

Sr. No .....

**[SET-V]**  
**Ph.D. Programme (Odd Semester)**  
**MECHANICAL ENGINEERING**

Marks: 100

Time: 2 hours

Roll No.: _____	Date: _____
Time: _____	Centre Name: _____

<b>INSTRUCTIONS FOR THE CANDIDATES</b>	
1.	<b>Please do not open (Break the seal) of the question booklet before time</b>
2.	An <b>OMR answer sheet</b> is being provided separately along with this question booklet. Please fill up all relevant entries like Roll number, Centre code, Paper Number etc. in the spaces provided on the OMR answer sheet and put your signature in the box provided for this purpose.
3.	<b>There are 100 questions in this booklet.</b> Against each question four alternative choices (A), (B), (C) and (D) are given, out of which only one is correct. Indicate your choice of answer by Darkening the suitable circle with <b>Black/Blue Ball Pen</b> in the OMR answer sheet supplied to you separately.
4.	Each question carries one mark. <b>There will be 1/4<sup>th</sup> negative marking.</b>
5.	Read and follow the instructions given on the backside of the OMR answer sheet carefully.
6.	Do not write your name/Roll number or give any identification mark at any place on the OMR sheet.
7.	Keep all your belongings outside the examination hall. Do not retain any paper except the <b>ADMIT CARD.</b>
8.	Do not talk to each other. Do not borrow anything from other candidates.
9.	Use of <b>CALCULATOR (except programmable calculator)</b> is allowed.
10.	Any body found involved in malpractices, will be disqualified from appearing in the entrance test.
11.	At the start of the examination, please ensure that all pages of your booklet are properly printed; your question booklet is not damaged in any manner and contains 100 questions. In case of any discrepancy, report to the invigilator immediately. No claim in this regard will be entertained at the later stage.

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**MECHANICAL ENGINEERING**

Marks: 100

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**NOTE:**

- (i) Attempt all questions. Each question carries one mark. There will be  $1/4^{\text{th}}$  negative marking.
- (ii) **There are 100 questions in this booklet.** Against each question four alternative choices (A), (B), (C) and (D) are given, out of which only one is correct. Indicate your choice of answer by Darkening the suitable circle with **Black/Blue Ball Pen** in the OMR answer sheet supplied to you separately.

1. **Heating the medium carbon steel to above re-crystallization temperature and rapidly cooling by quenching causes**
  - (A) Hardening due to formation of troosite
  - (B) Annealing of steel and relieving of stresses
  - (C) Normalizing of steel and forming of fine grain structure
  - (D) Hardening due to formation of martensite
2. **Read the following statements and select the correct answer**
  - i. Ferrite is  $\alpha$  iron (BCC) which does not have more than 0.025 % of carbon in solid form
  - ii. Cementite is iron carbide ( $\text{Fe}_3\text{C}$ ), which has 6.67% of carbon
  - iii. Tempering is used for relieving the internal stresses
  - (A) Statements i and ii are true and iii is false
  - (B) Statements i and iii are true and ii is false
  - (C) Statements ii and iii are true and I is false
  - (D) Statements i, ii and iii are true
3. **The carbon percentage in eutectoid steel is**
  - (A) 0.5%
  - (B) 0.8%
  - (C) 1.2%
  - (D) 2.14%
4. **Which of the following heat treatment process is not a method of case-hardening**
  - (A) Nitriding
  - (B) Cyaniding
  - (C) Induction hardening
  - (D) Normalizing
5. **Atomic packing factor of BCC structure is**
  - (A) 1
  - (B) 2
  - (C) 3
  - (D) 4
6. **A body is dropped from a balloon which is going upward with a velocity of 15 m/s and is at a height of 100 m. The final velocity when it reaches the ground is: ( $g = 10 \text{ m/s}^2$ )**
  - (A)  $5\sqrt{89}$
  - (B)  $7\sqrt{89}$
  - (C)  $3\sqrt{89}$
  - (D)  $2\sqrt{89}$
7. **At the uppermost point of a projectile A, the angle between the direction of velocity and acceleration is:**
  - (A)  $180^\circ$
  - (B)  $90^\circ$
  - (C)  $45^\circ$
  - (D)  $0^\circ$
8. **If a projectile is thrown such that its horizontal range is four times the height attained, then the angle of projection is:**
  - (A)  $60^\circ$
  - (B)  $45^\circ$
  - (C)  $30^\circ$
  - (D)  $15^\circ$
9. **Kinetic energy of a body is increased by 300% then percentage change in the momentum is**
  - (A) 100%
  - (B) 150%
  - (C) 200%
  - (D) 300%

