

DESIGN OF THE QUESTION PAPER OF PRACTICAL SKILLS

Science Class IX (Practicals)

Time : 1½ hours

Maximum Marks : 20

The weightage of distribution of marks over different dimensions of the question paper shall be as follows :

A. SKILL-WISE WEIGHTAGE

Most questions involve multiple skills, and it may not always be possible to precisely assign particular skills to a given question. The skill-wise weightage given in the table below should therefore be considered as only indicative of what is required in the question paper.

| Objective | Weightage |
|-------------------------------------|-------------|
| Procedural and Manipulative skills | 35% |
| Observational skills | 35% |
| Drawing skills | 15% |
| Reporting and Interpretative skills | 15% |
| TOTAL | 100% |

B. QUESTION-WISE WEIGHTAGE

All the 30 questions would be of the multiple choice variety having only one correct answer. First 20 questions will carry 0.5 mark each while rest of 10 questions will carry 1 mark each.

C. EXPECTED TIME

Appropriate time for reading and answering one question

: 25 minutes

Revision time

: 15 minutes

D. DIFFICULTY-WISE WEIGHTAGE

| S. No. | Estimated difficulty level | Percentage |
|--------|----------------------------|------------|
| 1. | Easy | 15 |
| 2. | Average | 70 |
| 3. | Difficult | 15 |

SAMPLE QUESTION PAPER 1

(Practical Skills)

Time : 1½ Hours

Maximum Marks : 20

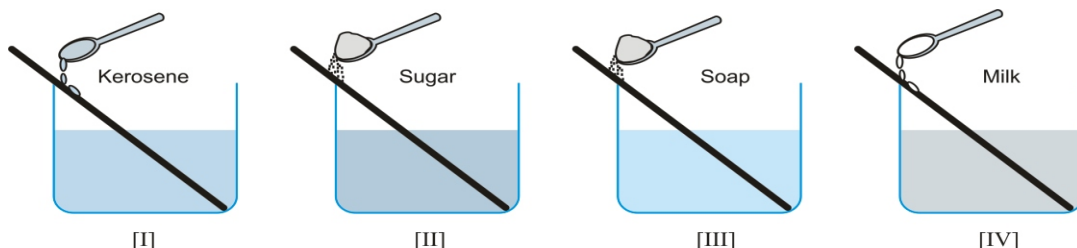
INSTRUCTIONS :

1. Attempt all questions.
2. There are 30 multiple choice questions in total. Only one of the option in every question is correct.
3. The question paper consists of two parts - Section A and Section B. Each of the 20 Questions in section A carried 0.5 mark and each of the 10 questions in section B carried 1.0 mark.

SECTION - A

1. The following substances are added to water in a beaker as shown below. The mixture is stirred well. A true solution is found in the beaker

- (a) I
- (b) II
- (c) III
- (d) IV



2. When we start heating a mixture of sulphur powder and iron filings, we would observe that

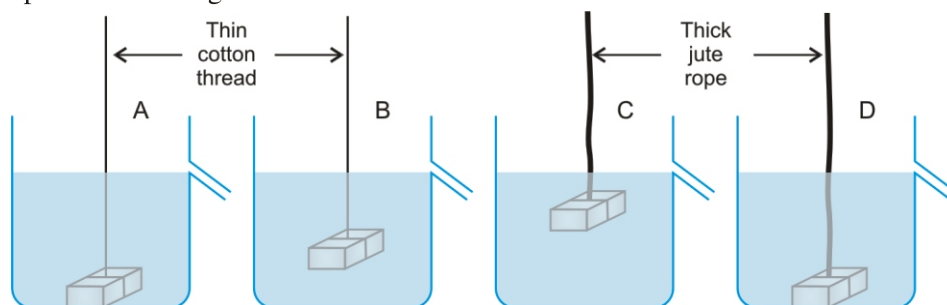
| | |
|--|--|
| (a) sulphur starts melting <input type="checkbox"/> | (b) iron filings starts melting <input type="checkbox"/> |
| (c) mixture becomes red hot <input type="checkbox"/> | (d) mixture evaporates. <input type="checkbox"/> |
3. When magnesium combines with oxygen it produces magnesium oxide that appears to be like

