

DO NOT OPEN THE SEAL OF THE BOOKLET UNTIL YOU ARE TOLD TO DO SO

TTH/2016

Test Booklet Code

A

Read the following instructions carefully before you begin to answer the questions.

|                        |                       |                |
|------------------------|-----------------------|----------------|
| Time: 100 min          | No of Questions : 100 | Max Mark : 400 |
| Name of Candidate      |                       |                |
| Register No.           |                       |                |
| Signature of Candidate |                       |                |

### INSTRUCTIONS TO CANDIDATES

1. Immediately fill in the particulars on this page of the test booklet with blue / black ball point pen. Use of pencil is strictly prohibited.
2. This question booklet contains 100 questions. for each question, four answers are suggested and given against (a), (b), (c) and (d) of which, only one will be the **Most Appropriate Answer**. Mark the bubble containing the letter corresponding to the "Most Appropriate Answer" in the OMR Answer sheet, by using either **Blue or Black ball-point pen only**.
3. Candidates will be awarded 4 marks for each correct response. **No Negative Marking**. More than one answer marked against a question will be deemed as incorrect answer.
4. Rough work is to be done on the space provided for this purpose in the Test Booklet only. This space is given at the bottom of each page and in one page at the end of the booklet.
5. On completion of the test, the candidate must hand over the answer sheet to the invigilator on duty in the room. However, the candidates are allowed to take away this test Booklet with them.
6. Do not fold or make any stray mark on the Answer sheet.

IMMEDIATELY AFTER OPENING THIS QUESTION BOOKLET, THE CANDIDATE SHOULD VERIFY WHETHER THE QUESTION BOOKLET ISSUED CONTAINS ALL THE 100 QUESTIONS IN SERIAL ORDER. IF NOT, REQUEST FOR REPLACEMENT.

**Warning:** Any malpractice or any attempt to commit any kind of malpractice in the examination will DISQUALIFY THE CANDIDATE.



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1. Choose the correct statement
  - (a) The distance travelled by a body is 8m and displacement is 9m.
  - (b) The distance travelled by a body is 9m and displacement is 8m.
  - (c) The distance and displacement travelled by a body will be same always.
  - (d) None of these
  
2. If a body starting from rest covers 300m in 5s, then find its acceleration
  - (a)  $60 \text{ m/s}^2$       (b)  $24 \text{ m/s}^2$
  - (c)  $25 \text{ m/s}^2$       (d)  $26 \text{ m/s}^2$
  
3. Odd one out
  - (a) Displacement
  - (b) Velocity
  - (c) Distance
  - (d) Acceleration
  
4. In which of the following case work becomes zero?
  - (a) When the direction of displacement and force are the same
  - (b) When the direction of displacement and force are opposite to each other
  - (c) When the direction of displacement and force are perpendicular to each other.
  - (d) None of these
  
5. Which type of energy is stored in a compressed spring?
  - (a) Kinetic energy
  - (b) Potential energy
  - (c) Mechanical energy
  - (d) None of these
  
6. What is the unit of power?
  - (a) W
  - (b) J/s
  - (c) N-m/s
  - (d) All the above
  
7. What is the unit of rate of change of momentum?
  - (a)  $\text{Kg m/s}^2$
  - (b)  $\text{Kg m/s}$
  - (c)  $\text{Kg m}$
  - (d)  $\text{Kg/s}$
  
8.  $10 \text{ Kg wt} = \dots\dots\dots$ 
  - (a) 9.8 N
  - (b) 98 N
  - (c) 980 N
  - (d)  $\frac{10}{9.8} \text{ N}$
  
9. Which is the lowest frequency audible for human beings
  - (a) 5 Hz
  - (b) 20 Hz
  - (c) 15 Hz
  - (d) 20 KHz
  
10. If the velocity of 1 Kg of a body changes from 10 m/s to 20 m/s in 2s. Then find the rate of change of velocity.
  - (a)  $2 \text{ m/s}^2$       (b)  $5 \text{ m/s}^2$
  - (c)  $10 \text{ m/s}^2$       (d)  $20 \text{ m/s}^2$
  
11. What is the unit of pressure?
  - (a)  $\text{Kg/m}$       (b)  $\text{Kg/m}^2$
  - (c)  $\text{Kg m/s}^2$       (d)  $\text{N/m}^2$

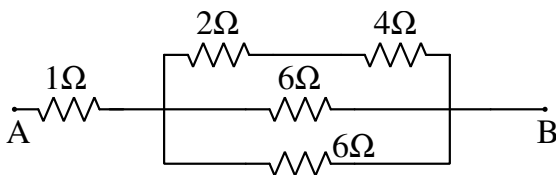
12. The unit N/kg belongs to which physical quantity?