10. A ball of mass  $m$  moving with the velocity  $u$  collided head on with another ball of mass  $m$  at rest. Coefficient of restitution is  $e$ , the ratio of velocities of first and second ball after collision is given by:
- (A)  $\frac{1+e}{1-e}$   
 (B)  $\frac{1+e}{2}$   
 (C)  $\frac{1-e}{2}$   
 (D)  $\frac{1-e}{1+e}$
11. A simply supported beam of 2 m length is applied with uniformly distributed load of 5 kN/m through-out. It is also applied with a point load of 1kN at its centre. The maximum bending moment in the beam will be
- (A) 2 kNm  
 (B) 3kNm  
 (C) 4kNm  
 (D) 5 kNm
12. A steel rod 20 m long is fixed between two ends. The stress induced in the rod when its temperature is increased by  $100^{\circ}\text{C}$  is
- (A) 0.6 GPa  
 (B) 0.8 GPa  
 (C) 1.0 GPa  
 (D) 1.2 GPa
13. A beam of rectangular cross-section of breadth 10 cm and depth 20 cm is subjected to a bending moment of 20 kNm. Stress developed at a distance of 10 cm from the top face of the beam is:
- (A) Zero  
 (B) 10 kPa  
 (C) 20 kPa  
 (D) 30 kPa
14. Compare a circular shaft of 10 cm diameter with a hollow shaft of 10 cm external and 5 cm internal diameter. Theratio of the maximum stresses developed in the solid and hollow shaft will be
- (A) 1 : 4  
 (B) 1 : 8  
 (C) 1 : 16  
 (D) 1 : 32
15. Bulk modulus for a material is 200 GPa and its Poisson's ratio is 0.3. Young's modulus for that material will be
- (A) 120 GPa  
 (B) 160 GPa  
 (C) 210 GPa  
 (D) 240 GPa
16. The Euler's buckling load for an Aluminium bar 2 m long with cross-section of 10 mm x 12 mm, hinged at both the ends will equal:
- (A)  $36 \pi^2$   
 (B)  $72 \pi^2$   
 (C)  $144 \pi^2$   
 (D)  $154 \pi^2$
17. A load applied at center of the carriage spring to straighten its leaves is known as
- (A) Yield load  
 (B) Ultimate load  
 (C) Proof load  
 (D) Safe load
18. A mechanism has 7 links with all binary pairs except one which is ternary. The number of instantaneous centres of reaction will be
- (A) 13  
 (B) 14  
 (C) 21  
 (D) 28
19. Which one of the following is false for instantaneous centre of rotation?
- (A) At the instantaneous centre of rotation, one rigid link rotates instantaneously relative to another for configuration of the mechanism concerned  
 (B) At the instantaneous centre of rotation, the two rigid links have no linear velocities relative to each other  
 (C) Both (a) and (b) are true  
 (D) Both (a) and (b) are false
20. Power transmitted by an involute gear is given by:
- ( $F_T$ ,  $F_R$ ,  $v$  are Tangential force, Radial force and velocity respectively)
- (A)  $P = F_T \times v$   
 (B)  $P = F_R \times v$   
 (C)  $P = (F_T + F_R) \times v$   
 (D)  $P = (F_T - F_R) \times v$

