



S I M S[®]

(SCHOLARS INTEGRAL MATHS & SCIENCE OLYMPIADS)



BIGGEST NATIONAL LEVEL OLYMPIADS (STAGE - II) : 2018-19

MAX. MARKS : 100

SISO QUESTION PAPER

TIME: 60 MIN.

NAME OF THE STUDENT :

HALL TICKET NUMBER :

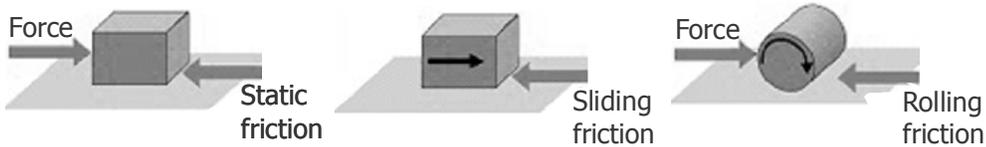
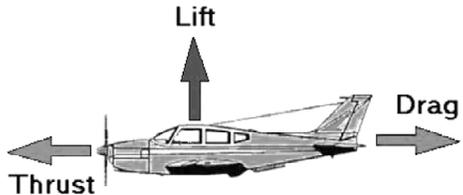
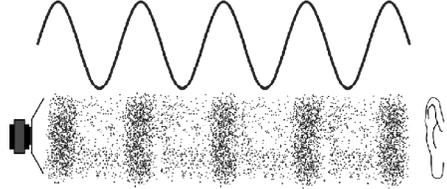
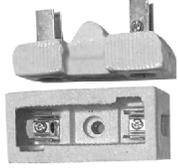
NAME OF THE SCHOOL :

INSTRUCTIONS TO THE STUDENTS :

- ☞ Write your Hall ticket number immediately after receiving the question paper booklet.
- ☞ Darken the answers only on the OMR Sheet.
- ☞ Read the instructions given on the OMR sheet and follow them accordingly.
- ☞ Don't write any thing on the question paper booklet.
- ☞ To do rough work, use only the white paper provided in the examination hall.
- ☞ **No negative marks.**
- ☞ This question paper booklet consists of 45 questions.
- ☞ **PHYSICS (Q.No-1 to 15) :**
 - First 10 questions (1 to 10) are single correct answer type.
 - Each question carries TWO marks.
 - Next 5 questions (11 to 15) are one or more than one correct answer type.
 - Each question carries THREE marks.
- ☞ **CHEMISTRY (Q.No-16 to 30) :**
 - First 10 questions (16 to 25) are single correct answer type.
 - Each question carries TWO marks.
 - Next 5 questions (26 to 30) are one or more than one correct answer type.
 - Each question carries THREE marks.
- ☞ **BIOLOGY (Q.No-31 to 45) :**
 - All questions (31 to 45) are single correct answer type.
 - Each question carries TWO marks.
- ☞ Students are not allowed to use any Mathematical and Physical tables (OR) any other electronic devices.
- ☞ After completion of the examination hand over the OMR answer sheet to the invigilator without fail. You can retain the question paper with you.
- ☞ Students should not leave the examination hall before the last bell rings.
- ☞ To know your results log in to our website **www.simsolympiads.com**.
- ☞ Stage-I branch result copy will be sent to the school mail id. Please contact your principal to know your result.

Single Correct Answer Type :

 $10 \times 2 = 20M$

- What are the two factors that affect the friction force between two surfaces?
 - Mass and distance
 - Mass and weight
 - Type of surface and how hard the surfaces push together
 - Type of surface and amount of gravity
- Four children were asked to arrange forces due to rolling, static and sliding frictions
 - Rolling, Static, Sliding
 - Static, Rolling, sliding
 - Rolling, Sliding, Static
 - Sliding, static, Rolling
- Force of "lift" on aeroplane acts upwards in direction of weight of plane which pulls it
 - Upwards
 - Downwards
 - Foreward
 - Backward
- Sound can be transmitted through a medium which
 - Contains charge
 - Has higher density than air
 - Contains molecules that vibrate
 - Contains molecules that collide
- Angle of incidence is equal to angle of
 - Reflection
 - Refraction
 - Transmission
 - Incident
- Which property of the electricity is responsible for use of fuse wire in household wiring?
 - Chemical effect
 - Heating effect
 - Magnetic effect
 - All of these
- A constant mass undergoes negative uniform acceleration, when the resultant force acting on it
 - Increases uniformly and is in the opposite direction of the mass
 - Is constant and opposite to the direction of motion of the mass
 - Is constant and in the direction of motion of the mass
 - Is constant and in the negative direction
- Name the scientist who showed that lightning and the spark from your clothes are essentially the same phenomena?
 - Thomas Alva Edison
 - Benjamin Franklin
 - Franklin D. Roosevelt
 - Isaac Newton
- Given that $S = 5t + 8t^2$ (in SI unit). Then the initial velocity and acceleration are
 - 5 m/s, 8 m/s²
 - 5 m/s, 4 m/s²
 - 10 m/s, 16 m/s²
 - 5 m/s, 16 m/s²