- (a) Velocity
- (b) Acceleration
- (c) Force
- (d) None of these

13. Which of the following is correct?

- (a)  $g = \frac{GMm}{d}$
- (b)  $g = \frac{GM}{d^2}$
- (c)  $g = \frac{GM}{d}$
- (d)  $g = \frac{GMm}{d^2}$

14. Find the effective resistance of the following circuit



- (a)  $2\Omega$
- (b)  $5\Omega$
- (c)  $3\Omega$
- (d)  $19\Omega$

15. What is the potential difference between two phase lines?

- (a) 230V
- (b) 410V
- (c) 440V
- (d) 400V

16. The number of turns in the primary coil of a transformer is 200 and voltage is 50V. If the number of turns in the secondary is 500 then find the secondary voltage

- (a) 125V
- (b) 150V
- (c) 175V
- (d) 200V

17. Which of the following is renewable resource?

- (a) Fossil fuel

- (b) Coal
- (c) Natural gas
- (d) Solar energy

18. The rated power and voltage of an equipment is 400W/200V. If 100V supply is given to this equipment, then find the new power of the equipment.

- (a) 400W
- (b) 100W
- (c) 50W
- (d) 200W

19. Which colour occurs maximum refraction?

- (a) Red
- (b) Violet
- (c) Blue
- (d) Yellow

20. In which year, India launched first artificial satellite Aryabhata?

- (a) 1975
- (b) 1969
- (c) 1973
- (d) 1971

21. Which of the following does not have a definite shape?

- (a) Solid
- (b) Liquid
- (c) Gas
- (d) None of these

22. Water sticks on glass due to

- (a) Adhesive force
- (b) Cohesive force
- (c) Gravitational force
- (d) Frictional force

23. Maximum number of electrons can be accommodated in the  $N^{\text{th}}$  shell is

- (a) 2
- (b) 8
- (c) 18
- (d) 32

24. In which of the following subshell has more energy level?

- (a) 2s
- (b) 3p
- (c) 3d
- (d) 4s

25. Find the number of moles of atoms in the sample 196g of  $\text{H}_2\text{SO}_4$
- (a) 14 mole                      (b) 7 mole  
(c) 1 mole                        (d) 2 mole
26. If 44g  $\text{C}_3\text{H}_8$  undergoes complete combustion then how much grams of  $\text{CO}_2$  will be produced?
- (a) 44g                            (b) 88g  
(c) 132g                         (d) 176g
27. Which of the following is not a real compound
- (a)  $2\text{CH}_3$                         (b)  $\text{CH}_4$   
(c)  $\text{CH}_3\text{OH}$                        (d)  $(\text{CH}_3)_2$
28. Atomic number of an element is the
- (a) Number of proton  
(b) Sum of the number of protons and neutrons  
(c) Number of neutron  
(d) None of these
29. Which of the following is discovered by Rutherford?
- (a) Proton                         (b) Neutron  
(c) Nucleus                        (d) Orbit
30. Which of the following does not have neutron?
- (a) Protium                        (b) Deuterium  
(c) Tritium                         (d) Helium
31. Which of the following is a non metal ?
- (a) Diamond                       (b) Gold  
(c) Silver                          (d) Platinum
32. Gas can be liquefied by applying
- (a) High pressure and high temperature  
(b) High pressure and low temperature  
(c) Low pressure and high temperature  
(d) Low pressure and low temperature
33. What is the IUPAC Name of the following organic compound
- $$\begin{array}{ccccccc} \text{CH}_3 & - & \text{CH} & - & \text{CH}_2 & - & \text{CH} & - & \text{CH}_3 \\ & & | & & & & | & & \\ & & \text{CH}_2 & - & \text{CH}_3 & & \text{CH}_2 & - & \text{CH}_3 \end{array}$$
- (a) Octane  
(b) 2, 4-dimethyl Pentane  
(c) 3, 5-dimethyl heptane  
(d) 2, 4-Ethyl pentane
34. The following two compounds shows which Isomerism?
- $$\begin{array}{c} \text{CH}_3 - \text{O} - \text{CH}_2 - \text{CH}_3 \\ \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{OH} \end{array}$$
- (a) Chain Isomerism  
(b) Position Isomerism  
(c) Functional group Isomerism  
(d) None of these
35.  $400 \text{ K} = \dots\dots\dots^\circ\text{C}$
- (a)  $127^\circ\text{C}$                         (b)  $673^\circ\text{C}$   
(c)  $400^\circ\text{C}$                         (d)  $500^\circ\text{C}$
36. The most commonly used bleaching agent is
- (a) Alcohol  
(b) Carbon dioxide  
(c) Chlorine  
(d) Sodium Chloride
37. Which metal is used in storage battery?
- (a) Iron                              (b) Copper  
(c) Lead                              (d) Tin

