seats (SET-III) for B.E. (Lateral Entry) for the Academic Session 2020-21

Sr. No.	Discipline	Seats Available	Seats for Vertical Entry* ICD-2017	Seats for Direct Entry*
1.	Chemical Engineering **(GCT)**	45	30	15
2.	Food Technology **(GFT)**	51	30	21
3.	Computer Science & Engineering **(GCS)**	77	60	17
4.	Electronics & Communication Engineering **(GEC)**	43	30	13
5.	Instrumentation & Control Engineering **(GIN)**	42	30	12
6.	Electrical Engineering **(GEE)**	40	30	10
7.	Mechanical Engineering **(GME)**	104	75	29
	TOTAL	**402**	**285**	**117**

Considering different supernumerary schemes of scholarship as per Govt. norms, the number of seats may increase.

Note: The vacant seats which were left through JEE main-2019 have also been included in the above table.

TABLE 4.4: Linkage between various Diploma and B.E. Programmes for Academic Session 2020-21 (Vertical Entry)



SYLLABUS OF SLIET ENTRANCE TEST (SET III)
FOR ADMISSION TO B.E. (Lateral Entry), 2020

PATTERN OF SET III

SLIET Entrance Test (SET-III) for admission to B.E. (Lateral Entry) will consist of one paper of two and half hours duration. This paper will have 150 objective type questions of 150 marks from English, General Knowledge, Mental Aptitude, Mathematics, Physics, Chemistry and Basics of Engineering (**appropriate group**).

Note: ***Answers of the objective type questions are to be filled in the OMR answer sheet given separately during the Examination. There will be 25% negative marking for wrong answers.***

SYLLABUS AND MODEL QUESTIONS

Marks: 150 **Time: 2½ Hours**

GENERAL KNOWLEDGE, MENTAL APTITUDE & ENGLISH

Marks: 20 (20 Questions)

Syllabus :

The paper will include questions covering the following topics:-

1. General Science
2. Current events of National and International importance
3. History of India
4. Indian Politics and Economy
5. Indian National Movement
6. General Mental ability
7. Idioms/Phrases
8. Usage of Tenses
9. Change the form of Narration
10. Fill in the blanks with suitable words.

MATHEMATICS

Marks: 20 (20 Questions)

Algebra : Solution of quadratic equations, relationship between their roots and coefficients. Equations reducible to quadratic equation. Symmetric Functions of roots. Formation of a quadratic equation with given roots. Arithmetic progression, Geometric progression and Arithmetico-Geometric series. Series of natural numbers ($\sum n$, $\sum n^2$, $\sum n^3$). Mathematical induction. Permutations and Combinations. Binomial theorem for any index.

Trigonometry : Trigonometric Identities. Addition and Subtraction formulae. Transformation of product into sum or difference and vice-versa. T-ratios of multiple and sub-multiple angles. Heights and distances. Solution of Trigonometric Equations. Inverse trigonometric functions and their properties.

Coordinate Geometry : Rectangular Cartesian coordinates. Distance between two points. Section formulae. Locus of a point. Equation of a straight line in various forms. Angle between two given lines. Condition for two lines to be parallel or perpendicular. Distance of a point from a line. Line through point of intersection of two given lines. Concurrency of lines. Equation of a circle in various forms. Intersection of a circle with a straight line. Intersection of two circles. Equations of the parabola, ellipse and hyperbola in the standard forms.

Three dimensional Geometry : Cartesian co-ordinate system, Distance formula, Section formula, Direction ratios and direction cosines, Equation of a plane, Equations of a Straight line.

Calculus : Function, its domain and range. Limit, continuity and differentiability of a function. Derivative of sum, difference, product and quotient of two functions. Derivative of algebraic, trigonometric, exponential, logarithmic, hyperbolic and Inverse trigonometric functions. Chain rule. Derivative of functions expressed in implicit and parametric forms. Maxima & Minima. Equation of tangent and normal. Integration as the inverse process of differentiation. Integration by parts, by substitution and by partial fractions. Integration of rational and irrational functions. Definite integral and its application for the determination of area (simple cases).

Differential Equations: Ordinary differential equations of first order and first degree. Solution- variable-separable method, homogeneous differential equations.

Matrices and Determinants: Types of matrices, operations of matrices, elementary operations on matrices, determinants and their properties, Inverse of a matrix, solution of linear equations up to three variables by Cramer's rule and by Matrix method.

CHEMISTRY

Marks: 15 (15 Questions)

Atoms, Molecules and Chemical Arithmetic: Symbols, formulae, oxidation, reduction, oxidation number, balancing of simple chemical equations, mole concept, empirical formulae and molecular formulae.

Chemical families – Periodic Properties: Mendeleev's and Modern periodic tables, classification of elements into s, p, d and f blocks, periodic properties (ionization potential, electron affinity, atomic and ionic radii, oxidation states).

Atomic Structure, Bonding and Molecular Structure: Bohr's theory, brief description of hydrogen spectrum, the wave nature of matter, de-Broglie's theory, Uncertainty principle, Quantum numbers, Pauli's exclusion principle, Hund's rule of maximum multiplicity, shapes of orbitals, electronic configuration of atoms upto atomic no. 30. Types of bonding (ionic, covalent and co-ordinate covalent), Lewis structure, VSEPR theory, Molecular orbital theory and molecular shapes, hybridization (sp, sp^2 and sp^3) and molecular structure, hydrogen bond, metallic bond, Vander Waals forces.

PHYSICS

Marks: 15 (15 Questions)

Description of Motion : Motion in a straight line, uniform motion, speed and velocity, equation of motion in a straight line, position time graph, instantaneous velocity and acceleration, motion in two dimensions, projectile motion, uniform circular motion, torque, angular momentum, conservation of angular momentum, centripetal and centrifugal forces, centre for mass, motion of centre of mass and momentum conservation.

Moment of Inertia: Moment of Inertia (M.I.) of rigid body, radius of gyration, theorem of parallel and perpendicular axes, M.I. of a straight rod, circular ring, circular disc, relation between torque and M.I., kinetic energy, motion of point mass tied to the string to the wound on a cylinder, motion of cylinder rolling without slipping on an inclined plane.

Kinetic Theory of Gasses: Boyle's and Charles's laws, gas equation, gas constant, pressure exerted by gas, kinetic energy of molecules, kinetic interpretation of temperature, derivation of gas laws from kinetic theory of gases.

Electromagnetic Waves, Atomic and Nuclear Physics: Production and properties of e.m. waves, e.m. spectrum, nature and velocity of e.m. waves, propagation of radio waves in earth's atmosphere, photoelectric effect, laws of photoelectric effect, production of x-rays, soft and hard x-rays, uses of x-rays, Radio activity laws, half life and average life for radioactive materials, nuclear fission and fusion.

BASICS OF ENGINEERING

GROUP – A (Electrical, Electronics and Computer Group)

Marks : 80 (80 Questions)

Operating System: Introduction to various operating systems, single user, multiuser, batch processing, time sharing, real time, multiprogramming and multiprocessing systems, distributed computing, resources management, memory management;

System Software: Introduction, system software, application software, compilers, assemblers, loaders, linkers;

Application Development: Algorithms and flowcharts, program writing, debugging and execution, compilation, interpretation, programming using C language, Object Oriented Programming concepts;

Information Technology (IT): Internet and its applications, web browser, E-mail; e-marketing & e-payment

Data management and organization: Introduction to databases, architecture and structure of DBMS, data models;

Introduction to data structure : arrays, linked list, stacks and queues;

Computer Networks: Applications, introduction to OSI and TCP/IP, Networking topologies/technologies;

Latest Technologies: Latest processor and memory configurations and related technologies.

Software Engineering: Software Development Life Cycle, Software metrics, Coding and Testing;

Computer System Architecture: Number system, Boolean Algebra, K-map, Instruction formats, Addressing modes, I/O interfacing, Control unit organization, Pipelining, Cache and main memory, Modes of data transfer.

Electronic Devices: Conductors, semiconductors, insulators, Extrinsic & Intrinsic semiconductors. PN Junction Diode - its V-I characteristics, Rectifiers, filters. BJT - various transistor configurations, their input/output characteristics. FET, MOSFET their construction & characteristics.

Communication: Need & types of modulation (AM, FM, PM). Radio Receivers - TRF & super-heterodyne. Pulse modulation PAM,PCM,, PWM, PPM.

Logic gates - Definition, symbols & truth table of NOR, OR, AND, NAND, EX-OR gates, various Flip Flops (SR, JK, T, D), Registers & Counters.

Operational Amplifier: Introduction, IC 741 pin configuration, inverting & Non inverting amplifiers, Op Amp as an inverter, scale changer, adder, sub-tractor, differentiator, integrator.

Circuit components: Single phase, RMS value, peak to peak value, average value. RL, RC & RLC circuits, RLC resonant circuits, Power & Power factor, power measurement.

DC & AC Bridges: Wheatstone bridge, Maxwell's Bridge, De-Sauty's Bridge, Owen's Bridge, Kelvin's Double Bridge, Hay's Bridge.

Network Theorems: Thevenin's, superposition, Norton, maximum power transfer theorem, reciprocity and Tellegen's theorems.

Electromagnetic & Magnetic circuits: Overview of electrical and magnetic circuit, Analogy between electrical and magnetic circuits, Principle of operation and working of AC & DC machines and Transformers.

Measurement and Instrumentation: Errors in measurement system, Galvanometer, PMMC and Moving iron instruments, DC potentiometers, Multimeter, LED/LCD/Segment Displays, CRO, Basic components of instrumentation system, sensors & transducers, resistive, capacitive & inductive transducers.

Signal Conditioning: A/D and D/A converters, filtering and impedance matching, operational amplifiers.

GROUP – B (Mechanical Group)

Marks : 80 (80 Questions)

Thermal Engineering: Basic concepts, thermodynamic properties: intrinsic and extrinsic, open, closed and isolated systems, heat and work, specific heat, thermal and thermodynamic equilibrium, Zeroth law and first law of thermodynamics, internal energy, entropy, enthalpy. Clausius and Kelvin-Plank statement of second law, different thermodynamic processes like isobaric, isochoric, isothermal, and reversible adiabatic, C.I. engine, S.I. engine, Otto Cycle, Diesel Cycle, Carnot Cycle, Steam Formation: Dry, Wet Steam, Dryness Fraction

Applied Mechanics, Strength of Material and Machine Design: Concept of mechanics and applied mechanics, laws of forces, moments, friction and laws of motion. Stress & strain, concept of load, tensile, compressive, shear stress, torsion, Bending Moments and strains. Columns, Springs, Beams, stress concentration, types of loading, theories of failure, factor of safety, endurance limit, efficiency of riveted and welded joints, keys and its types, stress in shafts, design of shafts (solid and hollow).

Fluid Mechanics: Concept of fluid, fluid mechanics and hydraulics, properties of fluid (viscosity, specific weight, specific volume, specific gravity) with their units. Pascal's law, concept of atmospheric pressure, gauge pressure, absolute pressure, vacuum and differential pressure, Buoyancy, Centre of Buoyancy, Metacentre, Metacentre Height and Application.

Manufacturing Engineering & Management: Introduction and classification of engineering materials, thermal, chemical, electrical and mechanical properties of commonly used engineering materials. Purpose of heat treatment, various heat treatment processes like cyaniding, nitriding, hardening, case hardening, annealing, normalizing, tempering, and their applications. Arc and gas welding processes, pattern materials and pattern allowances used in pattern making, cores, basic foundry processes and powder metallurgy. Different machining operations, principles of operations, cutting tools and machine tools used to carry out turning, milling, drilling, shaping & planning operations. Quality control, control charts, acceptance sampling, TQM. Plant location, layout and line balancing. Types of plant layouts. Inventory control, Inventory classification, and EOQ and ABC analysis.

GROUP – C (Chemical and Food Group)

Marks : 80 (80 Questions)

Chemical Engineering Thermodynamics: Laws of Thermodynamics, Thermodynamic properties ,General Thermodynamic relationship, Application for open/closed systems and reversible/irreversible processes, Raoult's Law, Chemical Reaction Equilibria.

Chemical Reaction Engineering: Molecularity and order of reaction, reaction Kinetics, different type of ideal reactors and their performance equations,

Heat and mass Transfer: Different modes of heat transfer with governing relationships, Fourier's law, Steady state heat transfer through plain and composite slab, cylindrical and spherical surfaces, Natural and forced convection, Radiation heat transfer, Heat transfer equipment's and their industrial applications, Fick's law of diffusion, Mass transfer operations and their applications, Critical moisture content, absorption, equipment for separation and industrial application.