- 21. In a reverted gear train**
- (A) The axes of first and the last gear are parallel
  - (B) The axes of the first and last gear are co-axial
  - (C) One gear is always fixed
  - (D) Speed of last gear must be higher than speed of the first gear
- 22. Which one of the following holds true for coupling and clutch**
- (A) A coupling cannot be engaged/disengaged frequently
  - (B) A clutch can be engaged/disengaged frequently
  - (C) Both (a) and (b) are true
  - (D) Both (a) and (b) are true
- 23. Idler pulley in belt drives is used when**
- (A) High velocity ratio is desired at a long distance
  - (B) High velocity ratio is desired at a short distance
  - (C) When long life of the belt is desirable
  - (D) High forces are required to be transmitted
- 24. The force required to move an object of F Newton downwards with the help of a power screw of with  $\phi$  angle of friction and  $\alpha$  helix angle of the screw will be**
- (A)  $F \tan (\phi - \alpha)$
  - (B)  $F \tan (\phi + \alpha)$
  - (C)  $F \tan (\phi \times \alpha)$
  - (D)  $F \tan (\phi / \alpha)$
- 25. Net reaction of ground on wheels due to gyroscopic couple due to wheels and the dead weight and centrifugal force of a vehicle negotiating a curve**
- (A) Increases on inner wheels and decreases on outer wheels
  - (B) Decreases on inner wheels and increases on outer wheels
  - (C) Decreases on all the wheels
  - (D) Increases on all the wheels
- 26. In a flat pivot bearing, the total moment of friction force**
- (A) For uniform wear is greater than that for uniform pressure
  - (B) For uniform wear is lesser than that for uniform pressure
  - (C) For uniform wear is equal to that of uniform pressure
  - (D) For uniform wear may be more or less and cannot be predicted
- 27. Spring constant of a coil spring is**
- (A) Directly proportional to the compression or extension produced
  - (B) Inversely proportional to the compression or extension produced.
  - (C) Directly proportional to the square of the number of coils in the spring
  - (D) Inversely proportional to the number of coils in the spring
- 28. Determine the percentage change in the time period of simple pendulum if its length is increased by 8%**
- (A) 2%
  - (B) 4%
  - (C) 6%
  - (D) 8%
- 29. If the damping factor is unity, the behaviour for damped vibration is**
- (A) Over damped
  - (B) Critically damped
  - (C) Under damped
  - (D) Cannot be predicted
- 30. When the frequency of external exciting force is equal to the natural frequency of vibration of the system,**
- (A) The amplitude of vibration is zero
  - (B) The amplitude of vibration is insignificantly small
  - (C) The amplitude of vibration is very large
  - (D) The amplitude of vibration may be large or small depending upon the magnitude of frequency
- 31. The amplitude of coulomb damping reduces**
- (A) Linearly
  - (B) Exponentially
  - (C) Parabolically
  - (D) None of these