38. Which of the following is washing soda?
- Calcium carbonate
  - Calcium bicarbonate
  - Sodium carbonate
  - Sodium bicarbonate
39. Which gas was leaked out from union carbide factory in Bhopal
- Sulphur dioxide
  - Methyl cyanide
  - Methyl isocyanate
  - Carbon monoxide
40. The acid found in tomato is
- oxalic acid
  - Acetic acid
  - Tartaric acid
  - Citric acid
41. Which among the following is not a locomotory organ?
- Pseudopodia
  - Cilia
  - Flagella
  - None of the above
42. The largest gland in human body is
- Pancreas
  - Liver
  - Thymus
  - Thyroid
43. Which among the following is a prokaryote?
- Mycoplasma
  - Amoeba
  - Paramecium
  - All the above
44. Number of eggs produced by a human female in a month
- 1
  - 6
  - 5
  - 12
45. Name a flying mammal
- Platypus
  - Echidna
  - Bat
  - Pigeon
46. Total number of ATP obtained in cellular respiration from a single glucose molecule
- 32
  - 30
  - 22
  - 20
47. What is the % composition of water in blood plasma
- 92%
  - 85%
  - 55%
  - 45%
48. The largest blood cell is
- Lymphocyte
  - Erythrocyte
  - Neutrophil
  - Monocyte
49. Translocation in plants is with the help of
- Xylem
  - Phloem
  - Tracheids
  - Companion cells
50. The phylum to which man belongs in
- Protochordata
  - Cephalochordata
  - Urochordata
  - Chordata
51. Vector of elephantiasis is
- Culex
  - Anopheles
  - Aedes
  - None of the above
52. Suicide bag of the cell is
- Lysosome
  - Lysozyme
  - Ribosomes
  - Mitochondria
53. Name the hormone secreted by pancreas which increases blood glucose level
- Insulin
  - Glucagon
  - Calcitonin
  - Glucocorticoids