| | |
|---|--|
| (a) wood ash <input type="checkbox"/> | (b) chalk powder <input type="checkbox"/> |
| (c) table salt <input type="checkbox"/> | (d) powdered sugar. <input type="checkbox"/> |
4. When dilute sulphuric acid is added to zinc granules, you will observe that

| | |
|--|--|
| (a) a precipitate is formed <input type="checkbox"/> | |
| (b) the reaction mixture turns yellow <input type="checkbox"/> | |
| (c) the container becomes hot <input type="checkbox"/> | |
| (d) bubbles start coming out from the surface of zinc granules. <input type="checkbox"/> | |
5. The correct observation when you mix barium chloride solution with sodium sulphate solution is that

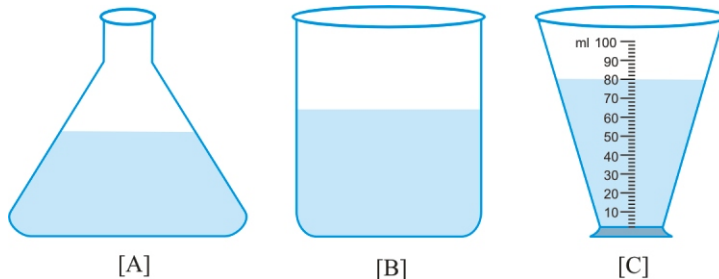
| | |
|--|--|
| (a) a white precipitate is formed after some time <input type="checkbox"/> | (b) a yellow precipitate is formed after some time <input type="checkbox"/> |
| (c) a white precipitate is formed instantaneously <input type="checkbox"/> | (d) a yellow precipitate is formed instantaneously. <input type="checkbox"/> |
6. In the experiment to establish the relation between loss in weight of an immersed solid with the weight of water displaced by it, the correct setup is shown in figure

- (a) A
- (b) B
- (c) C
- (d) D

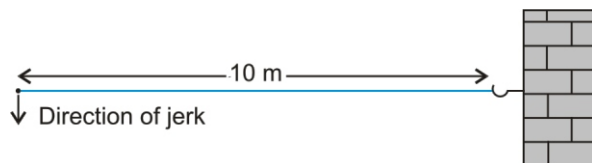


7. A given solid is weighed in air using a spring balance. It is then weighed by immersing it fully, in each of the three vessels containing water, as shown. Its weight when immersed, will be

- (a) least in vessel C
- (b) least in vessel B
- (c) least in vessel A
- (d) equal in all the three vessels.



8. A rope 10 m long is tied to the hook in a wall and its other end is held tightly. A sharp jerk is given to the rope in the upward direction as shown in diagram. The disturbance produced in the rope is :



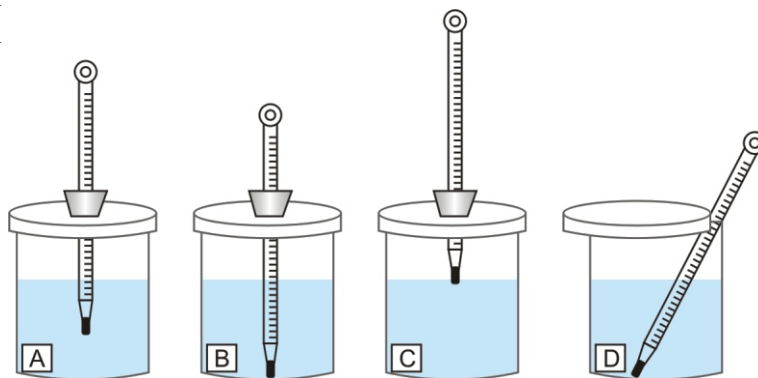
- (a) Longitudinal wave
- (b) Transverse wave
- (c) Pulse
- (d) Electromagnetic wave.