Unit Operations: Calculation of energy required in grinding by Ritinger's law and bond's law, Bernoulli's theorem and different regimes, elementary knowledge of pumps and fluid behavior, Mixing index, Rate of mixing, agitation, constant rate filtration, consent pressure filtration, filter cake compressibility, Centrifuge equipment like cream separator and clarifiers used in dairy industry, Crystallization.

Process Instrumentation: Instruments for temperature, pressure, liquid level, flow and pH measurement.

Environmental Studies: Human population growth and environmental challenge, deforestation, desertification, global warming and climate change, role of individual in environmental conservation, Equitable use of resources, overutilization and wasteful utilization of natural resources, conservation of wildlife and biodiversity, Vehicular pollution, industrial pollution, municipal wastes, noise pollution, introductory ideas of water and air pollution control, Nuclear hazards, water act, air act, forest conservation act.

Food Chemistry and Microbiology: Classification, Physical and chemical properties of carbohydrates, proteins, lipids, type of pigments, vitamins and minerals, morphology, methods of reproduction and type of bacteria and fungi, microbiology of various food products.

Food Process Technology: Milling of cereals and pulses, oil extraction methods, standardization, homogenization and pasteurization of liquid milk, meat and poultry processing, production of alcoholic and non-alcoholic beverages, technology of manufacturing of fruits and vegetables product, different preservation techniques in food.

Food Analysis and Quality Control: Quality attributes, food adulteration and its detection, physico -chemical and mechanical properties of food, sensory evaluation, HACCP, food safety and standards Act.

Objective Type Questions

Fill the choice of the alternative you think to be correct answer in the OMR answer sheet.

Q1. A ball thrown up is caught by the thrower 4s after start. The height to which the ball has risen is (assuming g =10 m/s^2)

(a) 20 m (b) 10m (c) 400m (d) 2m

Q2. What determines the nature of path followed by the particle?

(a) speed (b) velocity (c) acceleration (d) none of these

CHAPTER - V

5.1 M.TECH. PROGRAMME

The objective of M. Tech. programme is continuation of technical expertise acquired in qualifying Degree Programmes. This will offer an opportunity to the candidate to acquire skill to work on R&D and Industry projects.

a) Eligibility:

1) B.Tech. /B.E./B.Sc. (Engg.) Degree from recognized University/Institute in the appropriate branch.

OR

Cleared Section 'B' of the Institution of Engineers (India) in appropriate branch or Grade IETE and has three years of professional experience in reputed organization.

The candidates must have secured at least 60% marks (55% in case of candidates belonging to reserved categories, SC/ST/OBC (Non Creamy Layer)/PH) in aggregate in qualifying degree.

2) Valid GATE score.
3) For appropriate branches at graduate level eligible for admission in various M.Tech. courses, candidates are advised to refer to website of CCMT – 2020.
4) Appropriate branches for admission in various M.Tech. courses are as under :
   i) M. Tech. (Manufacturing Systems Engineering): Candidate should have B.E./B.Tech. Degree in Mechanical Engineering/ Manufacturing Engineering/Production Engineering/Industrial Engineering or equivalent*
   ii) M. Tech. (Welding and Fabrication): Candidate should have B.E./B.Tech. Degree in Mechanical Engineering/ Manufacturing Engineering /Welding Technology/Production Engineering/Industrial Engineering or equivalent*
   iii) M. Tech. (Food Engineering & Technology): Candidate should have B.E./B.Tech. or equivalent in Food Technology /Food Engineering/Agricultural & Food Engineering/Food Processing & Preservation/Food Processing Engineering/Food Processing Technology or equivalent*.
   iv) M. Tech. (Instrumentation & Control Engineering): Candidate should have B.E./B.Tech. Degree in Electrical Engineering/Instrumentation & Control/Electrical and Electronics Engineering/Instrumentation Engineering/ Electronics Engineering/Computer Engineering/Electronics & Instrumentation Engineering/Electronics & Communication Engineering or equivalent*
   v) M. Tech. (Chemical Engineering): Candidate should have B.E./B.Tech. or equivalent in Chemical Engineering/ Chemical Technology/Chemical Engineering (Plastic and Polymer)/Chemical and Polymer Engineering/ Chemical & Alcohol Technology/ Chemical and Bio-Engineering or equivalent*
   vi) M. Tech. (Electronics & Communication Engineering): Candidate should have B.E./B.Tech. Degree in Electronics & Communication Engineering/Electrical and Electronics Engineering/Electronics & Instrumentation Engineering/ Computer Engineering or equivalent*
   vii) M. Tech. (Computer Science & Engineering): Candidate should have B.E./B.Tech. or equivalent Degree in Computer Engineering/Computer Science & Engineering/ Computer Technology/Computer Science/Information Technology/Computer Science and Information Technology/Computer Science and System Engineering/ Computer Engineering & Applications.

NOTE: In addition to above appropriate branches for courses at SLIET, Longowal as mentioned at the CCMT-2020 website are also valid. Eligibility conditions laid down in CCMT-2020 shall also be applicable.

***The decision of Admission Committee regarding equivalency shall be final and binding upon the candidate.**

b) Duration: The duration of M. Tech. programme is 2 years.

c) Disciplines & Seats: Available discipline of study and information regarding the distribution of seats are as given **Table 5.1**. Reservation of seats will be as per Govt. of India rules (Refer section 2.9)

d) Admission Procedure:

(i) Admission to M.Tech. will be through Centralized Counseling for M. Tech. (CCMT-2020). Candidates interested in M.Tech. admission at SLIET should visit CCMT-2020 website.

In case, seats remain vacant in M. Tech. programme after admission through CCMT, the institute will conduct its own Entrance examination at SLIET on the date to be informed later.

The procedure for filling vacant seats in M. Tech. shall be as under:

- ***Preference will be given to the candidates having valid GATE score.***
- ***In case, seats still remain vacant, the candidates appeared in the SET will be considered in order of merit.***

(e) Fee Structure for M.Tech. Programmes (Detailed fee structure is given in Section 2.11) :

- Note 1 : Admission on the basis of GATE does not guarantee the GATE Scholarship. However, scholarship shall be offered as sanctioned by AICTE, New Delhi.

-Note 2 : The scholarship to the admitted students (with GATE) shall be disbursed by AICTE, New Delhi through DBT scheme as per policy of Govt. of India.

TABLE 5.1: Distribution of Seats

Sr. No.	Name of the Department	Name of M.Tech. Programme	Total Seats
1.	Mechanical Engineering	M.Tech. in Manufacturing Systems Engineering **(PG-MSE)**	22
2.	Mechanical Engineering	M.Tech. in Welding and Fabrication **(PG-WLF)**	14
3.	Food Engineering & Technology	M. Tech. in Food Engineering & Technology **(PG-FET)**	20
4.	Computer Science and Engineering	M.Tech. in Computer Science and Engineering **(PG-CSE)**	20
5.	Electrical & Instrumentation Engineering	M.Tech. in Instrumentation and Control Engineering **(PG-ICE)**	13
6.	Chemical Engineering	M.Tech. in Chemical Engineering **(PG-CE)**	14
7.	Electronics & Comm. Engg.	M.Tech. in Electronics & Communication Engineering **(PG-ECE)**	20

- ***There shall be no reservation on territorial basis for admission to M. Tech./P.G. Programmes.***
- ***There shall be a minimum number of students required to run the course as approved by the senate.***

CHAPTER - VI

6.1 M.Sc. Programmes

The focus of various M.Sc. Programmes offered by Science Departments would be to generate post-graduates who are confident of applying their knowledge to practical problems of industry including R&D organizations. The curriculum maintains a balance between basic & applied aspects of the subject concerned to develop analytical skills of the students which shall be helpful in their career option in academic, research & teaching also.

(a) Eligibility:

The eligibility for admission to Master of Science (M.Sc.) Programmes will be **55% marks in aggregate (50% in case of candidates belonging to reserved categories, SC/ST/OBC (Non Creamy Layer)/PH)** in B.Sc. as follows:

(i) **M.Sc. (Physics)** **:** B.Sc. with **Physics** as one of the subject.
(ii) **M.Sc. (Chemistry)** **:** B.Sc. with **Chemistry** as one of the subject.
(iii) **M.Sc. (Mathematics)** **:** B.Sc. with **Mathematics** as one of the subject.

Note: Eligibility conditions laid down in CCMN-2020 for admission in SLIET shall also be applicable.

(b) Duration: The duration of the M.Sc. Programmes is **02** years

(c) Disciplines & Seats: Available disciplines of study and distribution of seats are as under. **Reservation of seats will be as per Govt. of India rules.** (Refer section 2.9)

Sr.No.	Disciplines	Total Seats
1.	M.Sc. in Physics **(PG-PHY)**	25
2.	M.Sc. in Chemistry **(PG-CHY)**	25
3.	M.Sc. in Mathematics **(PG-MATH)**	25

(d) Admission Procedure:

The admission to M.Sc. programmes will be through **CCMN-2020**.

- ***In case, the seats remain vacant the candidates qualifying the JAM-2020/PUCET(PG)-2020/CUCET-2020 will be considered for admission. SLIET may also hold its own entrance examination to fill up the vacant seats at SLIET. The detailed brochure for the same will be uploaded on website separately in due course of time.***

(e) Fee Structure for M.Sc. Programmes (The detailed fee structure is given in Section 2.11) :

**** Minimum number of students to run above programmes shall be as per senate decision.***

CHAPTER – VII

7.1 Ph.D. PROGRAMME (SET-V)

The award of the Ph.D. Degree is in respect of high achievements, independent research and application of scientific knowledge to the solution of scientific and technical problems. The admission to Ph.D. programme (Part Time/Full Time) will be strictly as per institute rules. The admission will be done in the following disciplines:

Sr. No.	Disciplines	Code
1	Chemical Engineering	Ph.D.-CE
2	Chemistry	Ph.D.-CHY
3	Computer Science and Engineering	Ph.D.-CSE
4	Electrical & Instrumentation Engineering	Ph.D.-EIE
5	Electronics & Communication Engineering	Ph.D.-ECE
6	Humanities (English)	Ph.D.-ENG
7	Food Engineering & Technology	Ph.D.-FET
8	Management	Ph.D.-MGT.
9	Mathematics	Ph.D.-MATH
10	Mechanical Engineering	Ph.D.-MECH.
11	Physics	Ph.D.-PHY

The seat matrix (vacancy in various disciplines) shall be displayed on the institute website.

7.2 ELIGIBILITY:

Master's Degree in Engineering/Technology/Science/Humanities/Management with 55% marks (50% for reserved categories, SC/ST/OBC (Non Creamy Layer)/PH) in relevant disciplines ***(MCA degree is not eligible for Ph.D.in CSE).***

(i) Master's Degree holders or a professional degree declared equivalent to the Master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7-point scale (or an equivalent grade in a point scale wherever grading system is followed) or an equivalent degree from a foreign educational Institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions.

(ii) A relaxation of 5% of marks, from 55% to 50%, or an equivalent relaxation of grade, should be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-abled and other categories of candidates as per the decision of the Commission from time to time, or for those who had obtained their Master's degree prior to 19th September, 1991. The eligibility marks of 55% (or an equivalent grade in a point scale wherever grading system is followed) and the relaxation of 5% to the categories mentioned above are permissible based only on the qualifying marks without including the grace mark procedures.

7.3 ADMISSIONS:

Admission to **Ph.D**. **Programmes** is available in following categories:

(i) Full Time (with fellowship)*
(ii) Full Time (without fellowship)
(iii) Part Time

*The student in the Full Time (with fellowship) shall be governed by rules and regulation of MHRD, New Delhi (Reference no. SR/S9/Z-09/2012 dated 21.10.2014 and F.No. 17-2/2014-TS.1 dated 02.03.2015) or any other latest instructions issued by MHRD, GOI from time to time or as the decision taken by the Senate/BOM of the institute.

The guidelines of UGC notification dated 05 May, 2016 shall be applicable to all the candidates.

Reservations will be as per Government of India norms.

