

MENIIT

NEET • IIT-JEE



MTSE SAMPLE PAPER

**Standard - IX
(Moving to Standard - X)**

Code : B-SP

MERIT & APTITUDE TEST

(CODE: B)

Time: 90 Minutes

Maximum Marks: 220

Instructions

(A) GENERAL

1. This booklet is your Question Paper. It contains **FIVE sections**. **Section-(A) has 9 questions of Physics, Section-(B) has 9 questions of Chemistry, Section-(C) has 9 questions of Biology, Section-(D) has 13 questions of Mathematics and Section-(E) contains 15 questions from Mental Aptitude.**
2. This booklet contains 55 questions of four mark each in all. All the questions are **COMPULSORY**.
3. Blank papers, clip boards, log tables, slide rule, calculators, cellular phones and electronic gadgets in any form, are not allowed.
4. Write your **Name and Roll No.** in the space provided at the bottom of this sheet.

(B) FILLING IN THE OMR SHEET

5. On the OMR sheet, write in ink your Name, Roll No., name of the centre and put your signature in the appropriate boxes.
6. Every question has four choices for its answer (A), (B), (C) & (D). Only one of them is the right answer.
7. On the OMR sheet, for each question number, darken only one bubble with pen only corresponding to what you consider to be the most appropriate answer.

(C) Marking Scheme

8. (i) You will be awarded 4 marks if you have darkened the bubble corresponding to the right answer.
- (ii) In case you have darkened the wrong bubble no marks will be deducted for that response. There is **NO NEGATIVE MARKING**.

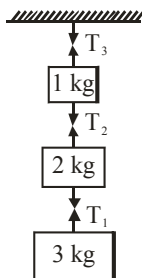
Name of the Candidate :

Roll Number :

Date of Examination : **Centre:**

SECTION – (A) PHYSICS

1. The ratio of the heights from which two bodies are dropped is 3:5 respectively. The ratio of their final velocities is:
 (a) $\sqrt{5} : \sqrt{3}$ (b) $\sqrt{3} : \sqrt{5}$ (c) 9: 25 (d) 5: 3
2. When the distance travelled by an object is directly proportional to the time, it is said to travel with
 (a) zero velocity (b) constant speed
 (c) constant acceleration (d) uniform velocity
3. In the system shown in the adjoining figure, the tension T_2 is:



- (a) g (b) $2g$ (c) $5g$ (d) $6g$
4. Friction does not depend upon the following factor
 (a) the nature of the surface (b) the normal reaction
 (c) the roughness of the surface (d) the area of contact
 5. Action and reaction forces act on
 (a) the same body (b) the different bodies
 (c) the horizontal surface (d) Nothing can be said
 6. Two bodies of mass 1 kg and 4 kg possess equal momentum. The ratio of their K.E:
 (a) 4: 1 (b) 1: 4 (c) 2: 1 (d) 1: 2
 7. A weight lifter lifts 240 kg from the ground to a height of 2.5 m in 3 second his average power is:
 (a) 1960 W (b) 19.6 W (c) 1.96 W (d) 196 W
 8. The orbits of planets around the sun are:
 (a) circular (b) parabolic (c) elliptical (d) straight
 9. The value of 'g' at a certain height h above the free surface of Earth is $x/4$ where x is the value of 'g' at the surface of Earth. The height h is
 (a) R (b) $2R$ (c) $3R$ (d) $4R$