32. A mass  $m$  attached to a shaft rotating at radius  $r$  from axis of a shaft is balanced by mass  $B$  at radius  $b$  from axis of the shaft in the same plane of rotation. The necessary condition of balancing is
- (A)  $m\omega r = B\omega b$   
 (B)  $mr = Bb$   
 (C)  $\frac{m\omega^2}{r} = \frac{B\omega^2}{b}$   
 (D)  $\frac{m}{B} = \frac{r}{b}$
33. A piece of wood having a weight of 4 kg floats in a liquid of specific gravity 0.8 gm/cm<sup>3</sup>, what will be the specific gravity of the wood piece if 75% of its volume is inside the liquid? (Assume  $g = 10 \text{ m/s}^2$ )
- (A) 0.4 gm/cm<sup>3</sup>  
 (B) 0.6 gm/cm<sup>3</sup>  
 (C) 0.8 gm/cm<sup>3</sup>  
 (D) 1.0 gm/cm<sup>3</sup>
34. A rectangular plate surface 2 m wide and 4 m deep lies in vertical plane in water. What will be the pressure and centre of pressure when the upper edge is 2 m below the surface? (Assume  $g = 10 \text{ m/s}^2$ )
- (A) 80 kN  
 (B) 120 kN  
 (C) 160 kN  
 (D) 320 kN
35. First law of thermodynamics for steady flow
- (A) Accounts for all energy entering and leaving a control volume  
 (B) Is an energy balance for a specified mass of fluid  
 (C) Is primarily concerned with heat transfer  
 (D) Is an expression of the conservation of linear momentum
36. The processes of a Carnot cycle are
- (A) Two adiabatic and two isothermals  
 (B) Two adiabatic and two isothermals  
 (C) Two isothermals and two isentropic  
 (D) Two isobaric and two isothermals
37. Kelvin Plank's law deals with
- (A) Conversion of energy  
 (B) Conversion of mass  
 (C) Conversion of heat into work  
 (D) Conversion of work into heat
38. What is the highest possible theoretical efficiency of a heat engine operating with a hot reservoir of furnace gases at 527°C, when the cooling water is available at 27°C
- (A) 33%  
 (B) 50%  
 (C) 66%  
 (D) 75%
39. Which of the following statements is correct
- (A) Dew point temperature can be measured with the help of thermometer  
 (B) Dew point temperature is the saturation temperature corresponding to the partial pressure of water vapours in moist air  
 (C) Dew temperature is the same as the thermodynamic wet bulb temperature  
 (D) For saturated air, dew point temperature is less than the wet bulb temperature
40. Read the following statements with respect to casting of parts and select the correct answer:
- Shrinkage allowance for a casting are independent of the casting material
  - Distortion allowance is provided to those castings which exhibit uniform cooling rates in their sections
  - Shaking or rapping allowance is a negative allowance
  - Draft allowance is provided to only those walls of the casting which are in the direction of disengagement of cope and drag
- (A) Only statements i and ii are true  
 (B) Only statement ii and iii are true  
 (C) Only statements iii and iv are true  
 (D) Only statements I and iv are true
41. A riser compensates for the shrinkage that happens in the casting process during:
- (A) Only molten stage  
 (B) Only solidification stage  
 (C) solid stage  
 (D) both molten and solidification stage
42. Cores are normally used in the casting for:
- (A) Lower freezing time of the molten metal  
 (B) Make the molten metal rise in riser  
 (C) Make cavities in castings  
 (D) Make smooth gating system

- 43. The function of a chaplet is to:**
- (A) Increase the cooling rate of casting
  - (B) Decrease the cooling rate of casting
  - (C) Provide support to the cores inside the mould cavity
  - (D) Make hollow cavities in the casting
- 44. The defect termed as 'displaced cores arises due to**
- (A) Incomplete filling of the mould
  - (B) Buoyancy of cores in the molten metal
  - (C) Displacement of cores while metal pouring
  - (D) Displacement of cores while metal shrinkage
- 45. In case of drop forging process**
- (A) Closed impression dies are used and repeated blows of impact are required
  - (B) Closed impression dies are used and single impact is required
  - (C) Open face dies are used and hammering is done by hand
  - (D) Open face dies are used and hammering is done by methods other than hand hammering
- 46. For a four high rolling mill, smaller rolls are called**
- (A) Backup rolls
  - (B) Pinch rolls
  - (C) Working rolls
  - (D) Cluster rolls
- 47. The process used for manufacturing large sized bolt heads is**
- (A) Punching
  - (B) Lancing
  - (C) Slugging
  - (D) Upset forging
- 48. If cutting operation is to be combined with the bending or drawing, then the die used should be**
- (A) Combination die
  - (B) Compound die
  - (C) Transfer die
  - (D) Punching die
- 49. Which of the following properties improve because of the forging process?**
- (A) Direction properties giving good strength
  - (B) Percentage elongation and percentage reduction of area
  - (C) Resistance to shock and vibration
  - (D) All of the above
- 50. In resistance welding**
- (A) Voltage and current are high
  - (B) Voltage is high and current is low
  - (C) Both voltage and current is high
  - (D) Voltage is low and current is high
- 51. Thermit welding uses a mixture of the following**
- (A) Iron oxide and sodium
  - (B) Iron oxide and Aluminium
  - (C) Iron oxide and alumina
  - (D) Iron, Nickel and Magnesium
- 52. Which of the following resistance welding processes essentially uses wheels as electrodes**
- (A) Spot welding
  - (B) Projection welding
  - (C) Seam welding
  - (D) Flash butt welding
- 53. Composition of most commonly used soldering alloy is:**
- (A) Tin 60% and Lead 40%
  - (B) Tin 50% and Lead 50%
  - (C) Tin 40% and Lead 60%
  - (D) Tin 35% and Lead 65%
- 54. In gas welding, the maximum flame temperature occurs at**
- (A) Inner cone
  - (B) Outer cone
  - (C) Next to the inner cone
  - (D) Outer tip of the flame
- 55. In case of built-up edge in a machining process, which of the following statements is true**
- (A) It is an edge provided on the cutting tool by the tool manufacturer
  - (B) It consists of layers of material from the work-piece that are gradually deposited on the tool
  - (C) A thick built-up edge is desirable and improves cutting efficiency
  - (D) A thick built-up edge improves the surface finish of the machined surface