7.4 ADMISSION PROCEDURE:

(a) Admission to the Ph.D. programmes will be based on **TWO STAGE PROCESS** through:

(i) An **ENTRANCE TEST (SET-V)** shall be **QUALIFYING** with qualifying marks as 50% (45% for SC/ST/PWD/OBC NCL). The syllabus of the Entrance Test shall consist of 50% of research methodology and 50% shall be subject specific. The Entrance Test shall be conducted at **SLIET only.**

(ii) An **INTERVIEW** wherein the candidates are required to discuss their research interest/area through a presentation before a duly constituted Department Research Committee. The interview/viva voce shall also consider the following aspects, viz. whether:

- the candidate possesses the competence for the proposed research;
- the research work can be suitably undertaken at the institution/College;
- the proposed area of research can contribute to new/additional knowledge.

(b) The candidates who fulfill the conditions of eligibility criteria can apply online by **11.06.2020.**

(c) The eligible candidates who have qualified UGC/CSIR (JRF) NET with fellowship / NET(ASRB) with fellowship / State level eligibility test(SLET/SET) with fellowship/ GATE are **EXEMPTED FROM APPEARING** for the entrance examination, However, they should submit the proof of qualifying the examination. **But, they have to APPLY ONLINE**. These candidates have to appear for the interview.

(d) **MERIT List:** The interview will be applicable to the candidates who qualify SET-V and others who are EXEMPTED **FROM APPEARING** in SET-V as per (c) above. The admission will be given on the basis of the **MERIT LIST** prepared on the basis performance in interview/presentation.

(e) Decision of interview selection panel will be final in respect of suitability of candidate and his/her qualifications for given discipline.

(f) ***The ordinances, rules & regulations for Ph.D. programmes of SLIET, Longowal shall be applicable to all the successful candidates as in force time to time. The guidelines of UGC notification dated 05 May, 2016 and later shall be applicable to all the candidates admitted for academic session 2020-21.***

(g) For admission under **PART-TIME CATEGORY**, it is **MANDATORY** for the candidate to submit the **NOC** from the employer at the time of interview.

7.5 SEATS:

The number of seats shall be displayed on institute website separately. Director, SLIET reserves the rights not to fill the seats if suitable candidates are not found.

7.6 ENTRANCE TEST/ADMISSION SCHEDULE:

Schedule	Date	Time
SET-V (Ph.D.)	05.07.2020	11.00 – 13.00 Hours
Date of Interview	16.07.2020	9.00 a.m. onwards in respective Departments
Result Declaration	20.07.2020	
Counseling for Ph.D.	23.07.2020	9.00 a.m. in PG Cell

The counseling for Ph.D. programmes will be offline and qualified candidates have to appear personally on the day of counseling. The candidates will have to bring original documents for admission. The list of the required documents will be displayed on website at the time of declaration of result.

7.7 FEE STRUCTURE FOR Ph.D. PROGRAMME FOR ACADEMIC YEAR 2020-21:

INSTITUTE FEES		Full Time	Part Time
A. REFUNDABLE CAUTION MONEY: (WITHOUT ANY INTEREST) To be paid at the time of admission	Caution Money Institute/Hostel	5000	5000
	Total (A)	**5000**	**5000**
B. NON REFUNDABLE FEES (To be paid at the time of admission)	Admission Related Fee, Students Activity Related Fee & Library Related Fee	7700	5200
	Total (B)	**7700**	**5200**
C. OTHER FEE PER SEMESTER (Non-Refundable)	Development Fee	1100	600
	Tuition Fee	6600	6600
	Other Charges	1100	600
	Total (C)	**8800**	**7800**
	(i) Grand Total (A+B+C) (in ₹)	**21500**	**18000**

HOSTEL FEES*		Full Time	Part Time
D. REFUNDABLE CAUTION MONEY: (WITHOUT ANY INTEREST) To be paid at the time of admission		10000	10000
Hostel Fee Per Semester (Non Refundable)	Single Occupancy (E)	4500	4500
	Multiple Occupancy(F)	3500	3500
(ii) Total (D+E)	**Single Occupancy**	**14500**	**14500**
(iii) Total (D+F)	**Multiple Occupancy**	**13500**	**13500**

(i+ii) Grand Total	**Single Occupancy**	**36000**	**32500**
(i+iii) Grand Total	**Multiple Occupancy**	**35000**	**31500**

* Applicable to those students only, who opt to reside in hostels.

- The fee structure may be revised from time to time with the approval of competent authority.
- The amount of Group insurance scheme (GIS) is to be paid annually by each student as decided by the institute applicable on the date of admission.

Note: ***Any exemption, in any type of fee shall be as per SLIET Rules & Regulations for award of Ph.D. degree.***

SYLLABUS OF SLIET ENTRANCE TEST (SET-V)
For admission to Ph.D. Programme-2020 [Odd Semester]

SLIET Entrance Test (SET-V) for admission to Ph.D. Programme will consist of one paper of two hours duration. This paper will have 100 objective type questions of 100 marks. ***Note: Answers of the objective type questions are to be filled in the OMR answer sheet given separately during the Examination.***

SYLLABUS

Marks: 100 (100 questions) **Time: 02 Hours**

Ph.D. (Chemical Engineering)

Marks: 100 (100 questions)

Research Methodology (50%)

Research Aptitude, Reasoning, Data interpretation, information technology, people and Environment, Numerical Ability, Numerical Analysis, Statistics, Communication Ability, Higher education system (Governance, Policy and administration)

Subject Paper(50%)

Process Calculations and Thermodynamics: Laws of conservation of mass and energy; use of tie components; recycle, bypass and purge calculations; Degree of freedom analysis. First and Second laws of thermodynamics.First law application to close and open systems. Second law and Entropy, Thermodynamic properties of pure substances: equation of state and departure function, properties of mixtures: partial molar properties, fugacity, excess properties and activity coefficients; phase equilibria: predicting VLE of systems; chemical reaction equilibria.

Fluid Mechanics and Mechanical Operations: Fluid statics, Newtonian and non-Newtonian fluids, Bernoulli equation, Macroscopic friction factors, energy balance, dimensional analysis, shell balances, flow through pipeline systems, flow meters, pumps and compressors, packed and fluidized beds, elementary boundary layer theory, size reduction and size separation; free and hindered settling; centrifuge and cyclones; thickening and classification, filtration, mixing and agitation; conveying of solids.

Heat Transfer: Conduction, convection and radiation, heat transfer coefficients, steady and unsteady heat conduction, boiling, condensation and evaporation; types of heat exchangers, evaporators and their design.

Mass Transfer: Fick's law, molecular diffusion in fluids, mass transfer coefficients, film, penetration and surface renewal theories; momentum, heat and mass transfer analogies; stagewise and continuous contacting and stage efficiencies; HTU & NTU concepts design and operation of equipment for distillation, absorption, leaching, liquid-liquid extraction, drying, humidification, dehumidification and adsorption.

Chemical Reaction Engineering: Theories of reaction rates; kinetics of homogeneous reactions, interpretation of kinetic data, single and multiple reactions in ideal reactors, non-ideal reactors; residence time distribution, single parameter model; non-isothermal reactors; kinetics of heterogeneous catalytic reactions; diffusion effects in catalysis.

Instrumentation and Process Control: Measurement of process variables; sensors, transducers and their dynamics, transfer functions and dynamic responses of simple systems, process reaction curve, controller modes (P, PI, and PID); control valves; analysis of closed loop systems including stability, frequency response and controller tuning, cascade, feed forward control.

Plant Design and Economics: Process design and sizing of chemical engineering equipment such as compressors, heat exchangers, ultistage contactors; principles of process economics and cost estimation including total annualized cost, cost indexes, rate of return, payback period, discounted cash flow, optimization in design.

Chemical Technology: Inorganic chemical industries; sulfuric acid, NaOH, fertilizers (Ammonia, Urea, SSP and TSP); natural products industries (Pulp and Paper, Sugar, Oil, and Fats); petroleum refining and petrochemicals; polymerization industries; polyethylene, polypropylene, PVC and polyester synthetic fibers.

Ph.D. (Chemistry)

Marks: 100 (100 questions)

Research Methodology (50%)

Research Aptitude, Reasoning, Data interpretation, information technology, people and Environment, Numerical Ability, Numerical Analysis, Statistics, Communication Ability, Higher education system (Governance, Policy and administration)

Subject Paper (50%)

Inorganic Chemistry: Chemical periodicity; Structure and bonding in homo-and hetero-nuclear molecules, including shapes of molecules (VSEPR Theory); Concepts of acids and bases, Hard-Soft acid base concept, Non-aqueous solvents; Main group elements and their compounds: Allotropy, synthesis, structure and bonding, industrial importance of the compounds; Transition elements and coordination compounds: structure, bonding theories, spectral and magnetic properties, reaction mechanisms; Inner transition elements: spectral and magnetic properties, redox chemistry, analytical applications; Organo-metallic compounds: synthesis, bonding and structure, and reactivity. Organo-metallics in homogeneous catalysis; Cages and metal clusters; Analytical chemistry-separation, spectroscopic, electro-and thermoanalytical methods; Bioinorganic chemistry: photo-systems, porphyrins, metallo-enzymes, oxygen transport, electron-transfer reactions; nitrogen fixation, metal complexes in medicine; Characterization of inorganic compounds by IR, Raman, NMR, EPR, Mössbauer, UV-vis, NQR, MS, electron spectroscopy and microscopic techniques; Nuclear chemistry: nuclear reactions, fission and fusion, radio analytical techniques and activation analysis.

Physical Chemistry: Basic principles of quantum mechanics: Postulates; operator algebra; exactly-solvable systems: particle-in-a-box, harmonic oscillator and the hydrogen atom, including shapes of atomic orbitals; orbital and spin angular momenta; tunneling; Approximate methods of quantum mechanics: Variational principle; perturbation theory up to second order in energy; applications; Atomic structure and spectroscopy; term symbols; many-electron systems and antisymmetry principle; Chemical bonding in diatomics; elementary concepts of MO and VB theories; Huckel theory for conjugated π-electron systems; Chemical applications of group theory; symmetry elements; point groups; character tables; selection rules; Molecular spectroscopy: Rotational and vibrational spectra of diatomic molecules; electronic spectra; IR and Raman activities–selection rules; basic principles of magnetic resonance; Chemical thermodynamics: Laws, state and path functions and their applications; thermodynamic description of various types of processes; Maxwell's relations; spontaneity and equilibria; temperature and pressure dependence of thermodynamic quantities; Le Chatelier principle; elementary description of phase transitions; phase equilibria and phase rule; thermodynamics of ideal and non-ideal gases, and solutions; Statistical thermodynamics: Boltzmann distribution; kinetic theory of gases; partition functions and their relation to thermodynamic quantities –calculations for model systems; Electrochemistry: Nernst equation, redox systems, electrochemical cells; Debye-Huckel theory; electrolytic conductance –Kohlrausch's law and its applications; ionic equilibria; conductometric and potentiometric titrations; Chemical kinetics: Empirical rate laws and temperature dependence; complex reactions; steady state approximation; determination of reaction mechanisms; collision and transition state theories of rate constants; unimolecular reactions; enzyme kinetics; salt effects; homogeneous catalysis; photochemical reactions; Colloids and surfaces: Stability and properties of colloids; isotherms and surface area; heterogeneous catalysis; Solid state: Crystal structures; Bragg's law and applications; band structure of solids; Polymer chemistry: Molar masses; kinetics of polymerization; Data analysis: Mean and standard deviation; absolute and relative errors; linear regression; co-variance and correlation coefficient.

Organic Chemistry: IUPAC nomenclature of organic molecules including regio-and stereoisomers; Principles of stereochemistry: Configurational and conformational isomerism in acyclic and cyclic compounds; stereogenicity, stereoselectivity, enantioselectivity, diastereoselectivity and asymmetric induction; Aromaticity: Benzenoid and non-benzenoid compounds–generation and reactions; Organic reactive intermediates: Generation, stability and reactivity of carbocations, carbanions, free radicals, carbenes, benzynes and nitrenes; Organic reaction mechanisms involving addition, elimination and substitution

reactions with electrophilic, nucleophilic or radical species. Determination of reaction pathways; Common named reactions and rearrangements –applications in organic synthesis; Organic transformations and reagents: Functional group interconversion including oxidations and reductions; common catalysts and reagents (organic, inorganic, organometallic and enzymatic). Chemo, regio and stereoselective transformations; Concepts in organic synthesis: Retrosynthesis, disconnection, synthons, linear and convergent synthesis, umpolung of reactivity and protecting groups; Asymmetric synthesis: Chiral auxiliaries, methods of asymmetric induction –substrate, reagent and catalyst controlled reactions; determination of enantiomeric and diastereomericexcess; enantio-discrimination. Resolution–optical and kinetic; Pericyclic reactions –electrocyclisation, cycloaddition, sigmatropic rearrangements and other related concerted reactions. Principles and applications of photochemical reactions in organic chemistry; Synthesis and reactivity of common heterocyclic compounds containing one or two heteroatoms (O, N, S); Chemistry of natural products: Carbohydrates, proteins and peptides, fatty acids, nucleic acids, terpenes, steroids and alkaloids. Biogenesis of terpenoids and alkaloids; Structure determination of organic compounds by IR, UV-Vis, 1H& 13C NMR and Mass spectroscopic techniques.