9. In order to perform experiment with slinky a student fixes its one end to the wall. He stretches the slinky to 8 m and proceeds to generate a pulse. The student should.

- (a) move the slinky up and down at right angle to the direction of slinky
- (b) move the slinky back and forth in the direction of stretch of slinky
- (c) move the slinky in a rotatory motion
- (d) move it forward by a few centimetres by giving it a sharp jerk.

10. The correct arrangement for taking temperature in the study of the temperature-time graph is shown in figure

- (a) A
- (b) B
- (c) C
- (d) D



11. A student performs an experiment for the verification of laws of reflection and records the angle of incidence and angle of reflection. He then proceeds to plot a graph between the angle of incidence and angle of reflection. The graph line is likely to be.

- (a) Straight line
- (b) Zig-zag line
- (c) Hyperbola
- (d) Parabola.

12. A sound wave strikes the surface of a reflecting body at an angle of 50° . The angle between the incident and reflected sound wave is :
- (a) 40° (b) 80°
(c) 100° (d) 25°
13. Nikita observed a slide of human cheek cells under a microscope in its (i) low magnifying power, (ii) high magnifying power settings. In the first setting, she must have observed
- (a) fewer cells in a darker field of view (b) more cells in a brighter field of view
(c) more cells in a darker field of view (d) fewer cells in a brighter field of view.
14. To observe cells in an onion peel, we must prepare the slide by mounting on it
- (a) crushed pulp of onion (b) dry scale leaf
(c) green leaf of onion (spring onion) (d) thin layer of fleshy leaf of onion.
15. The cellular component NOT seen while observing the slide of an onion peel under a compound microscope is
- (a) chromosomes (b) cell wall
(c) nucleus (d) cytoplasm.
16. You are shown two slides of plant tissues: parenchyma and sclerenchyma. You can identify the sclerenchyma by the
- (a) location of nucleus (b) thickness of cell wall
(c) size of cells (d) position of vacuoles.
17. Raj observed nerve cells under the microscope, and made the following sketch. The mistake in his drawing is the cyton with
- (a) cilia (b) dendrites
(c) nucleus (d) cytoplasm.
18. The process employed to separate insoluble component of a mixture from its soluble component is :
- (a) sublimation (b) sieving
(c) making solution and filtration (d) evaporation.
19. A mixture consists of sand, copper oxide, iodine and common salt. Amongst these components, the sublimable component is :
- (a) copper oxide (b) sand
(c) iodine (d) common salt
20. A beaker contains a mixture of 50 g of ice and 50 g of water. The temperature of this mixture is :
- (a) less than 0°C (b) 0°C
(c) more than 0°C (d) none of the above.

