



ISMART SAMPLE PAPER FOR CLASS 9th MOVING TO CLASS 10th (EQUIP)

Test ID : 00000000

Time : 90 min.

M. Marks: 240

The Test Consists (TOTAL 60 QUESTIONS)		
SUBJECTS	Qs.	SYLLABUS
Section A : Reasoning		
REASONING	10	General Reasoning
Section B : Scholastic Aptitude		
PHYSICS	12	Motion, Force, Gravitation
CHEMISTRY	11	Matter in Our Surroundings, Atomic Structure
BIOLOGY	12	Cell, Tissues
MATHEMATICS	15	Number System, Polynomials, Co-Ordinate Geometry, Linear Equations, Triangles

INSTRUCTIONS TO CANDIDATE

- Each subject in this paper consists of multiple choice questions with only one correct answer. **+4 marks** will be awarded for correct answer and **-1 mark** for wrong answer.
- Please read the instructions given for each question carefully and fill the correct answer against the question numbers on the answer sheet in the respective subject.
- **Use ball point pen to darken the appropriate circle & mark should completely fill the circle.**
- The Question paper contains blank spaces for your rough work. No additional sheet will be provided for rough work.
- Blank papers, Clipboards, Log Tables, Slide rule, Calculators, Cellular phones, Pagers and Electronic gadgets in any form are not allowed.
- Write your Name, Student ID in the block at the top of the Answer Sheet. Also write your Name & Student ID in the space provided on this cover page of question paper.

Name: _____ Student ID _____

REASONING

1. Paul takes the underground train to work and uses an escalator at the railway station. If Paul runs up 7 steps of the escalator, then it takes him 43.5 seconds to reach the top of the escalator. If he runs up 14 steps of the escalator, then it takes him only 33.0 seconds to reach the top.

How many seconds would it take Paul to reach the top if he did not run up any steps of the escalator at all?

- (A) 54 (B) 56
(C) 57 (D) 60

2. If you Arrange these scrambled letters to make simple English words – linges, nnuo, mader, troac, elitlt, centis pick the FIRST letters from the above words, then which word will be formed after unscrambling those first letters?

- (A) ground (B) island
(C) louder (D) stound

3. Grandpa: “My grandson is about as many days as my son is weeks, and my grandson is as many months as I am in years. My grandson, my son and I together are 100 years. Can you tell me my age in years?”

- (A) 50 (B) 60
(C) 65 (D) 70

4. Find the logically consistent pair of sentences on the basis of the given information

If Anita and Sheila are not dancing, Anjali cannot dance.

- A. Anita and Sheila are dancing.
B. Anjali cannot dance.
C. Anita and Sheila are not dancing.
D. Anjali is dancing.

- (A) DA (B) BA
(C) DB (D) BD

5. **Fact 1:** Pictures can tell a story.

Fact 2: All storybooks have pictures.

Fact 3: Some storybooks have words.

If the first three statements are facts, which of the following statements must also be a fact?

I: Pictures can tell a story better than words can.

II: The stories in storybooks are very simple.

III: Some storybooks have both words and pictures.

- (A) I only (B) II only
(C) III only (D) None of the statements is known fact

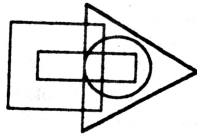
6. Which letter replaces the question mark?

E		B		D		A
9	3	6		9	4	3
A		H		B		C
B		E		A		G
9	7	5		6	1	2
C		I		C		?

- (A) E (B) F
(C) I (D) P

Directions : (Q7-8) The triangle stands for sportsmen. The circle stands for cricketers. The rectangle stands for boys. The square stands for non-urban. Study the diagram carefully and answer each question.

7.



In the above diagram which one of the following statements is true?

(A) All non urban sportsmen are sportsmen and do not play cricket
(B) There are boys who are sportsmen and do not play cricket

(C) All urban boys are not sportsmen
(D) All urban boys play cricket

8. In the above diagram which one of the following statements is true?

(A) There are some non urban sportsmen but not cricketers.
(B) There are some non urban boys who are not cricketers but who are sportsmen.