Interdisciplinary topics: Chemistry in nano-science and technology; Catalysis and green chemistry; Medicinal chemistry; Supramolecular chemistry; Environmental chemistry

Ph.D. (Computer Science & Engineering)

Marks: 100 (100 questions)

Research Methodology (50%)

Research Aptitude, Reasoning, Data interpretation, information technology, people and Environment, Numerical Ability, Numerical Analysis, Statistics, Communication Ability, Higher education system (Governance, Policy and administration)

Subject Paper (50%)

Programming Concepts: Programming in C; Functions, Recursion, Parameter passing, Scope, Binding; Abstract data types, Arrays, Stacks, Queues, Linked Lists, Trees, Binary search trees, Binary heaps.

Theory of Computation: Regular languages and finite automata, Context free languages and Push-down automata, Recursively enumerable sets and Turing machines, NP completeness. Distributed Computing, Introduction to Grid and Cloud Computing, Issues of Grid and Cloud Computing.

Digital Logic: Logic functions, Minimization, Design and synthesis of combinational and sequential circuits; Number representation and computer arithmetic (fixed and floating point).

Computer Organization and Architecture: Machine instructions and addressing modes, ALU and data-path, CPU control design, Memory interface, I/O interface (Interrupt and DMA mode), Instruction pipelining, Cache and main memory, Secondary storage.

Algorithms: Analysis, Asymptotic notation, Notion

s of space and time complexity, Worst and average case analysis; Design: Greedy approach, Dynamic programming, Divide-and-conquer; Tree and graph traversals, Connected components, Spanning trees, Shortest paths; Hashing, Sorting, Searching.

Operating System: Processes, Threads, Inter-process communication, Concurrency, Synchronization, Deadlock, CPU scheduling, Memory management and virtual memory, File systems, I/O systems, Protection and security.

Databases: ER-model, Relational models, Database design (integrity constraints, normal forms), Query languages (SQL), Transactions and concurrency control. Data Warehouse environment, Architecture of a data warehouse methodology" analysis, design, construction and administration, Extracting models and patterns from large databases, data mining techniques, regression, clustering, summarization, dependency modeling, link analysis, sequencing analysis, mining scientific and business data.

Computer Networks: LAN technologies (Ethernet, Token ring), Flow and error control techniques, Routing algorithms, Congestion control, TCP/UDP and sockets, Basic concepts of hubs, switches, gateways, and routers. Mobile Ad-hoc Networks, Technologies for Ad-hoc Network, Issues in Ad-hoc wireless Networks, IEEE 802.11 Basic Sensor Network Architectural Elements, Applications of Sensor Networks, Comparison with Wireless Networks, Challenges and Hurdles. Architecture of Wireless Sensor Networks (WSNs), Hardware components

Image Processing: Digital Image Fundamentals, image formation, geometric and photometric models, digitization including sampling, quantization and digital image visual details.

Ph.D. (Electrical and Instrumentation Engineering)

Marks: 100 (100 questions)

Research Methodology (50%)

Research Aptitude, Reasoning, Data interpretation, information technology, people and Environment, Numerical Ability, Numerical Analysis, Statistics, Communication Ability, Higher education system (Governance, Policy and administration)

Subject Paper (50%)

Electrical Technology and Networks: Introduction to electrical systems, DC and AC circuits, basic electrical components, electromagnetism, alternating quantities, AC power, single phase series and parallel circuits, resonance, Comparison between Magnetic and Electric circuits, Electromagnetic Induction, Magnetic Effects of Electric Current, Current carrying conductor in Magnetic field, Law of Electromagnetic Induction, Self-Inductance, Mutual Inductance, Coupling Coefficient between two magnetically coupled Circuits, Transformer: principle, construction, working, efficiency, application. D.C. Generator: principle, construction, working, application, D.C. Motor: principle, construction, working, application. Three phase Induction Motor: principle, construction, working, application. Nodal and mesh analysis, network theorems, superposition. Thevenin, Norton, reciprocity, Millman's, Tellegen's theorems, star-delta transformation, steady state sinusoidal analysis using phasors, Fourier series, linear constant coefficient differential and difference equations; time domain analysis and frequency domain analysis of RLC series and parallel circuits, convolution, 2-port network parameters, driving point and transfer functions, state equation for networks, attenuators (lattice, T-type, P-type, L-type, ladder type, balanced), conventional filters, passive network synthesis (positive real functions, LC network, synthesis of dissipative network, two terminal R-L and R-C network).

Electronics Principles: Characteristics and equivalent circuits (large and small signal) of diodes (pn junction, zener, schottky, varactor), BJT, JFETs, UJT, and MOSFET; clipping, clamping, rectifier; biasing and bias stability of transistor and FET amplifiers, single and multistage coupling, differential, operational, feedback and power. Analysis of amplifiers, frequency response of amplifiers. op-amp circuits, filters, sinusoidal oscillators, criterion of oscillation, function generators and wave-shaping circuits, power supplies, display units.

Power Electronics- Introduction to thyristor family V-I characteristics of SCR, SUS, PUT, SCS, GTO, LASCR. Principle of operation of SCR. Two transistor analogy. Turn on methods of a thyristor Switching characteristics of thyristors during turn-on and turn-off. Gate characteristics. Firing of thyristors. Gate triggering circuits. Series and parallel, operation of SCRs and their triggering circuits. Thyristor specifications; such as latching current and bolding current, dv/dt and di/dt, PTV etc. Protection of SCR from over voltage and over current. Snubber circuits. Power dissipation. Introduction to phase angle control. Single phase half wave controlled rectifiers. Single phase half controlled and fully controlled bridge rectifiers. Three phase fully controlled bridge rectifiers. Effect of resistive, inductive and resistive cum inductive loads. Basic circuit and principle of operation of Dual Converter, circulating current mode and non-circulating current mode of operation. Introduction to inverter. Operating principle and already state analysis of single phase, voltage source, bridge inverter. Modified Mcmurray half-bridge and full bridge inverter. Three phase bridge inverter. Voltage control (PWM control etc.) and reduction of harmonics in the inverter output voltage.

Digital electronics and microprocessors: Number systems and arithmetic (binary, Gray , BCD , Excess-3). Boolean algebra, minimization of Boolean functions, logic gates, IC families, combinational and sequential circuits, sample and hold circuits, ADCs and DACs, semiconductor memories, ALU design, microprocessor (8085), architecture, programming, memory and I/O interfacing chips (8255, 8253, 8251, 8279, 8259), introduction to microprocessor 8086 and microcontroller 8051.

Transducers and Instrumentation: Measurement of voltage, current, power, energy and power factor for Bridges and potentiometers, PMMC moving iron, dynamometer and induction type instruments, instrument transformer, digital voltmeters and multi-meters, phase, time and frequency measurement, Q-meter, oscilloscope, potentiometric recorders, error analysis, transducers-elastic, resistive, inductive, capacitive, thermo-electric, piezo-electric, photo-electric, electro-mechanical, electro-chemical and ultrasonic measurement of displacement, velocity, acceleration, shock, vibration, force, torque, power, strain, stress, pressure, flow, temperature, humidity, viscosity and density.

Control Theory : Basic control system components, block diagram description, signal flow graphs, reduction of block diagrams, input test signals, properties of systems, linearity, time-invariance, stability, open loop and closed loop (feedback) systems, properties of linear time-invariant (LTI) systems, transient and steady state analysis of LTI system and frequency response. LTI control system analysis, root loci, Routh Hurwitz criterion, polar plots, Bode and Nyquist plots, elements of lead and lag compensations, state space representation of systems, state equations, decomposition, direct, cascade and parallel, solution of state equations, Laplace method, Calay-Hamilton method, diagonalization method and Sylvester method. Digital control, Configuration of the basic Digital control scheme, Principles of signal conversion, Basic Discrete-Time signals, Time-Domain Models for Discrete – Time Systems, Transfer function Model, Stability in the Z-Plane & Jury stability criterion, Sampling as

impulse modulation, Sampled spectra & Aliasing, Filtering, Practical aspects of the choice of sampling rate, Principles of Discretization,

Programming concepts: Algorithms, programming in C and C++, data types, console/file input and output, arrays, structures, pointers, functions, command line arguments, passing of parameters from one function to other, concept of OOPs.

Power Systems: Basic power generation concepts; transmission line models and performance; cable performance, insulation; corona and radio interference; distribution systems; per-unit quantities; bus impedance and admittance matrices; load flow; voltage control; power factor correction; economic operation; symmetrical components; fault analysis; principles of over-current, differential and distance protection; solid state relays and digital protection; circuit breakers; system stability concepts, swing curves and equal area criterion, HVDC transmission and FACTS concepts.

Ph.D. (Electronics & Communication Engineering)

Marks: 100 (100 questions)

Research Methodology (50%)

Research Aptitude, Reasoning, Data interpretation, information technology, people and Environment, Numerical Ability, Numerical Analysis, Statistics, Communication Ability, Higher education system (Governance, Policy and administration).

Subject Paper (50%)

Electronic Devices and Circuits: Semiconductor physics, diffusion current, drift current, mobility, and resistivity. Generation and recombination of carriers; p-n junction diode, Zener diode, tunnel diode, BJT, JFET, MOS capacitor, MOSFET, LED, p-i-n and avalanche photo diode, Basics of LASERs. Device technology: integrated circuits fabrication process, oxidation, diffusion, ion implantation, photolithography. Small Signal Equivalent circuits of diodes, BJTs, MOSFETs and analog CMOS. Simple diode circuits, clipping, clamping, rectifier. Biasing and bias stability of transistor and FET amplifiers. Amplifiers: single and multi-stage, differential and operational, feedback, and power. Frequency response of amplifiers. Simple op-amp circuits. Filters. Sinusoidal oscillators; criterion for oscillation; single-transistor and op-amp configurations. Function generators and wave-shaping circuits, 555 Timers. Power supplies.

Digital Systems: Boolean algebra, minimization of Boolean functions; logic gates; digital IC families (DTL, TTL, ECL, MOS, CMOS). Combinatorial circuits: arithmetic circuits, code converters, multiplexers, decoders, PROMs and PLAs. Sequential circuits: latches and flip-flops, counters and shift-registers. Sample and hold circuits, ADCs, DACs. Semiconductor memories. Microprocessor(8085): architecture, programming, memory and I/O interfacing.

Signal Processing: Laplace transform, continuous-time and discrete-time Fourier series, continuous-time and discrete-time Fourier Transform, DFT and FFT, z-transform. Sampling theorem. Linear Time-Invariant (LTI) Systems: definitions and properties; causality, stability, impulse response, convolution, poles and zeros, parallel and cascade structure, frequency response, group delay, phase delay. Signal transmission through LTI systems.

Control Theory: Basic control system components; block diagrammatic description, reduction of block diagrams. Open loop and closed loop (feedback) systems and stability analysis of these systems. Signal flow graphs and their use in determining transfer functions of systems; transient and steady state analysis of LTI control systems and frequency response. Tools and techniques for LTI control system analysis: root loci, Routh-Hurwitz criterion, Bode and Nyquist plots. Control system compensators: elements of lead and lag compensation, elements of Proportional-Integral-Derivative (PID) control. State variable representation and solution of state equation of LTI control systems.

Communication Systems: Random signals and noise: probability, random variables, probability density function, Auto-correlation, power spectral density. Analog communication systems: amplitude and angle modulation and demodulation systems, spectral analysis of these operations, superheterodyne receivers; elements of hardware, realizations of analog communication systems; signal-to-noise ratio (SNR) calculations for amplitude modulation (AM) and frequency modulation (FM) for low noise conditions. Fundamentals of information theory and channel capacity theorem. Digital communication systems: pulse code modulation (PCM), differential pulse code modulation (DPCM), digital modulation schemes: amplitude, phase and frequency shift keying schemes (ASK, PSK, FSK), matched filter receivers, bandwidth consideration and probability of error calculations for these schemes. Basics of TDMA, FDMA and CDMA, wireless and cellular communication, GSM, wireless networks and sensors.