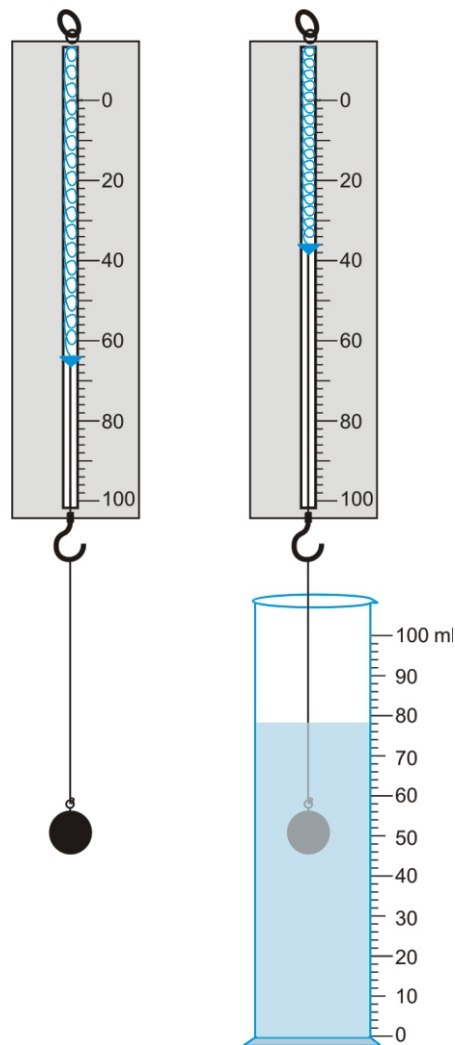
SECTION B

21. When an iron nail, rubbed with sand paper, is dipped in copper sulphate solution, we observe that copper gets deposited
- (a) first on the lower part of the nail and proceeds to the upper part
(b) first on the upper part of the nail and proceeds to the lower part
(c) on the entire surface of the nail
(d) on the nail in small patches.

22. When solid lead nitrate is heated in a test tube, what is NOT observed during the reaction is :
- (a) a crackling sound is produced (b) a brown gas is produced
(c) a light yellow solid is formed (d) swelling of lead nitrate takes place.
23. The mass of a solid iron cube of side 4 cm is to be determined. Of the four spring balances available, the one best suited for this purpose would have
- (a) range = 0 to 100 g, and least count = 1 g (b) range = 0 to 100 g, and least count = 5 g
(c) range = 0 to 1000 g, and least count = 10 g (d) range = 0 to 1000 g, and least count = 25 g.

24. A student notes down the observations in the two balances and the measuring cylinder shown in the figure. From the given observations, the volume of the solid.

- (a) is 64 cc
(b) is 36 cc
(c) is 28 cc
(d) is 100 cc.



25. The table alongside gives the observations reported by two students X and Y for an experiment on the study of temperature-time graph. The experiment is likely to have been performed correctly by

- (a) X
(b) Y
(c) both X and Y
(d) neither X nor Y.

| Time (min) | Temp (°C) observed by | |
|------------|-----------------------|-----------|
| | Student X | Student Y |
| 0 | 61.0 | 61.0 |
| 2 | 60.5 | 59.0 |
| 4 | 60.0 | 58.0 |
| 6 | 59.0 | 57.5 |
| 8 | 58.0 | 57.0 |
| 10 | 56.5 | 56.5 |
| 12 | 54.0 | 56.0 |

26. Four samples of arhar dal (tuvar dal) were taken in four test tubes with some water in each and labelled P, Q, R and S. A few drops of the following were added to these test tubes: water to test tube P, HCl to test tube Q, NaOH to test tube R and alcohol to test tube S. We would be able to confirm adulteration of the dal with metanil yellow in test tubes

- (a) P and Q (b) Q and R
 (c) R and S (d) S and P.

27. An apparatus is set up to find the boiling point of water on a mountain at a height of 4000 m. The boiling point of water is likely to be

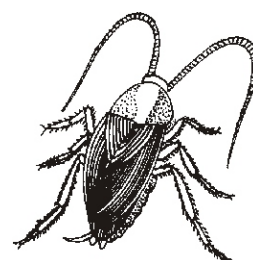
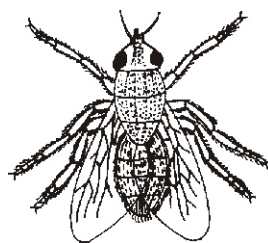
- (a) 100°C (b) 101°C
 (c) 104°C (d) 98 °C or less.

28. *Spirogyra* is commonly called water silk because it

- (a) has silk like appearance (b) produces good quality silk
 (c) feeds silkworm (d) none of these.