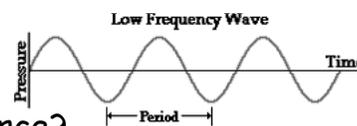
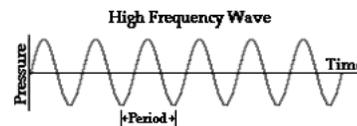
10. Which of the following is correct if the particle is travelling with a constant speed.
- 1) Its acceleration is zero
 - 2) Its position remains constant as time passes
 - 3) It does not change its direction of motion
 - 4) It covers equal distance in equal time intervals

Multi Correct Answer Type :

5 × 3 = 15M

11. Which of the following liquids conduct electricity?
- 1) Acids
 - 2) Bases
 - 3) Salts
 - 4) Distilled water
12. On which factor does the conductance of electrolytic solution depends?
- 1) Temperature
 - 2) Number of charge
 - 3) Dielectric constant of the solvent
 - 4) Pressure

13. The frequency of sound can be measured in
- 1) Hertz
 - 2) Cycles / second
 - 3) Cycles
 - 4) Vibrations/ second



14. Which of the following is a example of friction as a helpful force?
- 1) Using your hand to wave hello to a friend
 - 2) Using a cloth to clean a pair of glasses
 - 3) Using a marker to draw a picture on paper
 - 4) Using a scrub brush to wash dishes
15. A ball is dropped downward from the roof of a building and simultaneously another ball is thrown in a horizontal direction, when will the balls reach the ground, according to the principle of physical independence ?
- 1) The first ball will reach later than the second ball
 - 2) The second ball will reach later than the second ball
 - 3) Same time but different places
 - 4) The vertical motion is not affected by the horizontal motion

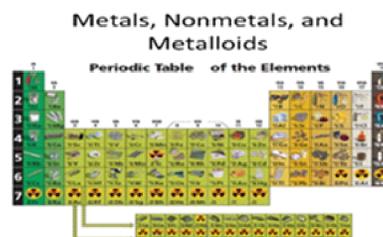
CLASS : VIII

CHEMISTRY

Single Correct Answer Type :

10 × 2 = 20M

16. Compared with metals, non-metals in general are _____.
- 1) Better conductors of electricity
 - 2) More active chemically
 - 3) Less easily deformed (by bending, for instance)
 - 4) More dense



17. Match the hormones in column I with items in column II and select the correct answer using the codes given below the lists:

Column - I

Column - II

- a) Fibre used in making aircraft tyres
- b) Fre retardant plastic
- c) Example of thermoplastic
- d) Familiar form of polyester

- p) PVC
- q) PET
- r) Nylon
- s) Mealamine

- 1) a-r, b-p, c-s, d-q
- 2) a-r, b-s, c-p, d-q
- 3) a-q, b-s, c-p, d-r
- 4) a-q, b-s, c-r, d-p

18. Goldsmiths use the outermost zone of a flame with metallic blow pipe for melting gold and silver. The is because _____.