Electromagnetics & Microwaves: Elements of vector calculus: divergence and curl; Gauss' and Stokes' theorems, Maxwell's equations: differential and integral forms. Wave equation, Poynting vector. Plane waves: propagation through various media; reflection and refraction; phase and group velocity; skin depth. Transmission lines: characteristic impedance; impedance transformation; Smith chart; impedance matching; S parameters, pulse excitation. Waveguides: modes in rectangular waveguides; boundary conditions; cut-off frequencies; dispersion relations. Basics of propagation in dielectric waveguide and optical fibers. Strip line structures, Basics of Antennas: Dipole antennas, antenna parameters, microwave components and circuits.

Ph.D. (English)

Marks: 100 (100 questions)

Research Methodology (50%)

Research Aptitude, Reasoning, Data interpretation, information technology, people and Environment, Numerical Ability, Numerical Analysis, Statistics, Communication Ability, Higher education system (Governance, Policy and administration)

Subject Paper (50%)

Literary Critical Theory: Main features and major exponents/works: New Criticism, Stylistics, Structuralism, Deconstruction,Discourse Analysis, Feminism, Post Colonialism, Postmodernism

Study of Language: Study of Language, Speech Mechanism, Vowels, Consonants, ELT

Indian English Literature: Nissim Ezekiel, Kamala Das, A.K. Ramanujan, Mulk Raj Anand, Raja Rao, R.K. Narayan, Bhabani Bhattacharya, Manohar Magonkar, Anita Desai, Arun Joshi, Nayantara Sehgal, Shashi Deshpande, Shobha De, Amitav Ghosh, Kiran Desai, Githa, Hariharan, Girish Karnad, Mahesh Dattani, Vijay Tendulkar, Nirad C. Chaudhary, Khushwant Singh

Drama: British Drama, Greek Drama, Shakespearean Drama, Jacobean Drama, Restoration Drama, Theatre of the Absurd, American Drama, African American Theatre

Poetry: Chaucer, Metaphysical Poetry, Neo Classical Poetry, Romantic Poetry, Victorian Poetry, Post Modernist Poetry, American Poetry.

Fiction: Women Novelists, Victorian Novelists, Early 20th Century Novelists, English Novelists of Post 1950's, American Novelists

Diasporic Literature: V.S. Naipaul, Salman Rushdie, Bharati Mukherjee, Vikram Seth, Rohinton Mistri

Post Colonial Literature: Chinua Achebe, Wole Soyinka, Nadine Gordimer, Michael Ondaatje, Margaret Atwood

Ph.D. (Food Engineering & Technology)

Marks: 100 (100 questions)

Research Methodology (50%)

Research Aptitude, Reasoning, Data interpretation, information technology, people and Environment, Numerical Ability, Numerical Analysis, Statistics, Communication Ability, Higher education system (Governance, Policy and administration)

Subject Paper(50%)

Food Analysis: Texture analysis of foods, Microscopic techniques in food analysis (light microscopy, SEM, TEM, XRD, particle size analysis, image analysis etc.), Thermal methods in food analysis (Differential scanning colorimetry and others), Chromatographic methods in food analysis and separation, Enzymatic methods of food analysis, application of biosensors in food analysis.

Food Quality and Management: Quality attributes- physical, chemical, nutritional, microbial, and sensory; their measurement and evaluation; Total Quality Management; GMP/GHP; GLP, GAP; Sanitary and hygienic practices; HACCP; Indian & International quality systems and standards like Food Safety and Standards Act, 2006, ISO and Food Codex.

Food Engineering: Engineering properties of foods, steady state and unsteady state heat transfer, Mass transfer, Death rate kinetics, thermal process calculations, heat and. mass balance in single effect and multiple effect evaporator, methods to improve steam economy, Drying Rates, theories of drying, Freezing curves, freezing time calculations, membrane separation techniques, centrifugation and fluidization, viscometry and food rheology.

Food Process Technology: Mechanism and application of High Pressure processing, Ultrasonic processing, Microwave and radio frequency processing high intensity light, pulse electric field, ohmic heating, IR heating, inductive heating and hurdle technology in food processing and preservation.

Food Process Equipment Design: Basic Scientific and Engineering principles of equipment design, Riveted and welded joints, corrosion mechanism and corrosion control, Design of vessels and storage tanks.

Bioprocess Engineering: Fundamentals of growth kinetics, Media sterilization, Air Sterilization, Bioreactor fermenter, Aeration and Agitation. Bioprocess instrumentation, Bioprocess modeling and simulation and its application in industrial fermentation, scale-up of fermentation processes.

Ph.D. (Management)

Marks: 100 (100 questions)

Research Methodology (50%)

Research Aptitude, Reasoning, Data interpretation, information technology, people and Environment, Numerical Ability, Numerical Analysis, Statistics, Communication Ability, Higher education system (Governance, Policy and administration)

Subject Paper (50%)

Unit-1: Managerial Economics-Demand Analysis, Production Function, Cost-Output relation, Market Structures, Pricing Theories, Capital Budgeting; The concept and significance of organizational behavior, Personality-Perception-Values-Attitude-Learning & Motivation; Communication-Leadership-Managing Change, Organizational Development, Concepts & perspectives on HRM HRP-Objectives, Process & Techniques, Job Analysis-Selection-Induction-Training & Development, Performance Appraisal & Evaluation, Industrial Relations & Trade Unions, Dispute resolution and Grievance management

Unit-2: Financial Management-Nature & Scope, Capital Budgeting Decisions, Capital Structure & Cost of capital Dividend policy-Determinants, Mergers & Acquisitions, Marketing Information System & marketing research, Demand measurement & Forecasting, Market Segmentation-Targeting & positioning, Product life cycle, Pricing methods & strategies, Marketing Management, Marketing Mix, Customer Relation shift Management, Role & Scope of Production management, Facility Locations- Layout Managing & Analysis, Production Scheduling, Statistical Quality Control

Unit-3: Probability Theory, Probability, Distribution-Binomial, Poisson, Normal, Correlation & Regression Analysis, Sampling Theory & Sampling Distribution, Tests of Hypothesis-t, Z,F, chi-square tests, Concepts of corporate streategy-Ans off's growth vector, BCG Model, Porters generic strategies,Competitive strategy & Corporate Strategy, Competitive advantage of nations,RTP & WTO, Innovation & Entrepreneurship, Concept of Govt. Policy for promotion of small & Tiny Enterprises, Detailed Business Plan Preparation –Managing small industries –sickness in small enterprises

Unit-4: Ethics & Management System, Value based organizations, Ethical pressure on individual in organization Environmental ethics, Social responsibilities of Business, Corporate Governance, Research-Meaning, types, objectives, process survey based research-types of survey-specific-periodic & transaction drivers, Identification of research problem analysis of research problem, Categorization & sampling, Planning a survey Project-resources budget-schedule, Preparation of Questionnaire,-Data Collection analysis & compilation of Survey report.

Ph.D (Mathematics)

Marks: 100 (100 questions)

Research Methodology (50%)

Research Aptitude, Reasoning, Data interpretation, information technology, people and Environment, Numerical Ability, Numerical Analysis, Statistics, Communication Ability, Higher education system (Governance, Policy and administration)

Subject Paper (50%)

Linear Algebra: Finite dimensional vector spaces; Linear transformations and their matrix representations, rank; systems of linear equations, eigen values and eigen vectors, minimal polynomial, Cayley-Hamilton theroem, diagonalisation, Hermitian, Skew-Hermitian and unitary matrices; Finite dimensional inner product spaces, Gram-Schmidt orthonormalization process, self-adjoint operators.

Complex Analysis: Analytic functions, conformal mappings, bilinear transformations; complex integration:Cauchy's integral theorem and formula; Liouville's theorem, maximum modulus principle; Taylor and Laurent's series; residue theorem and applications for evaluating real integrals.

Real Analysis: Sequences and series of functions, uniform convergence, power series, Fourier series, functions of several variables, maxima, minima; Riemann integration, multiple integrals, line, surface and volume integrals, theorems of Green, Stokes and Gauss; metric spaces, completeness, Weierstrass approximation theorem, compactness; Lebesgue measure, measurable functions; Lebesgue integral, Fatou's lemma, dominated convergence theorem.

Ordinary Differential Equations: First order ordinary differential equations, existence and uniqueness theorems, systems of linear first order ordinary differential equations, linear ordinary differential equations of higher order with constant coefficients; linear second order ordinary differential equations with variable coefficients.

Algebra: Fundamental theorem of arithmetic, divisibility in Z, congruence, Chinese Remainder Theorem, Euler's ϕ function, primitive roots. Normal subgroups and homomorphism theorems, automorphisms; Group actions,Sylow's theorems and their applications; Euclidean domains, Principle ideal domainsand unique factorization domains. Prime ideals and maximal ideals in commutative rings; Fields, finite fields.

Functional Analysis: Banach spaces, Hahn-Banach extension theorem, open mapping and closed graph theorems, principle of uniform boundedness; Hilbert spaces, orthonormal bases, Riesz representation theorem, bounded linear operators.

Numerical Analysis: Numerical solution of algebraic and transcendental equations: bisection, secant method, Newton-Raphson method, fixed point iteration; interpolation: error of polynomial interpolation, Lagrange, Newton interpolations; numerical differentiation; numerical integration: Trapezoidal and Simpson rules, Gauss Legendre quadrature, method of undetermined parameters; least square polynomial approximation; numerical solution of systems of linear equations: direct methods (Gauss elimination, LU decomposition); iterative methods (Jacobi and Gauss-Seidel); matrix eigenvalue problems: power method, numerical solution of ordinary differential equations: initial value problems: Taylor series methods, Euler's method, Runge-Kutta methods.

Partial Differential Equations: Linear and quasilinear first order partial differential equations, method of characteristics; second order linear equations in two variables and their classification; Cauchy, Dirichlet and Neumann problems; solutions of Laplace, wave and diffusion equations in two variables; Fourier series and Fourier transform and Laplace transform methods of solutions for the above equations.

Mechanics: Generalized coordinates, Lagrange's equations, Hamilton's canonical equations,Hamilton's Principle and principle of least action, Two dimensional motion of rigid bodies, Euler's dynamical equations for the motion of rigid body about an axis.

Topology: Basic concepts of topology, product topology, connectedness, countability and separation axioms, Urysohn's Lemma. Compactness.

Probability and Statistics: Probability space, conditional probability, Bayes theorem, independence, Random variables, joint and conditional distributions, standard probability distributions and their properties, expectation, conditional expectation, moments, Sampling distributions, Testing of hypotheses, standard parametric test based on normal χ^2 ,t, F-distributions.

Linear programming: Linear programming problem and its formulation, convex sets and their properties, graphical method, basic feasible solution, simplex method, big-M and two phase methods; infeasible and unbounded LPP's, alternate optima; Dual problem and duality theorems, Balanced and unbalanced transportation problems, u -u method for solving transportation problems; Hungarian method for solving assignment problems.

Ph.D. (Mechanical Engineering)

Marks: 100 (100 questions)

Research Methodology (50%)

Research Aptitude, Reasoning, Data interpretation, information technology, people and Environment, Numerical Ability, Numerical Analysis, Statistics, Communication Ability, Higher education system (Governance, Policy and administration)

Subject Paper (50 % of Content)

Engineering Materials: Structure and properties of engineering materials and their applications; effect of strain, strain rate and temperature on mechanical properties of metals and alloys; heat treatment of metals and alloys, its influence on mechanical properties.

Engineering Mechanics: Free body diagrams and equilibrium; trusses and frames; virtual work; kinematics and dynamics of particles and of rigid bodies in plane motion, including impulse and momentum (linear and angular) and energy formulations; impact.

Strength of Materials: Stress and strain, stress-strain relationship and elastic constants, Mohr's circle for plane stress and plane strain, thin cylinders; shear force and bending moment diagrams; bending and shear stresses; deflection of beams; torsion of circular shafts; Euler's theory of columns; strain energy methods; thermal stresses.

Theory of Machines and Design: Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of slider-crank mechanism; gear trains; flywheels.

Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram; *principles* of the design of machine elements such as bolted, riveted and welded joints, shafts, spur gears, rolling and sliding contact bearings, brakes and clutches.