SECTION – (B) CHEMISTRY

10. Which is not a pure substance in the four options given?
 (a) alloy (b) sugar (c) distilled water (d) copper wire

11. The pressure exerted by a gas is due to
(a) inter particle collisions
(b) collisions with the walls of the container
(c) gravity (d) atmospheric pressure
12. If a perfume bottle is opened in one corner of a room, the smell can be felt after sometime in the opposite corner. This shows that
(a) particles of matter are constantly moving
(b) the perfume is strong
(c) the room has fan which circulates the perfume
(d) None of these
13. Which of the following provides an example of a true solution?
(a) Blood (b) Milk (c) Starch solution (d) Sugar solution
14. Which of the following is a compound?
(a) air (b) Milk (c) Iodine (d) Water
15. The concentration of solution is the mass of the solute in grams, which is present in -
(a) 10 gm of solvent (b) 10 gm of solution
(c) 100 gm of solvent (d) 100 gm of solution
16. Which of the following is not correct according to Dalton's atomic theory?
(a) Matter is made up of atoms
(b) Atoms of all substances are identical in all respects
(c) Atoms combine in a simple whole number ratio
(d) Atoms of two elements can combine to form more than one compound.
17. Which of the following is the correct symbol for copper?
(a) Co (b) Cr (c) Cu (d) Cp
18. The correct formula of aluminium sulphate is
(a) $AlSO_4$ (b) Al_2SO_4 (c) $Al_3(SO_4)_2$ (d) $Al_2(SO_4)_3$

SECTION – (C) BIOLOGY

19. Which of the following is not a part of a prokaryotic cell?
(a) Plasma membrane (b) Nucleus
(c) Ribosomes (d) Cytoplasm
20. The semi-permeable membrane of a cell is:
(a) Cell wall (b) Plasma membrane
(c) Nuclear membrane (d) Cytoplasm
21. Mitochondria are known as the:
(a) Brain of the cell (b) Powerhouse of the cell
(c) Packaging center of the cell (d) None of the above
22. Which of the following organelles is responsible for photosynthesis?

- (a) Mitochondria (b) Golgi apparatus
 (c) Ribosomes (d) Chloroplast
23. The tissue that transports water in plants is:
 (a) Phloem (b) Xylem
 (c) Parenchyma (d) Collenchyma
24. Which of the following is an example of connective tissue?
 (a) Blood (b) Nervous tissue
 (c) Muscle tissue (d) Epidermis
25. Which plant tissue provides mechanical support and elasticity to the plant?
 (a) Parenchyma (b) Sclerenchyma
 (c) Collenchyma (d) Xylem
26. The type of tissue that forms the outer covering of the skin is:
 (a) Muscular tissue (b) Connective tissue
 (c) Nervous tissue (d) Epithelial tissue
27. Which of the following is living component of tissue that is responsible for the transport of water in plants?
 (a) Xylem Tracheids (b) Xylem Vessels
 (c) Xylem Parenchyma (d) Xylem Sclerenchyma

SECTION – (D) MATHEMATICS

28. 6 bells commence tolling together and toll at intervals of 2, 4, 6, 8, 10, 12 minutes respectively. In 30 hours, how many times do they toll together?
 (a) 15 (b) 16 (c) 17 (d) 19
29. The rationalized form of $\frac{\sqrt{8}}{\sqrt{11+\sqrt{12+\sqrt{8}}}}$ is
 (a) $\frac{18\sqrt{22} - 18\sqrt{6} + 120 - 32\sqrt{33}}{303}$ (b) $\frac{18\sqrt{22} + 18\sqrt{6} + 120 - 32\sqrt{33}}{303}$
 (c) $\frac{18\sqrt{22} + 18\sqrt{6} - 120 + 32\sqrt{33}}{303}$ (d) $\frac{18\sqrt{22} - 18\sqrt{6} - 120 - 32\sqrt{33}}{303}$
30. Find the roots of the equation $9x^3 - 27x^2 + 26x - 8 = 0$, given that one of the root of this equation is double the other:
 (a) 1, 2, 3 (b) $\frac{2}{4}, \frac{4}{9}, 1$ (c) $\frac{2}{3}, \frac{4}{3}, 1$ (d) $\frac{1}{6}, \frac{7}{8}, 0$
31. The remainder when $P(x) = x^{9999} + X^{8888} + \dots + X^{1111} + 1$ is divided by $g(x) = x^9 + x^8 + \dots + x + 1$ is:
 (a) $x^8 + \dots + x + 1$ (b) $x^{9990} + x^{8879} + \dots + x^{1102}$
 (c) 0 (d) 1
32. The perimeters of two triangles ABC and PQR are 32 cm and 24 cm respectively. If PQ = 12 cm, what is the value of AB?
 (a) 13 cm (b) 15 cm (c) 18 cm (d) 16 cm
33. The points A (3,0), B (4,5), C (-1, 4) and D (-2, -1) are the vertices of the rhombus. Find its area