- 1) It has vapours which help in melting gold and silver
- 2) Oxygen supply is less in this zone
- 3) It has unburnt carbon particles
- 4) It is the hottest zone



19. Match the hormones in Column I with items in Column II and select the correct answer using the codes given below the lists:

Column - I

Column - II

- | | |
|---------------|-------------------------|
| a) Petroleum | i) Non-polluting fuel |
| b) Coal | ii) Produce more energy |
| c) CNG | iii) Insoluble in water |
| d) Good fuels | iv) Wood |
| e) Bitumen | v) Petroleum product |

- | | |
|--|---|
| 1) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii), (e)-(v) | 2) (a)-(ii), (b)-(v), (c)-(i), (d)-(iii),(e)-(iv) |
| 3) (a)-(i), (b)-(ii), (c)-(iii), (d)-(v) ,(e)-(iv) | 4) (a)-(iii), (b)-(ii), (c)-(i), (d)-(iv),(e)-(v) |

20. This stove uses kerosene oil.

Burning of kerosene is a type of combustion known as _____.

- 1) Rapid combustion
- 2) Spontaneous combustion
- 3) Explosion
- 4) All of these



21. Study the given table carefully and select the appropriate option.

Sample	Conductor of Electricity	Malleability
I	yes	no
II	no	yes
III	no	yes
IV	yes	yes

- | | | | |
|------------|------------|-------------|-------------|
| 1) I is Cu | 2) II is S | 3) III is C | 4) IV is Ag |
|------------|------------|-------------|-------------|

22. The _____ zone of the candle flame is _____ hot.

- 1) Outermost. least
- 2) Innermost, most
- 3) Innermost, least
- 4) Middle, most



23. Match column I with column II and select the correct answer from the codes given below.

Column I

- P) A synthetic fibre also called as artificial silk
 Q) A synthetic fibre also known as lycra
 R) A synthetic fibre that closely resembles wool
 S) The first true synthetic fibre

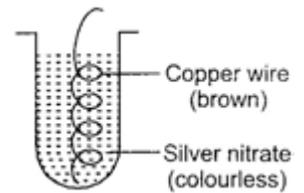
Column II

- i) Spandex
 ii) Acrylic
 iii) Rayon
 iv) Nylon

- 1) P - (iv), Q - (ii), R - (iii), S - (i) 2) P - (iii), Q - (i), R - (ii), S - (iv)
 3) P - (ii), Q - (iii), R - (i), S - (iv) 4) P - (iii), Q - (ii), R - (iv), S - (i)

24. Vidisha placed a copper wire in silver nitrate solution as shown in the figure. Which of the following represents the correct observation?

- 1) The colour of the solution turned red and precipitate of solid silver was obtained.
 2) Colour of solution turned green and copper wire turned blue.
 3) There was no change in the colour of solution or colour of the wire.
 4) Colour of the solution became silver and there was no change in the colour of copper wire



25. Read the given statements and select the correct option.

Statement 1 : Silver objects become green and lose their shine with the passage of time.

Statement 2 : Silver reacts with moisture present in the atmosphere.

- 1) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1
 2) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1
 3) Statement 1 is true and statement 2 is false.
 4) Both statements 1 and 2 are false.

Multi Correct Answer Type :

5 × 3 = 15M

26. Why do substances like wax and kerosene oil produce flame while burning? Choose the incorrect statement ?

- 1) Wax and kerosene oil liquefy during burning and form flame
 2) Wax and kerosene oil vaporize during burning
 3) Flame is produced because kerosene oil and wax have high ignition temperatures
 4) Kerosene oil and wax are combustible substances and every combustible substance always produce flames on burning

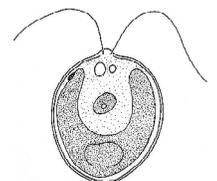
27. Which of the following statements are true ?

- 1) Natural fibres are less resistant than plastic towards chemical
 2) Plastics are resistant to shock
 3) Plastics are bad conductor of electricity
 4) Plastics are better insulator than natural fibre

34. Bacteria that thrive very well at low temperature are called :
 1) Thermophiles 2) Psychrophiles 3) Mesophiles 4) Basophiles
35. Pick the correct code to complete the following table.