Vibrations: Free and forced vibration of single Degree of freedom systems; effect of damping; vibration isolation; resonance, critical speeds of shafts.

Thermal Engineering: Fluid mechanics - fluid statics, Bernoulli's equation, flow through pipes, equations of continuity and momentum; thermodynamics - zeroth, first and second law of thermodynamics, thermodynamic system and processes, calculation of work and heat for systems and control volumes; air standard cycles; basics of internal combustion engines and steam turbines; heat transfer - fundamentals of conduction, convection and radiation, heat exchangers.

Metal Casting: Casting processes - types and applications; patterns - types and materials; allowances; moulds and cores - materials, making, and testing; casting techniques of cast iron, steels and nonferrous metals and alloys; solidification; design of casting, gating and risering; casting inspection, defects and remedies.

Metal Forming: Stress-strain relations in elastic and plastic deformation; concept of flow stress, deformation mechanisms; hot and cold working - forging, rolling, extrusion, wire and tube drawing; sheet metal working Processes, analysis of rolling, forging, extrusion and wire /rod drawing; metal working defects.

Advanced Welding Processes: Welding processes - manual metal arc, MIG, TIG, plasma arc, submerged arc, electro slag, thermit, resistance, forge, friction, and explosive welding, inspection of welded joints, defects and remedies; - ultrasonic, electron beam, laser beam; thermal cutting.

Machining and Machine Tool Operations: Basic machine tools; machining processes, mechanics of machining ,Merchant's analysis; selection of machining parameters; tool materials, tool wear and tool life, thermal aspects of machining, cutting fluids, machinability; principles and applications of nontraditional machining processes - USM, AJM, WJM, EDM and Wire cut EDM, LBM, EBM, PAM, CHM, ECM.

Metrology and Inspection: Limits, fits, and tolerances, interchangeability, selective assembly; linear and angular measurements by mechanical and optical methods, comparators; design of limit gauges; interferometry; measurement of straightness, flatness, roundness, squareness and symmetry; surface finish measurement; inspection of screw threads and gears; alignment testing of machine tools.

Computer Integrated Manufacturing: Basic concepts of CAD, CAM, CAPP, cellular manufacturing, NC, CNC, DNC, Robotics, FMS, and CIM. Principles of good product design, tolerance design; quality and cost considerations; product life cycle; concurrent engineering.

Facility Design: Facility location factors and evaluation of alternate locations; types of plant layout and their evaluation; computer aided layout design techniques; assembly line balancing; materials handling systems.

Production Planning and Inventory Control: Forecasting techniques ,aggregate production planning; MRP and MRP-II; order control and flow control; routing, scheduling and priority dispatching; push and pull production systems, concept of JIT manufacturing system; logistics, distribution, and supply chain management; inventory models,

Operations Research: Linear programming, simplex method, duality and sensitivity analysis; transportation and assignment models; network flow models, constrained optimization and Lagrange multipliers; simple queuing models; dynamic programming; simulation - manufacturing applications; PERT and CPM,

Quality Management: Quality - concept and costs, quality circles, quality assurance; statistical quality control, acceptance sampling, zero defects, six sigma; total quality management; ISO 9000; design of experiments - Taguchi method.

Reliability and Maintenance: Reliability, availability and maintainability; distribution of failure and repair times; determination of MTBF and MTTR, reliability models; system reliability determination; preventive maintenance and replacement, total productive maintenance - concept and applications.

Ph.D. (Physics)

Marks: 100 (100 questions)

Research Methodology (50%)

Research Aptitude, Reasoning, Data interpretation, information technology, people and Environment, Numerical Ability, Numerical Analysis, Statistics, Communication Ability, Higher education system (Governance, Policy and administration)

Subject Paper(50%)

Mathematical Methods of Physics: Dimensional analysis; Vector algebra and vector calculus; Linear algebra, matrices, Cayley Hamilton theorem, eigenvalue problems; Linear differential equations; Special functions (Hermite, Bessel, Laguerre and Legendre); Fourier series, Fourier and Laplace transforms; Elements of complex analysis: Laurent series-poles, residues and evaluation of integrals; Elementary ideas about tensors; Introductory group theory, SU(2), O(3); Elements of computational techniques: roots of functions, interpolation, extrapolation, integration by trapezoid and Simpson's rule, solution of first order differential equations using Runge-Kutta method; Finite difference methods; Elementary probability theory, random variables, binomial, Poisson and normal distributions.

Classical Mechanics: Newton's laws; Phase space dynamics, stability analysis; Central-force motion; Two-body collisions, scattering in laboratory and centre-of-mass frames; Rigid body dynamics, moment of inertia tensor, non-inertial frames and pseudoforces; Variational principle, Lagrangian and Hamiltonian formalisms and equations of motion; Poisson brackets and canonical transformations; Symmetry, invariance and conservation laws, cyclic coordinates; Periodic motion, small oscillations and normal modes; Special theory of relativity, Lorentz transformations, relativistic kinematics and mass–energy equivalence.

Electromagnetic Theory: Electrostatics: Gauss' Law and its applications; Laplace and Poisson equations, boundary value problems; Magnetostatics: Biot-Savart law, Ampere's theorem, electromagnetic induction; Maxwell's equations in free space and linear isotropic media; boundary conditions on fields at interfaces; Scalar and vector potentials; Gauge invariance; Electromagnetic waves in free space, dielectrics, and conductors; Reflection and refraction, polarization, Fresnel's Law,

interference, coherence, and diffraction; Dispersion relations in plasma; Lorentz invariance of Maxwell's equations; Transmission lines and wave guides; Dynamics of charged particles in static and uniform electromagnetic fields; Radiation from moving charges, dipoles and retarded potentials.

Quantum Mechanics: Wave-particle duality; Wave functions in coordinate and momentum representations; Commutators and Heisenberg's uncertainty principle; Matrix representation; Dirac's bra and ket notation; Schroedinger equation (time-dependent and time-independent); Eigenvalue problems such as particle-in-a-box, harmonic oscillator, etc.; Tunneling through a barrier; Motion in a central potential; Orbital angular momentum, Angular momentum algebra, spin; Addition of angular momenta; Hydrogen atom, spin-orbit coupling, fine structure; Time-independent perturbation theory and applications; Variational method; WKB approximation; Time dependent perturbation theory and Fermi's Golden Rule; Selection rules; Semi-classical theory of radiation; Elementary theory of scattering, phase shifts, partial waves, Born approximation; Identical particles, Pauli's exclusion principle, spin-statistics connection; Relativistic quantum mechanics: Klein Gordon and Dirac equations.

Thermodynamic and Statistical Physics: Laws of thermodynamics and their consequences; Thermodynamic potentials, Maxwell relations; Chemical potential, phase equilibria; Phase space, micro- and macrostates; Microcanonical, canonical and grand-canonical ensembles and partition functions; Free Energy and connection with thermodynamic quantities; First- and second-order phase transitions; Classical and quantum statistics, ideal Fermi and Bose gases; Principle of detailed balance; Blackbody radiation and Planck's distribution law; Bose-Einstein condensation; Random walk and Brownian motion; Introduction to nonequilibrium processes; Diffusion equation.

Electronics: Semiconductor device physics, including diodes, junctions, transistors, field effect devices, homo and heterojunction devices, device structure, device characteristics, frequency dependence and applications; Optoelectronic devices, including solar cells, photodetectors, and LEDs; High-frequency devices, including generators and detectors; Operational amplifiers and their applications; Digital techniques and applications (registers, counters, comparators and similar circuits); A/D and D/A converters; Microprocessor and microcontroller basics.

Experimental Techniques and data analysis: Data interpretation and analysis; Precision and accuracy, error analysis, propagation of errors, least squares fitting, linear and nonlinear curve fitting, chi-square test; Transducers (temperature, pressure/vacuum, magnetic field, vibration, optical, and particle detectors), measurement and control; Signal conditioning and recovery, impedance matching, amplification (Op-amp based, instrumentation amp, feedback), filtering and noise reduction, shielding and grounding; Fourier transforms; lock-in detector, box-car integrator, modulation techniques.

Atomic & Molecular Physics: Quantum states of an electron in an atom; Electron spin; Stern-Gerlach experiment; Spectrum of Hydrogen, helium and alkali atoms; Relativistic corrections for energy levels of hydrogen; Hyperfine structure and isotopic shift; width of spectral lines; LS & JJ coupling; Zeeman, Paschen Back & Stark effect; X-ray spectroscopy; Electron spin resonance, Nuclear magnetic resonance, chemical shift; Rotational, vibrational, electronic, and Raman spectra of diatomic molecules; Frank – Condon principle and selection rules; Spontaneous and stimulated emission, Einstein A & B coefficients; Lasers, optical pumping, population inversion, rate equation; Modes of resonators and coherence length.

Condensed Matter Physics: Bravais lattices; Reciprocal lattice, diffraction and the structure factor; Bonding of solids; Elastic properties, phonons, lattice specific heat; Free electron theory and electronic specific heat; Response and relaxation phenomena; Drude model of electrical and thermal conductivity; Hall effect and thermoelectric power; Diamagnetism, paramagnetism, and ferromagnetism; Electron motion in a periodic potential, band theory of metals, insulators and semiconductors; Superconductivity, type – I and type - II superconductors, Josephson junctions; Defects and dislocations; Ordered phases of matter, translational and orientational order, kinds of liquid crystalline order; Conducting polymers; Quasicrystals.

Nuclear and Particle Physics: Basic nuclear properties: size, shape, charge distribution, spin and parity; Binding energy, semi-empirical mass formula; Liquid drop model; Fission and fusion; Nature of the nuclear force, form of nucleon-nucleon potential; Charge-independence and charge-symmetry of nuclear forces; Isospin; Deuteron problem; Evidence of shell structure, single-particle shell model, its validity and limitations; Rotational spectra; Elementary ideas of alpha, beta and gamma decays and their selection rules; Nuclear reactions, reaction mechanisms, compound nuclei and direct reactions; Classification of fundamental forces; Elementary particles (quarks, baryons, mesons, leptons); Spin and parity assignments, isospin, strangeness; Gell-Mann-Nishijima formula; C, P, and T invariance and applications of symmetry arguments to particle reactions, parity non-conservation in weak interaction; Relativistic kinematics.

APPENDIX - I

INSTRUCTIONS FOR FILLING ONLINE APPLICATION FORM AND SENDING THE REGISTRATION PAGE BY POST

i. Candidate shall log on to ***www.sliet.ac.in*** and click proceeds for Admission and then registration.

ii. Click on to **NEW REGISTRATION** and for already registered users, enter Login & Password.

iii. Before you proceed to register yourself, you must ensure that you have read and understood the eligibility criteria & reservation policy for the COURSE / PROGRAMME you are applying for.

iv. Candidate should fill his / her basic details like Date of Birth (DOB), Address, State, City, Religion, Contact / Mobile Numbers and Email very carefully.

v. Choose your password at least of 6-10 characters. Please remember your password and don't share with others.

vi. Before final submission of online Application Form, read the declaration given on the website carefully and given your consent on it, failing which you will not be able to complete your registration. So, you must check the information details carefully before final submission of Registration Form.

vii. Please note that after successfully submitting the Application Form, the candidate will get a SMS on his / her Mobile that will ensure his/her provisional registration successfully with a Form Number and Password. For this, candidate should provide valid mobile number.

viii. After successfully submitting Online Application Form for SET-2020, kindly note down your Form Number for future reference. The processing of Application Form will begin only after the successful payment of Application Fee.

ix. Select mode of fee payment. If a candidate opts to pay application fee through E-Challan mode, he/she has to effect the payment of application fee within 48 working hrs. from the date of registration.

x. Once the payment is confirmed, the online Registration Page for PRINT shall be available to the candidate.

xi. Take PRINT of Registration Page.

xii. OVERWRITING, CUTTINGS, ERASING IN THE REGISTRATION PAGE OR INCOMPLETE REGISTRATION PAGE MAY LEAD TO REJECTION OF FORM AND SHOULD BE AVOIDED. ANY ERROR ARISING ON THIS ACCOUNT SHALL BE THE RESPONSIBILITY OF THE CANDIDATE.

xiii. The Registration Page duly filled in / signed should be sent to **THE CHAIRMAN SET-2020, SANT LONGOWAL INSTITUTE OF ENGINEERING & TECHNOLOGY (SLIET), LONGOWAL – 148106 (DISTT. SANGRUR), PUNJAB** in the envelope by Registered/Speed Post only, so as to reach **positively within one week of the last date of the respective programme**. The candidate must retain photocopy of his / her filled in Registration Page for future correspondence, if required. The registration page shall be accepted by post within one week of the dates mentioned above.

xiv. If a candidate submits more than one Registration Page, his / her candidature shall liable to be cancelled and debarred for future examination(s). No communication will be sent in this regard.

xv. **Photograph:** Firmly affix one recent high contrast passport size colored photograph (taken on or after 05.03.2020) with gum / fevicol (not to be pinned or stapled) in the space provided for it in the Registration Page. The photograph must indicate clearly the name of the candidate along with the date of taking the photograph. It should be without cap or goggles. Spectacles are allowed. **Polaroid photos are not acceptable.** Candidates not complying with these instructions or with unclear photograph are liable to be rejected. Candidates shall keep 10 identical photographs in reserve for use at the time of Entrance Examination / Counseling / Document Verification / Admission.

xvi. **Request for change or correction of any information, once given in the Registration Page, shall not be entertained under any circumstances. The SLIET will not be responsible for any consequences arising out of non-acceptance of any correction / addition / deletion in any particular once filled in the application form, whatsoever the reasons may be.**

APPENDIX - II

INSTRUCTIONS FOR FILLING-UP OMR ANSWER SHEET DURING EXAMINATION

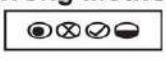
OMR Sheet will be given in the examination hall for answering the objective type questions with multiple choice. Please carefully read the following instructions for filling up of this OMR Sheet at the time of entrance test.