(C) There are non cricketer sportsmen among the non urban boys.
(D) There are some urban boys who are not cricketers

Directions : (Q. 9-10) : Each of the problem below consists of a question and three statements, I, II and III given below it. Read all the statements carefully and seek all possible combinations which could be sufficient for answering the question. A single statement or statements with least combinations which could be sufficient for answering the question would be your answer

9. In which year was Tarun born?
- I. Tarun is six years older than Rabin.
 - II. Rabin's brother was born in 1982.
 - III. Tarun's brother is two years younger than Rabin's brother who was eight years younger than Rabin.

(A) I and III only (B) II and III only
(C) All I, II and III (D) I and II only

10. Who among P, Q, R, S and T is in the middle while standing in a line?

I. Q is to the right of T.

II. S is between P and T.

III. Q is between T and R.

(A) I and II only (B) II and III only
(C) I and III only (D) All I, II, III

Physics

11. A man travels two metres toward East, one metre toward North, six metres toward West, and four metres toward South.

What is the net displacement of the man?

(A) 2 m (B) 4 m
(C) 5 m (D) 9 m

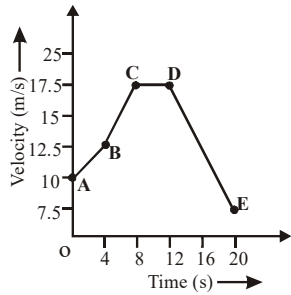
12. A quantity has a value of -6.0 m/s. It may be the

(A) speed of a particle (B) velocity of a particle
(C) acceleration of a particle (D) position of a particle

13. A bus is moving uniformly with a velocity of 36 km/h. The driver presses the accelerator for 15 seconds, thereby causing the velocity of the bus to rise up to 54 km/h. What is the acceleration produced in the bus?

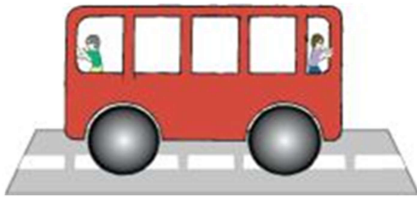
(A) 0.11 m/s^2 (B) 0.22 m/s^2
(C) 0.33 m/s^2 (D) 0.44 m/s^2

14. The velocity-time graph of a motorcycle is shown. What is the difference between the initial and final velocities of the motorcycle?



- (A) 2.5 m/s (B) 5.0 m/s
 (C) 7.5 m/s (D) 10 m/s

15. Ajay and Vijay are trying to push a bus from the inside, as shown in the given figure. The bus is moving toward right at a uniform speed.



The application of their force will

- (A) cause the bus to stop
 (B) reduce the speed of the bus
 (C) increase the speed of the bus
 (D) cause no effect on the speed of the bus
16. A boat of mass 3000 kg, initially at rest is pulled by a force of 1.8×10^4 Newton through a distance of 3 m. Assuming that the resistance due to water is negligible, velocity of boat is -
 (A) 6 m/s (B) 8 m/s
 (C) 9 m/s (D) 11 m/s
17. Birds use Newton's third law of motion during their lift.



Which figure gives the correct direction of the action-reaction force?

- (A) (B)
 (C) (D)

18. A force can be completely described by :
 (A) its magnitude (B) its direction
 (C) its magnitude and direction (D) neither magnitude nor direction
19. The force of gravitation between two bodies of mass 1 kg each kept at a distance of 1 m is
 (A) 6.67 N (B) 6.67×10^{-9} N
 (C) 6.67×10^{-7} N (D) 6.67×10^{-11} N
20. The mass of a body is measured to be 12 kg on the earth. If it is taken to the moon, its mass will be
 (A) 12 kg (B) 6 kg
 (C) 2 kg (D) 72 kg
21. The gravitational force of attraction between two bodies of masses M and m is F . Now, the mass M is replaced by another mass $2M$ and the mass m is replaced by another mass $3m$. In order to restore the force of attraction to its original value, the separation between the two masses must be
 (A) increased by $\sqrt{6}$ times the original value
 (B) decreased by $\sqrt{6}$ times the original value

(C) increased by $\frac{1}{\sqrt{56}}$ times the original value (D) decreased by $\frac{1}{\sqrt{56}}$ times the original value

22. If the diameter of earth becomes 3 times its present value, but mass does not change, the weight of an object will decrease to :