- 56. Select from the following ascending order of cutting tool materials hardness**
- (A) Ceramics –High carbon steel – High speed steel –Diamond
  - (B) High carbon steel – High speed steel – Ceramics – Diamond
  - (C) High speed steel – High carbon steel – Ceramics – Diamond
  - (D) High carbon steel – High speed steel – Ceramics – Diamond
- 57. Which one of the following is true in case of tool life**
- (A) It is directly proportional to the cutting speed
  - (B) It is inversely proportional to the cutting speed
  - (C) Does not depend on the cutting speed
  - (D) No equation is available that helps roughly calculate the cutting speed
- 58. Select the correct sequence of manufacturing processes in the ascending order of accuracy**
- (A) Reaming – Honing – Boring – Drilling
  - (B) Drilling – Boring – Honing – Reaming
  - (C) Drilling – Reaming – Boring – Honing
  - (D) Drilling – Honing – Boring – Reaming
- 59. Knurling process is used with a purpose to:**
- (A) Generate a rough surface for gripping
  - (B) To make tapered hole in a part
  - (C) To create stepped hole in a part
  - (D) It is another name of tapping operation
- 60. Stellite is a name used for**
- (A) Cast cobalt base alloy tools
  - (B) Ceramics
  - (C) Cemented carbide
  - (D) Coated carbide
- 61. A clearance fit is obtained**
- (A) By making the lower limit on hole equal to or larger than the upper limit of shaft
  - (B) By making lower limit on shaft equal or larger than the upper limit on hole
  - (C) By making difference between the maximum shaft and minimum hole
  - (D) None of the above
- 62. Electrical comparators are designed on the basis of**
- (A) Wheatstone bridges
  - (B) Heating effects of current
  - (C) Thomson effect
  - (D) Peltier effect
- 63. Slip gauges are used for**
- (A) Checking accuracy of micrometer and Vernier callipers
  - (B) Specifying dimensions in comparators
  - (C) Angular setting in measuring angles for a work-piece with the help of a Sine bar
  - (D) All of the above
- 64. Range is defined as**
- (A) Difference between largest and smallest reading of an instrument
  - (B) Algebraic difference between upper and lower range values of the instrument
  - (C) Difference of scale reading and true value
  - (D) Developing the desired static input-output relations
- 65. Which one of the following is most suitably applicable for a five axis CNC machine**
- (A) It has three rotational and two translation axis
  - (B) It has three translational and two rotational axis
  - (C) Is a CNC machine where machining can be done 5/3 times faster than a 3 axis machine
  - (D) Is useful only for complex geometry parts and normal 3 D parts cannot be machined on it
- 66. Which one of the following statements are not required for preparing NC program using APT**
- (A) Geometry statement
  - (B) Motion statements
  - (C) Postprocessor statement
  - (D) Path statement
- 67. Which one of the following is not an advantage of adaptive control of machining**
- (A) Increased production rate
  - (B) Increased tool life
  - (C) There is more operator intervention
  - (D) Parts are protected against damage