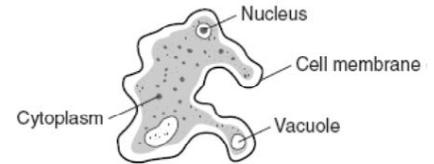
Vaccine	Dosage	Method of administration	Site of administration
DPT	0.5 ml	Intramuscular	Buttock, Arm or thigh
BCG	(b) (infants) 0.05 ml (below 4 weeks)	Intradermal	Left upper arm
Polio	0.5 ml	Oral	Mouth
Typhoid	0.5 ml (5 to 6 years)	(c)	Arm or thigh
(a) Smallpox	0.5 ml 0.002 m	Subcutaneous Intradermal (multiple puncture)	Upper left arm (d)

- 1) (a) - Polio, (b) - 0.05 ml, (c) - Subcutaneous, (d) - Left upper arm
 2) (a) - Typhoid, (b) - 0.002 ml, (c) - Oral, (d) - Arm
 3) (a) - DPT, (b) - 0.1 ml, (c) - Intradermal, (d) - Mouth
 4) (a) - Measles, (b) - 0.1 ml, (c) - Intramuscular, (d) - Lower arm
36. Which of the following organelles from a living specimen can NOT be observed under the light microscope (using a × 100 objective) ?
 1) The nucleus of a plant cell 2) Ribosomes in an animal cell
 3) Chloroplasts in a plant cell 4) Mitochondria in a plant cell
37. Match the hormones in list I with items in List II and select the correct answer using the codes given below the lists:
- | | |
|---------------|---|
| List - I | List - II |
| A. Adrenalin | 1. Anger, fear, danger |
| B. Estrogen | 2. Attracting partners through sense of smell |
| C. Insulin | 3. Females |
| D. Pheromones | 4. Glucose |
- 1) A → 1, B → 3, C → 4, D → 2 2) A → 1, B → 3, C → 2, D → 4
 3) A → 3, B → 1, C → 4, D → 2 4) A → 3, B → 1, C → 2, D → 4
38. This is a diagram of a single - celled organism, which organelle is the controlling centre of all the activities of the cell?
 1) Mitochondria 2) Nucleus
 3) Cytoplasm 4) Flagellum



39. The secretory phase of the menstrual cycle :
- 1) is associated with dropping levels of oestrogen and progesterone
 - 2) is when the endometrium begins to degenerate and menstrual flow occurs
 - 3) corresponds with the follicular phase of the ovarian cycle
 - 4) corresponds with the luteal phase of the ovarian cycle

40. In this diagram of a single - celled organism, which organelle functions as a place to store extra water?



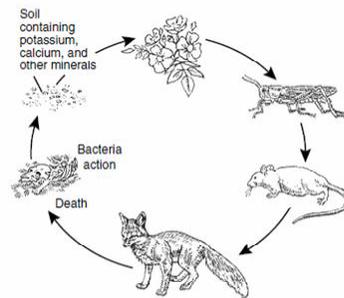
- 1) Cytoplasm
- 2) Vacuole
- 3) Cell membrane
- 4) Nucleus

41. For growth, Viruses require

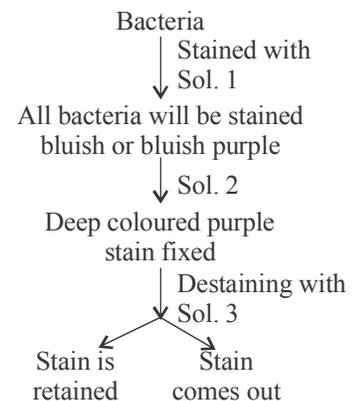
- 1) Minerals
- 2) Living host
- 3) Dead host
- 4) Simple sugars

42. Which concept is best illustrated by this diagram?

- 1) Cycling of nutrients in a community
- 2) The effect of limiting factors in a biome
- 3) Environmental pressures on a population
- 4) The exchange of CO₂ and O₂ in an ecosystem



43. You were given a collection of bacteria and asked to distinguish them as gram +ve and gram -ve. The following flow chart represents the procedure of gram staining. What are likely to be in sol. 1, sol.2 and sol.3?



- 1) Crystal violet, alcohol, Jaunas green
- 2) Crystal violet, iodine, solution, alcohol + water
- 3) Crystal violet, water, alcohol
- 4) Crystal violet, water, iodine solution

44. Arrange the following organelles of eukaryotic cell in descending order of size

- a) Mitochondrion b) Nucleus c) Granum d) Ribosome e) Chloroplast

- 1) b, a, c, e, d
- 2) e, a, b, c, d
- 3) a, e, c, b, d
- 4) b, e, a, c, d

45. The microorganism in the given figure is associated with which of the following functions?

- 1) Nitrogen fixation
- 2) Photosynthesis
- 3) Transpiration
- 4) Both (1) & (2)