Fill your Question Booklet No., Roll Number, Centre Code No. and Paper No. in Part A. Also put your signature in the box provided for this purpose.

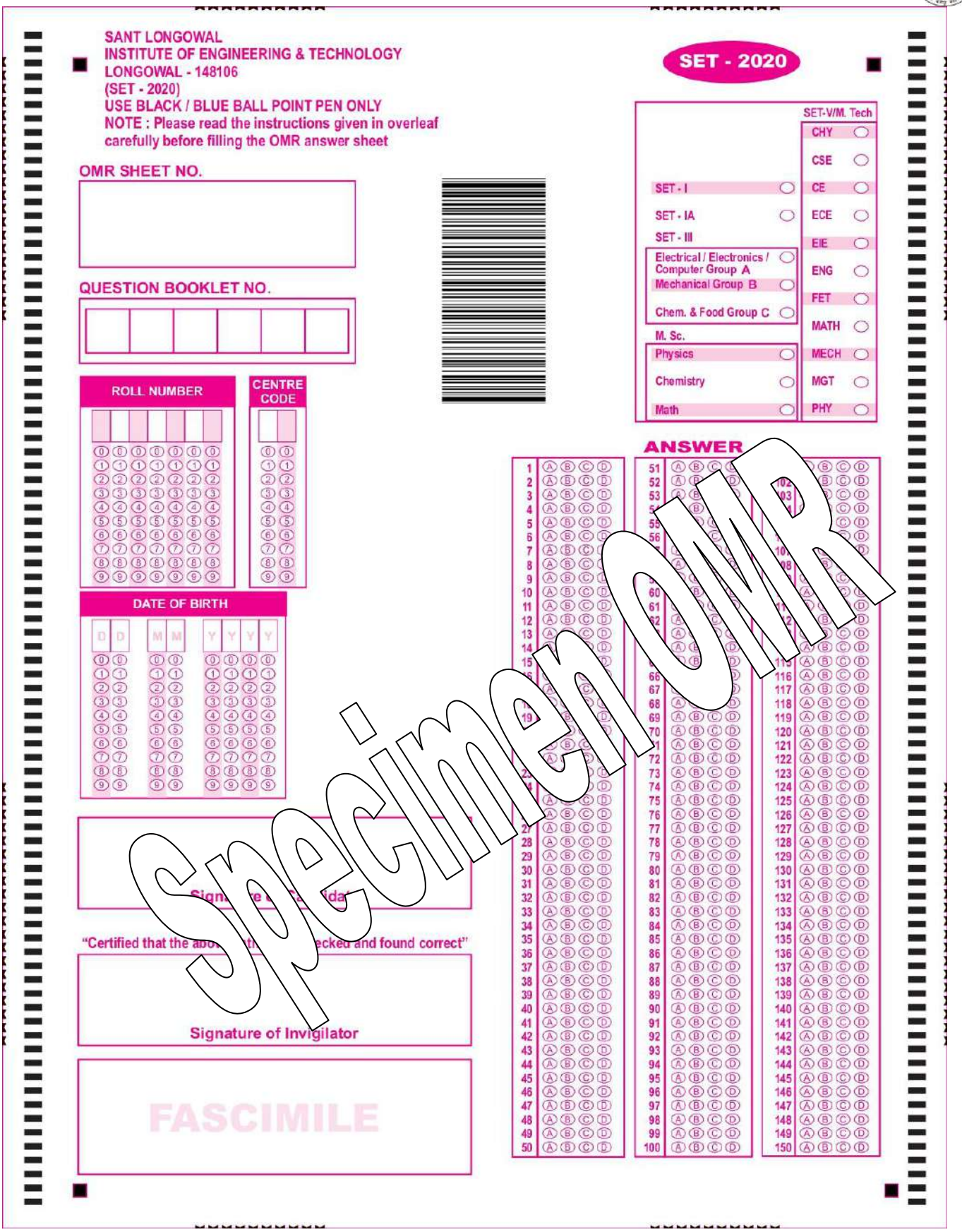
In Part B give answers of the objective type questions by darkening the suitable circle out of the four given against each question No.

IMPORTANT INSTRUCTIONS

1. Write only in rectangular boxes (▭) in all items of OMR Answer Sheet with **BLUE/BLACK BALL POINT PEN** and darken the corresponding circle (⬭) completely with **BLUE/BLACK BALL PEN ONLY.**
2. Ensure that you have correctly filled up your Roll number, Centre code and other relevant information in the corresponding spaces provided.
3. DO NOT scribble, scratch, cut, tear, fold and wrinkle the OMR Answer Sheet.
4. No rough work is allowed on OMR Answer Sheet.
5. Darken only one circle for each answer, if you darken more than one circle your answer will be treated as WRONG.
6. Answer Sheet will be processed by electronic means. Invalidation of answer due to incorrect method of filling will be sole responsibility of the candidate.
7. **There will be 25% Negative marking for wrong Answers. There shall be no negative marking for SET-V (Ph.D.).**
8. Use of communication devices such as mobile phone, wireless set etc. are completely prohibited.
9. Use of calculator (except Programmable calculator) is allowed.
10. Method of Darkening Circle.

Correct method	**Wrong Method**
	

11. In case you do not follow the above instructions then your answer sheet is liable to be rejected for which you yourself will be responsible.



SANT LONGOWAL
INSTITUTE OF ENGINEERING & TECHNOLOGY
LONGOWAL - 148106
(SET - 2020)
USE BLACK / BLUE BALL POINT PEN ONLY
NOTE : Please read the instructions given in overleaf carefully before filling the OMR answer sheet

SET - 2020

OMR SHEET NO.

QUESTION BOOKLET NO.

ROLL NUMBER

CENTRE CODE

DATE OF BIRTH

SET - I
SET - IA
SET - III
Electrical / Electronics / Computer Group A
Mechanical Group B
Chem. & Food Group C
M. Sc.
Physics
Chemistry
Math

SET-V/M. Tech
CHY
CSE
CE
ECE
EIE
ENG
FET
MATH
MECH
MGT
PHY

ANSWER

"Certified that the abo... th... ecked and found correct"

Signature of Invigilator

FASCIMILE

Note : This OMR Answer Sheet is only specimen. The actual OMR may differ.

APPENDIX - III

OBC CERTIFICATE FORMAT

(ISSUED ON OR AFTER 01.04.2020)

(As per OM No. 36033/1/2013-Estt.(Res) dated 13th September,2017)

FORM OF CERTIFICATE TO BE PRODUCED BY OTHER BACKWARD CLASSES APPLYING FOR ADMISSION IN THE INSTITUTES UNDER GOVERNMENT OF INDIA

This is to certify that Shri / Smt. / Kum. _____Son / Daughter of Shri / Smt. _____ of Village/Town _____ District/Division _____ in the _____ State belongs to the _____Community which is recognized as a backward class under:

(i) Resolution No. 12011/68/93-BCC(C) dated 10/09/93 published in the Gazette of India Extraordinary Part I Section I No. 186 dated 13/09/93.
(ii) Resolution No. 12011/9/94-BCC dated 19/10/94 published in the Gazette of India Extraordinary Part I Section I No. 163 dated 20/10/94.
(iii) Resolution No. 12011/7/95-BCC dated 24/05/95 published in the Gazette of India Extraordinary Part I Section I No. 88 dated 25/05/95.
(iv) Resolution No. 12011/96/94-BCC dated 9/03/96.
(v) Resolution No. 12011/44/96-BCC dated 6/12/96 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 11/12/96.
(vi) Resolution No. 12011/13/97-BCC dated 03/12/97.
(vii) Resolution No. 12011/99/94-BCC dated 11/12/97.
(viii) Resolution No. 12011/68/98-BCC dated 27/10/99.
(ix) Resolution No. 12011/88/98-BCC dated 6/12/99 published in the Gazette of India Extraordinary Part I Section I No. 270 dated 06/12/99.
(x) Resolution No. 12011/36/99-BCC dated 04/04/2000 published in the Gazette of India Extraordinary Part I Section I No. 71 dated 04/04/2000.
(xi) Resolution No. 12011/44/99-BCC dated 21/09/2000 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 21/09/2000.
(xii) Resolution No. 12015/9/2000-BCC dated 06/09/2001.
(xiii) Resolution No. 12011/1/2001-BCC dated 19/06/2003.
(xiv) Resolution No. 12011/4/2002-BCC dated 13/01/2004.
(xv) Resolution No. 12011/9/2004-BCC dated 16/01/2006 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 16/01/2006.
(xvi) Resolution no. 12011/14/2004-BCC dated 12/03/2007 published in the Gazzette of India Extraordinay Part I Section I No.210 dated 12.03.2007.
(xvii) Resolution No. 12015/2/2007-BCC dated 18/08/2010
(xviii) Resolution No. 12015/13/2010-BCC dated 08/12/2011

Shri / Smt. / Kum. _____ and / or his family ordinarily reside(s) in the _____ District / Division of _____ State. This is also to certify that he/she does not belong to the persons/sections (Creamy Layer) mentioned in Column 3 of the Schedule to the Government of India, Department of Personnel & Training O.M. No. 36012/22/93-Estt.(SCT) dated 08/09/93 which is modified vide OM No. 36033/3/2004 Estt.(Res.) dated 09/03/2004.

Dated: _____

District Magistrate / Deputy Commissioner / Competent Authority

Seal

NOTE:

(a) The term 'Ordinarily' used here will have the same meaning as in Section 20 of the Representation of the People Act, 1950.
(b) The authorities competent to issue Caste Certificates are indicated below:
(i) District Magistrate / Additional Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / Ist Class Stipendiary Magistrate / Sub-Divisional magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner (not below the rank of Ist Class Stipendiary Magistrate).
(ii) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.
(iii) Revenue Officer not below the rank of Tehsildar' and
(iv) Sub-Divisional Officer of the area where the candidate and / or his family resides.

APPENDIX - IV

ADMISSIONS UNDER PERSONS WITH DISABILITY (PWD) SCHEME OF MHRD, GOVT. OF INDIA

Under Persons with Disabilities Scheme of the Government of India 25 seats are available in 3 year Integrated Certificate Diploma (ICD) Programme for persons having more than 40% disability. Maximum number of seats in any particular branch of ICD Programme will be two. Details of branches /courses is available in this brochure. **It is to clarify that no vertical promotion system is available to students in the Persons with Disabilities Scheme.** Incentives to students under the Scheme:

1. No Tuition Fee
2. No Hostel Fee (Accommodation Charges)
3. Mess Bill Payment upto 1000/- PM
4. Scholarship @250/- PM
5. Books and Uniform Allowance @3000/- per annum
6. **All benefits are subject to the availability of funds (Stationary may be admissible as decided by the institute) under the scheme from MHRD, Govt. of India**

Essential qualifications:

The minimum qualification for admission to the 3 Year Integrated Certificate Diploma Programme is Matric pass (Pass in English, Mathematics and Science is compulsory) from a State Education Board / CBSE / ICSE / National Open School or an equivalent examination recognized / approved by MHRD, Government of India.