- 68. Which one of the following NC systems require the highest level of control**
- (A) Contouring
  - (B) Straight cut
  - (C) Point to point
  - (D) All of the above
- 69. Master scheduling means**
- (A) Assigning of resources required to complete the work order
  - (B) Weekly or monthly breakdown of production requirement for a definite period
  - (C) Time required to complete each operation
  - (D) To show work progress
- 70. The items which require maximum control in ABC analysis are**
- (A) A items
  - (B) B items
  - (C) C items
  - (D) All of the above
- 71. Total inventory cost is**
- (A) Ordering cost + carrying cost
  - (B) Carrying cost + shortage cost
  - (C) Ordering cost + shortage cost
  - (D) Ordering cost + carrying cost + shortage cost
- 72. In an MRP system, component demand is**
- (A) Forecasted
  - (B) Established by the master production schedule
  - (C) Calculated by the MRP system from the master production schedule
  - (D) Ignored
- 73. Which one of the following is true in case of MRP**
- (A) Is a computational tool to forecast demand
  - (B) An MRP system does not require inventory record file to estimate the type and number of products that should be made keeping in view the work in progress
  - (C) It is a computational technique to forecast demand and make plans
  - (D) It is a computational technique that converts master schedule for end products into a detailed schedule of raw material and components
- 74. Which one of the following does not apply to transportation problem**
- (A) Items can easily be transported from every production centre to every consumption centre
  - (B) Per unit transportation cost is uncertain
  - (C) Per unit transportation cost is independent of quantity dispatched
  - (D) Model minimizes the total cost of transportation
- 75. Which one of the following is applicable for network analysis**
- (A) Cost control
  - (B) Time reduction
  - (C) Avoiding delays
  - (D) All of the above
- 76. Dummy activity is one which**
- (A) Takes no time in completion and requires no resources
  - (B) Takes time for completion and requires resources
  - (C) Takes no time for completion but requires resources
  - (D) Is used to preserve the essential logic of the network
- 77. Critical path is**
- (A) Shortest path and consumes minimum time
  - (B) Shortest path and consumes maximum time
  - (C) Longest path and consumes maximum time
  - (D) No such relationship exists
- 78. Taguchi loss function is**
- (A) is a good method of production planning
  - (B) is commonly used in inventory control
  - (C) is a good method of production scheduling
  - (D) a concept used in tolerance design

79.  $\bar{p}$  charts shows quality characteristics of interest in proportion to
- (A) The defective units
  - (B) The number of defects in a unit
  - (C) Normalized value of the defects in a unit
  - (D) Both the number of defective units and the number of defects in a unit

80. Which one of the following is the correct order of words for NC machining?

- (A) Sequence number, preparatory word, co-ordinates and federate
- (B) Sequence number, feed rate, co-ordinates and cutting speed
- (C) Sequence number, tool selection, feed rate and cutting speed
- (D) Sequence number, co-ordinates, tool selection, feed rate

81. There are 10 lamps in a hall. Each one of them can be switched on independently. The number of ways in which hall can be illuminated is

- (A)  $10^2$
- (B) 1023
- (C)  $2^{10}$
- (D) 10!

82. What is (?) in the following table?

8	54	27
9	71	?
10	90	45

- (A) 39
- (B) 37
- (C) 35.5
- (D) 34.5

83. If 'THIS MAN IS GOOD' is coded as 153. What will be the code for 'THAT MAN IS NOT GOOD'?

- (A) 200
- (B) 195
- (C) 190
- (D) 180

84. A earned Rs 84000. One third of it went to taxes. The rest was invested and appreciated by one half. Two third of that went into business. Additional tax was paid

equal to 2/3 of the remaining amount. How much money was left with A?