- (a) 3 sq. units (b) 8 sq. units (c) 24 sq. units (d) 28 sq. units
34. Two sides of a triangle are 4 and 9; the median drawn to the third side has a length 6. If the square of the length of the third side is k , find the sum of the digits of k ?
 (a) $5\sqrt{2}$ (b) 5 (c) 50 (d) $5 + \sqrt{2}$
35. Find k , for which the system $2x + 3y - 5 = 0$, $4x + ky - 10 = 0$ has infinite number of solutions?
 (a) 4 (b) 3 (c) 6 (d) 9
36. What is the remainder obtained by dividing $kx^2 + x - 1$ by $x + 2k$?
 (a) $4k^3 - 2k + 1$ (b) $4k^3 - 2k - 1$ (c) $4k^3 + 2k + 1$ (d) $2k + 1$
37. If $f(x) = x^4 + ax^3 + bx^2 + cx + d$ is a polynomial such that $f(1) = 10$, $f(2) = 20$, $f(3) = 30$, then the value of $\frac{f(12) + f(-8)}{10}$ is equal to:
 (a) 2018 (b) 1984 (c) 600 (d) 698
38. The factor of $x^n + nx + n - 1$ is?
 (a) $(x - 1)$ (b) $(x + 1)^2$ (c) $(x - 1)^2$ (d) $(x + 1)$
39. In a quadrilateral ABCD, AO and BO are the bisectors of $\angle A$ and $\angle B$ respectively. Which of the following expressions satisfy the above condition?
 (a) $\angle AOB = \angle C + \angle D$ (b) $\angle AOB = \angle C \times \angle D$
 (c) $\angle AOB = \frac{\angle C + \angle D}{2}$ (d) $\angle AOB = \frac{3}{2}(\angle C + \angle D)$
40. If 4 cm, 8 cm and 2 cm are the measure of three-line segments, then can it be used to draw a triangle?
 (a) Yes (b) Can't say
 (c) No (d) Data Insufficient

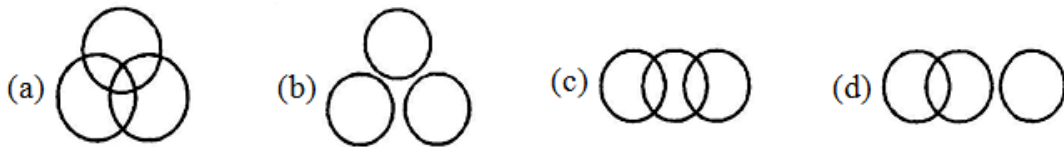
SECTION – (E) APTITUDE

41. A and B are brothers, C and D are sisters. The son of A is brother of D. Then the relation of B with C will be:
 (a) Husband (b) Brother (c) Uncle (d) Nephew
42. What is related to 'Diamond' in the same way as 'Soft' is related to 'Wax'?
 (a) Rough (b) Bright (c) Smooth (d) Hard
43. Rectangle : Square :: Ellipse : ?
 (a) Centre (b) Diameter (c) Circle (d) Radius
44. Thermometer : Degree :: Clock : ?
 (a) Wall (b) Tower (c) Hour (d) Cock
45. In certain code language, 'Tom Kun Sud' means "Dogs are barking", 'Kun Jo Mop' means 'Dogs and Horses' and 'Mut Tom Ko' means 'Donkeys are mad'. Which word in that language means 'barking'?
 (a) Sud (b) Kun (c) Jo (d) Tom