Application/Admission Procedure

Step 1: Interested candidates may apply ONLINE to SLIET Longowal free of cost if they satisfy the above eligibility conditions.

Step 2: Eligible candidates can download information brochure SET-2020 from www.sliet.ac.in**.** Brochure and instructions for filling ONLINE application should be studied carefully before filling the ONLINE application form. Candidates desirous of getting admission under the PWD Scheme must mark the PWD column in the ONLINE Application Form. Choice of centre for exam may also be filled carefully.

Step 3: ***No fee is to be paid for the Entrance Examination***.

Step 4: Details of SLIET Entrance Test -2020 and the prescribed syllabi are given in this brochure. The candidates seeking admission in Integrated Certificate Diploma programme are required to appear for SET I. Applicants shall prepare for entrance test accordingly.

Step 5: Admit Card mentioning their roll number and centre will be available ONLINE.

Step 6: Applicants shall appear for the SLIET Entrance Test- 2020 (SET I) at the centre allotted to them. They are advised to reach the centre well in time along with the admit card.

Step 7: Result of the Entrance Examination will be declared on the date mentioned in this brochure and the candidates must reach for counseling on the prescribed date and time.

Note: For more details and free application form, contact/write: Project Co-coordinator office, PWD Scheme, Mechanical Block, SLIET, Longowal-148106 (Phone: 01672-253420)

APPENDIX – V

MEDICAL CERTIFICATE
(to be issued by a Registered Medical Practitioner)

GENERAL EXPECTATIONS

Candidates should have good general physique.

1	Name of the candidate:				
2	Identification Mark (a mole, scar or birthmark), if any				
3	Major illness/operation, if any (specify nature of illness/operation)				
4	Height in cm:	Weight in kg:		Blood Group:	
7	Hearing				
8	Vision with or without glasses:	Right Eye	Left Eye	Colour Blindness	Uniocular vision
9	Any other disease/defects:				

Certificate of Medical Fitness (Please Tick)

☐ The candidate fulfils the prescribed standards of physical fitness, medical fitness and is fit for admission to Engineering/Architecture/ Pharmaceutics/ Science Course

☐ The candidate does not fulfil the prescribed standard of physical fitness/medical fitness and is unfit/temporarily unfit for admission due to following defects:

Name of the Doctor	Signature	Registration number	Seal
_____	_____	_____	_____

APPENDIX – V

Government of _____
(Name and Address of the authority issuing the certificate)
INCOME & ASSET CERTIFICATE TO BE PRODUCED BY ECONOMICALLY WEAKER SECTIONS

Certificate No._____ Date:_____

This is to certify that Shri/Smt./Kumari_____son/daughter/wife of Sh._____ permanent resident of _____ Village/Street _____ Post office_____ District in the State/Union Territory _____PIN code_____ whose photograph is attested below belongs to Economically Weaker Sections. Since the gross annual income* of his.her family** is below Rs. 8 Lakh(Rupees Eight Lakh only) for the financial year_____. His/her family does not own or possess any of the following assets***:

i. 5 acres of agricultural land and above;
ii. Residential flat of 1000 sq.ft and above;
iii. Residential plot of 100 sq.yards and above in notified municipalities;
iv. Residential plot of 200 sq.yards and above in areas other than notified municipalities.

Shri/Smt./Kumar_____ belongs to the _____caste which is not recognized as a Scheduled Caste, Scheduled Tribe and Other Backward Classes (Central List).

Recent Passport size attested photograph of the applicant

Signature with seal

* Income covered all sources i.e. salary, agriculture, business, profession etc.
** The term "Family" for this purpose include the person, who seeks benefit of reservation, his/her parents and siblings below the age of 18 years and also his/her spouse and children below the age of 18 years.
*** The property held by a "Family" in different locations or different places/cities have been clubbed while applying the land or property holding test to determine EWS status.

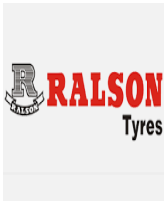
The authorities competent to issue EWS Certificates are indicated below:

(i) District Magistrate / Additional Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / Ist Class Stipendiary Magistrate / Sub-Divisional magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner (not below the rank of Ist Class Stipendiary Magistrate).
(ii) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.
(iii) Revenue Officer not below the rank of Tehsildar' and sub-Divisional Officer of the area where the candidate and / or his family resides.

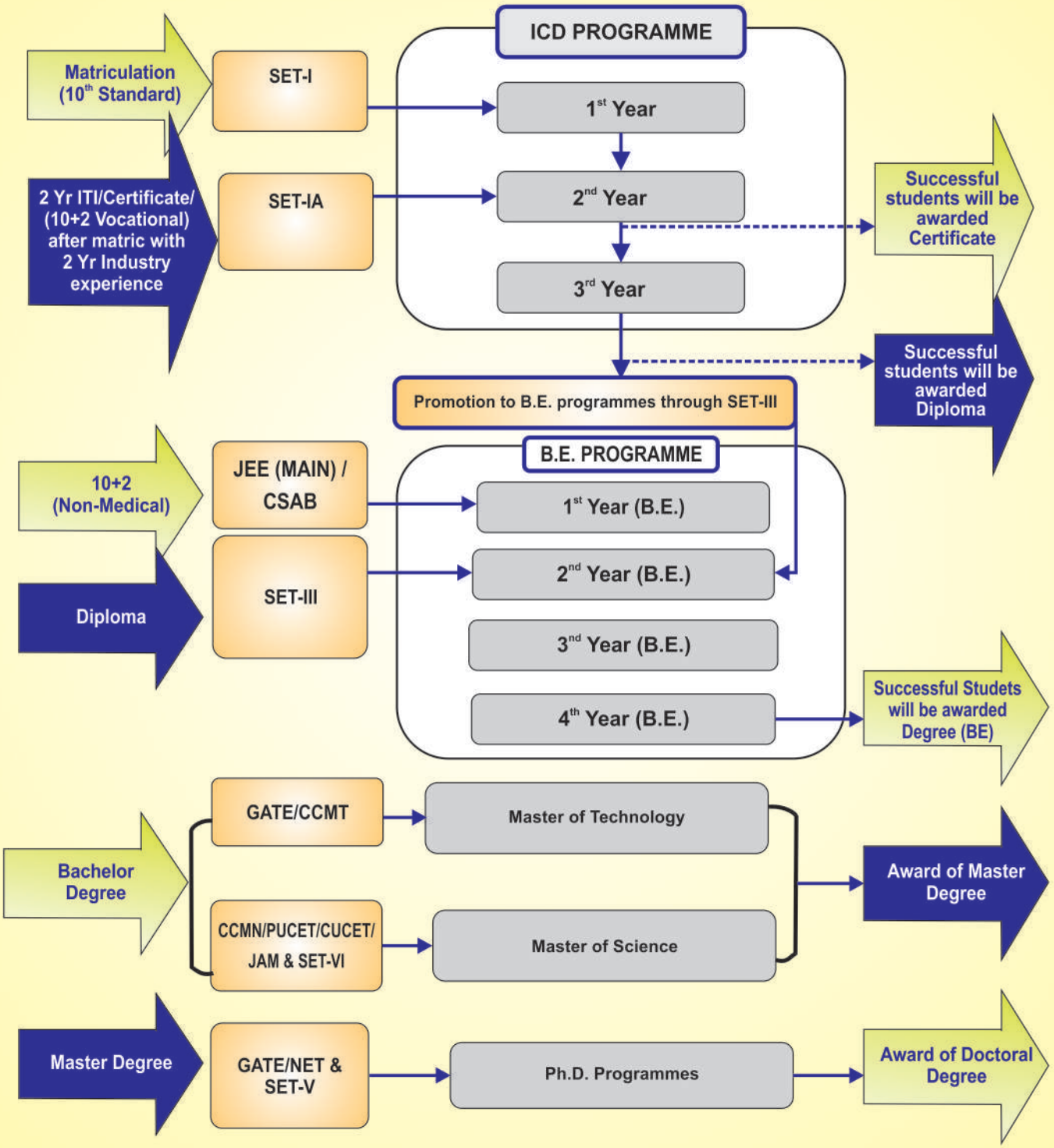
DOCUMENTS REQUIRED DURING VERFICATION:

CATEGORY	DOCUMENTS REQUIRED
GEN	➢ Print out of SET Registration Form ➢ Print out of Admit Card ➢ Print out of score Card ➢ Provisional Allotment Letter ➢ UID/Aadhar Card/ Voter ID ➢ 8 photographs (04 for personal file,02 for hostel,01 for library & 01 for Identity card) ➢ Qualifying examination Mark Sheets ➢ Qualifying examination passing certificate ➢ Character Certificate ➢ Medical Fitness Certificate (Eye/Hearing/Blood Group as mentioned at 2.10(e)) ➢ Affidavit by parents ➢ Affidavit by Student(above 18 years) ➢ Migration Certificate (to be submitted before start of 1st semester examinations) ➢ Seat confirmation fee deposit receipt
EWS	➢ All as required for Gen/Open Candidates ➢ EWS Certificate **(ISSUED ON OR AFTER 01.04.2020)**
OBC	➢ All as required for Gen/Open Candidates ➢ OBC/Caste Certificate **(ISSUED ON OR AFTER 01.04.2020)** ➢ Income/Non creamy layer (certificate issued on or after 01.04.2020 as per Govt of India format)
SC/ST	➢ All as required for Gen/Open Candidates ➢ SC/ST Certificate
PH	➢ All as required for the respective main category(i.e Gen/OBC/SC/ST) ➢ Physical disability(40% or more disability) certificate issued by Chief Medical Officer of the District
POST MATRIC SCHOLARSHIP	➢ All as required for Gen/Open Candidates ➢ SC/ST Certificate ➢ Domicile Certificate ➢ Income certificate **(ISSUED ON OR AFTER 01.04.2020)** ➢ It will be responsibility of the candidate to apply online for the same.
FEE WAIVER ECONOMICALLY WEAKER SECTIONS	➢ All as required for the respective main category(i.e Gen/OBC/SC/ST) ➢ Income Certificate **(ISSUED ON OR AFTER 01.04.2020)** ➢ Candidate have to apply separately for fee waiver scheme against the notices/ Circular Issued for the same after the admission

Some of our Recruiters



Academic Structure at SLIET Longowal



Courses Offered

Diploma Programmes	B.E. Programmes	M.Tech. Programmes	●M.Sc. Programmes
Chemical Technology	Chemical Engineering	Manufacturing Systems Engg.	Physics
Food Technology	Computer Sci. & Engg.	Welding and Fabrication	Chemistry
Computer Science and Engineering	Food Technology	Food Engg. & Tech.	Mathematics
Electronics & Communication Engineering	Electronics & Comm. Engg.	Computer Sci. & Engg.	**●Ph.D. Programmes**
Instrumentation & Process Control	Electrical Engg.	Instrumentation & Control Engg.	In all disciplines of Engineering,
Electrical Engineering	Instrumentation & Control Engg.	Chemical Engg.	Sciences, Management and English
Mechanical Engineering	Mechanical Engg.	Electronics & Comm. Engg.	
Civil Engineering			

Entry Qualification

●For Diploma Programmes	●For B.E. Programmes	For M.Tech. Programmes	For M.Sc. Programmes	For Ph.D. Programmes
10th (Science, Math & English) through SLIET Entrance Test **●Lateral Entry:** 10+2(Vocational)/ITI/ Certificate with two years industrial experience	10+2 (Non-Medical) through JEE Mains **●Lateral Entry:** Diploma in relevant stream through SLIET Entrance Test	B.E./B.Tech. in relevant stream through CCMT/ SLIET Entrance Test	B.Sc. in relevant stream through CCMN/JAM/PUCET/CUCET/ SLIET Entrance Test	Master Degree in relevant stream of Engineering/ Technology/Science/Humanities through SLIET Entrance Test/ GATE/NET

SET 2020

Centrally Funded Technical Institute (CFTI)
Estd. By MHRD, Government of India

संत लौंगोवाल अभियांत्रिकी एवं प्रौद्योगिकी संस्थान

SANT LONGOWAL INSTITUTE OF ENGINEERING & TECHNOLOGY

Deemed - to - be - University

LONGOWAL – 148 106, Distt. Sangrur (Punjab) INDIA

www.sliet.ac.in

भारत सरकार अधीन समविश्वविद्यालय