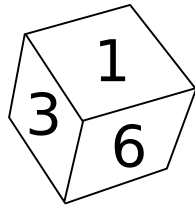
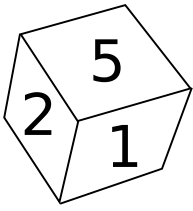
54. Largest bone in human body is  
 (a) Stapes (b) Femur  
 (c) Humerus (d) Tibia
55. Which part of the brain regulates breathing?  
 (a) Cerebrum (b) Cerebellum  
 (c) Medulla (d) Thalamus
56. In a triangle ABC, its angle bisectors and side bisectors coincides. Such type of triangles are called  
 (a) Equilateral  
 (b) Right angled  
 (c) Isosceles  
 (d) None of these
57. If  $\frac{x}{y} = \frac{2}{3}$ . Then  $\frac{3x - y}{2x + y} + \frac{2x + y}{5x - y}$  is equal to  
 (a)  $\frac{3}{7}$  (b) 1  
 (c)  $\frac{10}{7}$  (d)  $\frac{7}{10}$
58. Which of the following lines (whose equations are given) passes through the origin?  
 (a)  $2x + 3y = 5$   
 (b)  $2x = 7$   
 (c)  $3y - 5 = 0$   
 (d)  $3x - 2y = 0$
59. The number of solutions of the pair of equations  $2x - 3y = 6$  and  $9y - 6x = 10$  are  
 (a) Only one (b) 2  
 (c) Infinitely many (d) No solution
60. The rational form of the number  $0.3777\dots$   
 (a)  $\frac{45}{17}$  (b)  $\frac{17}{45}$   
 (c)  $\frac{34}{99}$  (d)  $\frac{99}{34}$
61. In a sequence its  $(n + 1)^{\text{th}}$  term is  $3n^2 + 4n - 2$ , then its 3<sup>rd</sup> term is  
 (a) 37 (b) 62  
 (c) 18 (d) None of these
62. If the 4 angles of a cyclic quadrilaterals are in AP (or Arithmetic sequence), then the 3<sup>rd</sup> angle is  
 (a) 100 (b) 70  
 (c) 80 (d) 90
63. In a triangle ABC,  $\angle B = 90^\circ$ ,  $\angle C = 30^\circ$ ,  $AB + AC = 15$  cm. Then the length of BC (in cm) is  
 (a) 5 (b) 10  
 (c)  $5\sqrt{5}$  (d)  $5\sqrt{3}$
64. If one angle of a regular polygon is  $150^\circ$ . Then the number of sides of that polygon is  
 (a) 10 (b) 13  
 (c) 12 (d) 11
65. If  $x^2 + \frac{1}{x^2} = 11$ , then the value of  $x - \frac{1}{x}$  is equal to  
 (a) 3 (b) 9  
 (c)  $\sqrt{13}$  (d) 12
66. The number of diagonals of a polygon of 10 sides is  
 (a) 40 (b) 35  
 (c) 45 (d) None of these
67.  $5 + 6 + 7 + \dots + 48 + 49 + 50$  is equal to  
 (a) 1300 (b) 1250  
 (c) 1265 (d) 2254
68. A box contains some black balls and white balls. If the probability of getting a black ball is  $\frac{3}{5}$ , and given that there are 12 black balls, then the number of white balls are  
 (a) 10 (b) 6  
 (c) 12 (d) 8

69. If  $x = 3$  is a solution of the equation  $2x^2 - kx - 15 = 0$ . Then the second solution is
- (a)  $-5$                       (b)  $5$   
(c)  $\frac{5}{2}$                         (d)  $-\frac{5}{2}$
70.  $\pi - \frac{22}{7}$  is a
- (a) Rational number  
(b)  $0$   
(c) Irrational number  
(d) None of these
71. A sphere of maximum volume is carved out from a cube of volume  $64 \text{ cm}^3$ . Then the volume of the sphere (in  $\text{cm}^3$ ) is
- (a)  $\frac{32}{3}\pi$                       (b)  $64$   
(c)  $16\pi$                         (d) None of these
72. If the total surface area and volume of a cube are numerically same, then the length of the side of cube is
- (a)  $2$                           (b)  $3$   
(c)  $4$                           (d)  $6$
73. The value of  $(\sqrt{8})^{2/3} \times \left(\frac{1}{\sqrt{16}}\right)^{3/2}$  is
- (a)  $4$                           (b)  $8$   
(c)  $\frac{1}{4}$                           (d)  $\frac{1}{8}$
74. A wheel makes 5000 revolutions to cover a distance of 11 Km. Then the radius of the wheel in cm is  $(\pi \approx \frac{22}{7})$
- (a)  $35 \text{ cm}$                       (b)  $70 \text{ cm}$   
(c)  $7 \text{ cm}$                         (d)  $3.5 \text{ cm}$
75. The equation of a line which intersect  $x$ -axis at 3 and  $y$ -axis at 4 is
- (a)  $4x - 3y = 12$   
(b)  $3x - 4y = 12$                       (c)  $4x + 3y = 12$   
(d)  $3x + 4y = 12$
76. Find the unit place in the expansion  $3^{10} + 2^{10} + 5^{10}$
- (a)  $0$                           (b)  $8$   
(c)  $7$                           (d)  $5$
77. When a number is divided by 121, the remainder is 25. If the same number is divided by 11, the remainder will be
- (a)  $3$                           (b)  $4$   
(c)  $6$                           (d)  $25$
78. One-ninth of a certain number exceeds its one-tenth by 4. The number is
- (a)  $320$                         (b)  $360$   
(c)  $400$                         (d)  $440$
79. If  $\sqrt{4^n} = 1024$ , then the value of  $n$  is
- (a)  $5$                           (b)  $8$   
(c)  $10$                          (d)  $12$
80. If the LCM of three number is 9570, then their HCF will be
- (a)  $11$                          (b)  $12$   
(c)  $19$                          (d)  $21$
81. When 60 is subtracted from 60% of a number gives 60 then the number is
- (a)  $140$                         (b)  $200$   
(c)  $100$                         (d)  $170$
82. 10% of 15% of 500 is
- (a)  $75$                          (b)  $7.5$   
(c)  $0.75$                         (d)  $1.50$
83. In an examination 35% of the students passed and 455 failed. How many students appeared for the examination?
- (a)  $490$                         (b)  $1300$   
(c)  $700$                         (d)  $845$
84. If  $p : q = 3 : 4$  and  $q : r = 8 : 9$  then  $p : r$  is
- (a)  $1 : 3$                         (b)  $3 : 2$   
(c)  $1 : 2$                         (d)  $2 : 3$