- (A) 8790
- (B) 8777
- (C) 9000
- (D) 9333

85. If Aneesh is paternal first cousin of Rahul, how is their father's mother is related to them?

- (A) Mother
- (B) Grandmother
- (C) Paternal aunt
- (D) Maternal aunt

86. I got my first job on May 22, 1983. Which day of the week it was?

- (A) Monday
- (B) Tuesday
- (C) Friday
- (D) Sunday

87. A petrol dealer adds 20% kerosene oil to petrol. If purchase price of petrol is Rs. 60 per litre and that of kerosene is Rs. 20 per litre, and sale price of the petrol is Rs. 61 per litre, what is his percentage profit?

- (A) 14.25
- (B) 14.37
- (C) 14.50
- (D) 14.70

88. Anant parked his motorcycle at 9<sup>th</sup> place from the left and 28<sup>th</sup> from the right. How many motorcycles are parked in the row?

- (A) 37
- (B) 36
- (C) 35
- (D) 34

89. In an imaginary language digits 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 are substituted by t, d, j, o, r, m, u, x, b and z. 10 is written as dt and so on. Use the above information and find the value of expression given below:

$$\{(or - dj) \times u\} \div dj$$

- (A) 9
- (B) 10
- (C) 11
- (D) 12

90. Seven friends meet at their college reunion, shake hand with each other once. How many hand shake will be there altogether?

- (A) 21
- (B) 42
- (C) 27
- (D) 49

91 Ms Anandita starts at left and moves 8 Kms. She then turns right and moves 4 Kms. Then she turns right again for 8 Kms. How far is she from the initial position?

- (A) 20 Kms
- (B) 10 Kms
- (C) 08 Kms
- (D) 04 Kms

92. Lunch-dinner pattern of a person for 'm' days is given below. He has a choice of VEG or NON-VEG meal for his lunch/dinner.

- (i) If he takes a NON-VEG lunch, he will have only VEG dinner
- (ii) He takes NON-VEG dinner for 9 days
- (iii) He takes VEG lunch for 11 days
- (iv) He takes a total of 14 NON-VEG meals

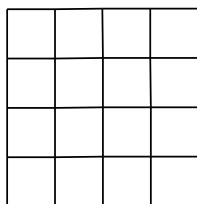
What is 'm'?

- (A) 18
- (B) 20
- (C) 24
- (D) 38

93. 20% students of a particular course get jobs within one year of passing. 20% of the remaining students get jobs by end of the second year of passing. If 16 students are still jobless, how many students had passed the course?

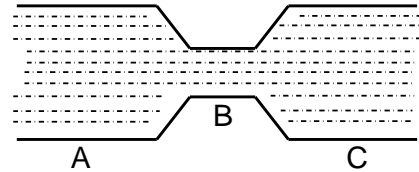
- (A) 25
- (B) 50
- (C) 62
- (D) 84

94. How many rectangles (which are not squares) in the following figure?:



- (A) 56
- (B) 70
- (C) 80
- (D) 96

95. Water is flowing through a tube as shown below:



The cross-sectional area of A and C are equal and greater than the cross-sectional area of B. If the flow of water is steady, than the pressure on the walls at B is

- (A) less than that at A and that at C
- (B) more than that at A and that at C
- (C) same as that at A and that at C
- (D) more than that at A but less than that at C

96 Processor IC chip was developed by?

- (A) AMD
- (B) Intel
- (C) DIX
- (D) Both (A) and (B)

97 If  $5472 = 9$ ,  $6342 = 6$ ,  $7584 = 6$ . What is 9236?

- (A) 2
- (B) 3
- (C) 4
- (D) 5

98 Chipko movement was started by?

- (A) Arundhati Roy
- (B) Medha Patkar
- (C) Ila Bhatt
- (D) Sunder lal Bahuguna

99 What is the following is not a natural hazard?

- (A) Earthquake
- (B) Tsunami
- (C) Flash floods
- (D) Nuclear accident

100 Which of the following team won the 9<sup>th</sup> IPL cricket T-20 tournament?

- (A) Kolkata Knight Riders
- (B) Sun Risers Hyderabad
- (C) Mumbai Indians
- (D) Royal Challengers Bangalore