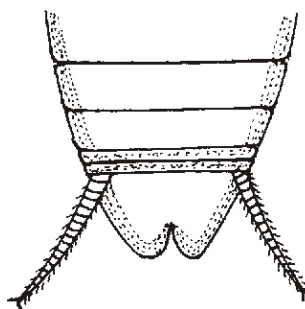
29. Observe the pictures of honey bee and cockroach. The common features that assigns them to same phylum is

- (a) wings
 (b) three pair of legs
 (c) jointed appendages
 (d) antennae.



30. A student found the posterior part of a male cockroach in the laboratory. The following sketch was made. The missing part in the sketch is

- (a) anal cerci
 (b) anal style
 (c) brood pouch
 (d) antennae.



SCORING KEY AND QUESTIONWISE ANALYSIS FOR SAMPLE PAPER 1

| <i>Q. No.</i> | <i>Key</i> | <i>Skill Tested</i> | <i>Explanation</i> |
|---------------|------------|---------------------|--|
| 1. | (b) | R | Sugar makes a true solution. |
| 2. | (a) | O | Sulphur has a lower melting point than iron. |
| 3. | (a) | O | Colour and fineness of the powder after complete combustion of wood. |
| 4. | (d) | O, R | Reaction occurs at the contact point of the reactants. |
| 5. | (c) | O, R | Being an ionic reaction, precipitation is instantaneous. |
| 6. | (b) | M | The solid must be suspended by an inextensible string in the centre of the overflow can without touching its bottom. |
| 7. | (d) | O, R | The loss in weight does not depend upon the shape of the vessel or the volume of water in it. |
| 8. | (c) | P | A disturbance of short duration only produces pulse. |
| 9. | (d) | P, M | Only a sharp jerk can produce pulse. |
| 10. | (a) | M | The thermometer must be dipped vertically in the water level away from the bottom and sides of the calorimeter and close to the middle of the water level. |
| 11. | (a) | P, O | The angle of incidence is equal to angle of reflection and hence graph line is a straight line. |
| 12. | (b) | R | The angle of incidence = $(90 - 50)^\circ = 40^\circ$. Thus, angle between incident wave and reflected wave is $2 \times 40 = 80^\circ$. |
| 13. | (b) | O, R | Lower the magnifying power, more is the number of cells seen (in a brighter field). |
| 14. | (d) | P, M | To observe a living plant cell with a distinct nucleus, this is the best material. |
| 15. | (a) | O | Chromosomes are not seen in interphase cells. |
| 16. | (b) | O | Parenchyma is thin walled, sclerenchyma is thick walled. |
| 17. | (a) | D | No cilia is cyton. |
| 18. | (c) | P, M | Insoluble component does not dissolve in water and can be filtered out. |
| 19. | (c) | P, M | Iodine on heating sublimes. |
| 20. | (b) | R | Temperature remains 0°C , till all the ice melts. |
| 21. | (c) | O | Iron nail was rubbed before doing the experiment to expose the entire surface. |
| 22. | (d) | O | Lead nitrate decomposes into brown NO_2 gas and yellow PbO on heating. |
| 23. | (c) | M | We must have a smaller least count. We must have a rough estimate of the measurement to be taken to select the range. |
| 24. | (c) | O, R | The volume of the solid (in cc) has the same magnitude as its loss in weight (in grams) in water. |
| 25. | (b) | O, R | The rate of fall of temperature is faster first and slower later. |
| 26. | (a) | P | Metanil yellow is soluble in water and becomes pink with HCl . |
| 27. | (d) | O, R | On higher altitudes the atmospheric pressure decreases. This results in decrease of boiling point. |
| 28. | (a) | O, R | It is commonly called water silk due to its silk like appearance. |
| 29. | (c) | O, D, R | All arthropods have jointed appendages. |
| 30. | (b) | O, D | Only male cockroaches have anal styles along with anal cerci. |

P : Procedural skills; **M** : Manipulative skills; **O** : Observational skills; **D** : Drawing skills;

R : Reporting and interpretative skills.