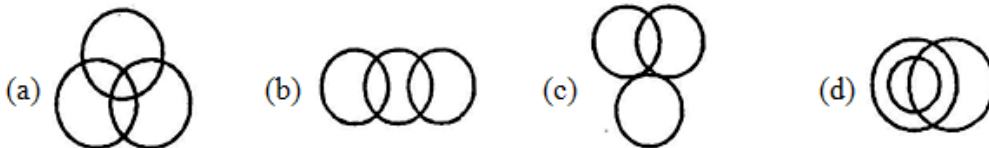
46. In a code language, 'mok dan sil' means 'nice big house'. 'fit kon dan' means 'house is good' and 'warm tir fit' means 'cost is high'. Which word stands for 'good' in that language?
 (a) mok (b) dan (c) fit (d) kon
47. If 'gnr tag zog qmp' stands for 'Seoul Olympic Organizing committee', 'hyto gnr emf' stands for 'summer Olympic games' and 'esm sdr hyto' stands for 'modern games history', what would be the code for 'summer'?
 (a) hyto (b) gnr (c) emf (d) zog

Which of the Venn diagrams given in the alternatives best represents the relation between the given items?

48. Doctors, Engineers, Lawyers



49. Books, Newspaper, Words



50. Siva starting from his house goes 5 km in the East, and then he turn to his left and goes 4 km. Finally, he turns to his left and goes 5 km. Now how far is he from his house and in what direction?
 (a) 4 km in south direction (b) 1 km in north direction
 (c) 4 km in north direction (d) None of these
51. One morning after sunrise Juhi while going to school met Lalli at Boring Road crossing. Lalli's shadow was exactly to the right of Juhi. If they were face to face, which direction was Juhi facing?
 (a) North (b) East (c) West (d) South
52. At 3.40, the hour hand and the minute hand of a clock form an angle of
 (a) 120° (b) 125° (c) 130° (d) 135°
53. If a mirror is placed opposite to a clock and the time shown in the clock is 4:30, then what will be time in the mirror's clock?
 (a) 7:30 (b) 8:30 (c) 4:30 (d) 10:30
54. If '+' means '×', '-' means '÷', '÷' means '+' and '×' means '-', then what will be the value of $16 \div 64 - 4 \times 4 + 3 = ?$
 (a) 20 (b) 52 (c) 12 (d) None of these
55. Six persons A, B, C, D, E and F are sitting in a circle. B is between F and C; A is between E and D; F is to the left of D. Who is between A and F
 (a) B (b) C (c) D (d) A

★ ★ ★ ★ ★

ANSWER KEY | SAMPLE PAPER**Standard – IX Moving to Standard – X • (Code : B-SP)**

- | | | |
|---------|---------|---------|
| 1. (b) | 20. (b) | 39. (c) |
| 2. (c) | 21. (b) | 40. (b) |
| 3. (c) | 22. (d) | 41. (b) |
| 4. (l) | 23. (b) | 42. (d) |
| 5. (b) | 24. (a) | 43. (c) |
| 6. (a) | 25. (c) | 44. (c) |
| 7. (d) | 26. (d) | 45. (a) |
| 8. (l) | 27. (c) | 46. (d) |
| 9. (a) | 28. (b) | 47. (c) |
| 10. (a) | 29. (b) | 48. (b) |
| 11. (b) | 30. (c) | 49. (b) |
| 12. (a) | 31. (c) | 50. (c) |
| 13. (d) | 32. (d) | 51. (d) |
| 14. (d) | 33. (c) | 52. (c) |
| 15. (d) | 34. (b) | 53. (a) |
| 16. (b) | 35. (c) | 54. (a) |
| 17. (c) | 36. (a) | 55. (c) |
| 18. (d) | 37. (b) | |
| 19. (b) | 38. (c) | |