(A) $\frac{1}{3}$ th

(B) $\frac{1}{6}$ th

(C) $\frac{1}{8}$ th

(D) $\frac{1}{9}$ th

Chemistry

23. Which of the following method is used for separation of different components of petroleum ?

(A) Fractional distillation (B) Sublimation

(C) Chromatography (D) Simple distillation

24. Which of the following substances when mixed with sand cannot be separated by sublimation ?

(A) NaCl (B) NH_4Cl

(C) Camphor (D) Iodine

25. On changing which of the following, the states of matter can be changed ?

(A) Temperature (B) Pressure

(C) (A) & (B) both (D) None of these

26. Which of the following is a chemical change ?

(A) Mixing of iron filings and sand (B) Freezing of water

(C) Passage of electricity through wires (D) Burning of a candle

27. In Rutherford's gold foil experiment most of the α -particles pass through the gold foil without any deviation from their paths. This indicates that

(A) the atom is spherical (B) there is a positively charged nucleus at the centre of the atom

(C) the entire mass of the atom is concentrated at the nucleus of the atom (D) most of the atom is an empty space

28. Which of the following is true solution ?

(A) Milk (B) Chalk powder in water

(C) Salt solution (D) Blood

29. Isotopes of an element are the atoms which have

(A) the same number of neutrons in their nuclei (B) the same number of protons in their nuclei

(C) the same mass number (D) different number of electrons in their orbits

30. Atom X has 27 protons, 29 neutrons, and 27 electrons.

Atom Y has 27 protons, 30 neutrons, and 27 electrons.

Atoms X and Y are -

(A) Isobars (B) Isomers

(C) Isotopes (D) Isotherms

31. Which one of the following is an incorrect statement?

(A) Cooling is produced during melting (B) The temperature changes steadily on heating

(C) The melting point of ice is 0°C (D) Once melting starts, the temperature stays

- at 0°C until all the ice has melted.
32. When water solidifies to ice, then heat is :
 (A) Absorbed (B) Evolved
 (C) No change (D) Heat may be evolved or absorbed
33. During evaporation, particles of a liquid change to vapours only :
 (A) From the surface (B) From the bulk
 (C) From both surface and bulk (D) Neither from surface nor from bulk.

Biology

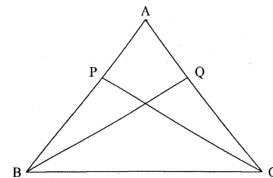
34. Chromosomes are made up of
 (A) DNA (B) Protein
 (C) DNA and protein (D) RNA
35. Which of these is not related to endoplasmic reticulum?
 (A) It behaves as a transport channel for proteins between nucleus and cytoplasm.
 (B) It transports materials between various regions in the cytoplasm.
 (C) It can be the site of energy generation.
 (D) It can be the site for some biochemical activities of the cell.
36. If Animal cell lacking nuclei would also lack in
 (A) Ribosome (B) Lysosome
 (C) Endoplasmic reticulum (D) Chromosome
37. Which of the following are examples of prokaryotes?
 (A) Algae (B) Fungi
 (C) Bacteria (D) Protozoa

38. The barrier between the protoplasm and the outer environment in an animal cell is
 (A) Cell wall (B) Plasma membrane
 (C) Nuclear membrane (D) Cytoplasm
39. DNA is not found in :
 (A) Nucleus (B) Mitochondria
 (C) Golgi Apparatus (D) All of these
40. Plasmodesmata connections help in :
 (A) Cytoplasmic streaming (B) Synchronous mitotic divisions
 (C) Locomotion of unicellular organisms (D) Movement of substances between cells
41. Roots develop from :
 (A) Stem (B) Leaves
 (C) Plumule (D) Radicle
42. Lignified elongated dead cells are :
 (A) Parenchyma (B) Collenchyma
 (C) Sclerenchyma (D) None of the above
43. The intercellular matrix/space is negligible or absent in which of the following tissue
 (A) Connective tissue (B) Epithelial tissue
 (C) Muscular tissue (D) Cardiac tissue
44. The ciliated epithelium in our body may be found in
 (A) Ureter (B) Trachea
 (C) Stomach (D) Uterine tube
45. Match the following and choose the correct option
- | | |
|------------------|------------------------------|
| a. Osteocytes | 1. Fluid connective tissue |
| b. Schwann cells | 2. Skeletal tissue |
| c. Thrombocyte | 3. Areolar connective tissue |
| d. Fibroblast | 4. Nervous tissue |
- (A) a – 1, b – 3, c – 2, d – 4
 (B) a – 2, b – 4, c – 1, d – 3
 (C) a – 3, b – 2, c – 1, d – 4
 (D) a – 2, b – 4, c – 3, d – 1
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Mathematics