85. If  $a : 5 = b : 7 = c : 8$ , then  $\frac{a + b + c}{a}$  is equal to
- (a) 2                      (b)  $\frac{1}{4}$   
(c) 7                        (d) 4
86. The average of 11 observation is 60. If the average of first five observation is 58 and that of last five is 56. Then sixth observation is
- (a) 110                    (b) 90  
(c) 85                        (d) 100
87. On selling a pen for ₹18, a man losses  $\frac{1}{10}$  of its original price. The original price of the pen is
- (a) ₹16.20                (b) ₹19.80  
(c) ₹20                      (d) ₹25
88. 12 men can do a piece of work in 10 days. How many men would be required to do the same work in 8 days?
- (a) 14                      (b) 18  
(c) 16                        (d) 15
89. If December 28<sup>th</sup> 2015 is Monday, then what will be the day on December 29<sup>th</sup> 2016?
- (a) Monday                (b) Wednesday  
(c) Thursday                (d) Sunday
90. A car is traveling some distance at a speed of 60 Km/hr and it returned the same distance at a speed of 40 Km/hr. Then the average speed of the car is
- (a) 50 Km/hr                (b) 48 Km/hr  
(c) 52 Km/hr                (d) 60 Km/hr
91. If 'SHARP' is encoded as '58034' and 'PUSH' as '4658', then 'RUSH' is encoded as
- (a) 3568                    (b) 3856  
(c) 3685                    (d) None of these
92. In a certain code 'GIRL' is written as '791812'. How is 'BOY' written in that code?
- (a) 21525                    (b) 25152  
(c) 21324                    (d) 121314
93. Find the next number of the sequence 5, 10, 17, 26, .....
- (a) 36                        (b) 37  
(c) 32                        (d) 30
94. Find the next number of the sequence 1, 2, 6, 15, .....
- (a) 28                        (b) 30  
(c) 29                        (d) 31
95. Pointing towards a person, a man said to a woman "His mother is the only daughter of your father." How is the woman related to that person?
- (a) Daughter                (b) Sister  
(c) Mother                    (d) Wife
96. Find the odd one out: 27, 49, 64, 125, 216
- (a) 27                        (b) 49  
(c) 64                        (d) 125
97. AK, EO, IS, ..... The next term is
- (a) MW                      (b) MV  
(c) XW                        (d) NX
98. Pranav walked 30m towards North, took a left turn and walked 40m. He again took a left turn and walked 30m. How far is he from the starting point?
- (a) 100m                    (b) 60m  
(c) 70m                        (d) 40m
99. A clock shows time 4:30. If the minute hand points towards the west, in which direction does the hour hand point?
- (a) North-East                (b) South-West  
(c) North-West                (d) North



100. The figure shows the different faces of a cube



The number shown at the opposite face of 2  
is

- (a) 3
- (b) 4
- (c) 6
- (d) Can't say