46. The sum of $0.\bar{3}$ and $0.\bar{4}$ is :
 (A) $\frac{7}{10}$ (B) $\frac{7}{9}$
 (C) $\frac{7}{99}$ (D) $\frac{7}{11}$
47. Simplify : $\frac{13^{\frac{1}{5}}}{13^{\frac{1}{3}}}$
 (A) $13^{\frac{2}{15}}$ (B) $13^{\frac{8}{15}}$
 (C) $13^{\frac{1}{3}}$ (D) $13^{-\frac{2}{15}}$
48. A rational number lying between $\sqrt{2}$ and $\sqrt{3}$ is :
 (A) $\frac{\sqrt{2} + \sqrt{3}}{2}$ (B) $\sqrt{6}$
 (C) 1.6 (D) 1.9
49. Which of the following is the value of $(\sqrt{11} - \sqrt{7})(\sqrt{11} + \sqrt{7})$?
 (A) -4 (B) 4
 (C) $\sqrt{11}$ (D) $\sqrt{7}$
50. The coefficient of x^2 in $(2 - 3x^2)(x^2 - 5)$ is :
 (A) -17 (B) -10
 (C) -3 (D) 17
51. The value of $(2a - b)^3 + (b - 2c)^3 + 8(c - a)^3$ is:
 (A) $(2a - b)(b - 2c)(c - a)$
 (B) $3(2a - b)(b - 2c)(c - a)$
 (C) $6(2a - b)(b - 2c)(c - a)$
 (D) $2a \times b \times 2c$
52. If $P(x) = 7 - 3x + 2x^2$, then value of $P(-2)$ is
 (A) 12 (B) 31
 (C) 21 (D) 22
53. Which of the following is a polynomial in x ?
 (A) $x + \frac{1}{x}$ (B) $x^2 + \sqrt{x}$
 (C) $x + \sqrt{2x^2 + 1}$ (D) $\sqrt{3x} + 1$

54. The co-ordinates of a point are $(-3, -7)$. It lies :
 (A) to the left of the y-axis (B) to the right of the y-axis
 (C) above the x-axis (D) all the above
55. The perpendicular distance of the point $P(3, 4)$ from the y-axis is :
 (A) 3 (B) 4
 (C) 5 (D) 7
56. The point $(-5, 2)$ and $(2, -5)$ lie in the :
 (A) same quadrants (B) II and III quadrants respectively
 (C) II and IV quadrants (D) IV and III quadrants respectively
57. Two equilateral triangles are congruent when
 (A) their angles are equal (B) their sides are equal
 (C) their sides are proportional (D) their area are proportional
58. One of the angles of a triangle is 75° . If the difference of the other two angles is 35° , then the largest angle of the triangle has a measure of :
 (A) 80° (B) 75°
 (C) 100° (D) 135°
59. In the figure, if $AB = AC$ and $AP = AQ$, then by which congruence criterion $\triangle PBC \cong \triangle QCB$?



- (A) SSS (B) ASA
 (C) SAS (D) RHS
60. Angles of a triangle are in the ratio 2 : 4 : 3. The smallest angle of the triangle is
 (A) 20° (B) 40°

(C) 60°

(D) 80°

Answer Key

1. A
2. B
3. B
4. A
5. C
6. B
7. D
8. A
9. C
10. B
11. C
12. B
13. C
14. A
15. D
16. A
17. D
18. C
19. D
20. A
21. A
22. D
23. A
24. A
25. C
26. D
27. D
28. C
29. B
30. C
31. A
32. B
33. A
34. C
35. C
36. D
37. C
38. B

39. C
 40. D
 41. D
 42. C
 43. B
 44. B
 45. B
 46. B
 47. D
 48. C
 49. B
 50. D
 51. C
 52. C
 53. C
 54. A
 55. A
 56. C
 57. B
 58. B
 59. C
 60. B
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