

Time allowed: 3 hours

Maximum marks: 90

10th Sept 2012
 Mt. Carmel 2012-13
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General instructions:

- i) The question paper comprises of two sections, A and B. You are to attempt both the sections.
- ii) All the questions are compulsory.
- iii) There is no overall choice. However, internal choice has been provided in all five marks questions category. Only one option in such questions is to be attempted.
- iv) All questions of section A and all the questions of section B are to be attempted separately.
- v) Question numbers 1-3 of section A are one mark questions. These are to be answered in one word or in one sentence.
- vi) Question numbers 4-7 in section A are two marks questions. These are to be answered in about 30 words each.
- vii) Question numbers 8-19 in section A are three marks questions. These are to be answered in about 50 words each.
- viii) Question numbers 20-24 in section A are five marks questions. These are to be answered in about 70 words each.
- ix) Question numbers 25-42 in section B multiple choice questions based on practical skills. Each question is a one mark question. You have to select the most appropriate answer out of the four provided to you.

SECTION - A

1. What is the value of gravitational constant?
2. State the two external factors which decide the state of matter.
3. From where do plants obtain hydrogen?
4. Write two functions of stomata.
5. Write two differences between colloid and suspension
6. Write the relation between temperature and solubility? How can a saturated solution be made unsaturated?
7. The weight of an object on moon is 20 N and its mass on its surface is 1 kg. Calculate its mass and weight on the surface of the earth. (g on earth = 10 m/s^2)
8. (i) A stone is thrown vertically upwards with a velocity of 40 m/s and is caught back. Taking $g = 10 \text{ m/s}^2$, calculate the maximum height reached by the stone. What is the net displacement and distance covered by the stone?
9. The mass of two objects are 45kg and 80 kg respectively. Calculate the force of attraction between the objects if the distance between them is 20m.
10. Can an object be accelerated if it is moving with constant speed? Justify your answer with an example.
11. Write down three effects of force.
12. Two objects of mass 10 kg and 1000kg are lying on the table. Which one has more inertia? Why does a mango fall down from a tree when there is strong wind?
13. 25gms of sugar is dissolved in 500 g of water. Calculate the concentration by mass by mass percentage
14. Which separation technique will you employ to separate different component of the following mixture
 - a. Sugar and water from sugar solution
 - b. Butter and curd
 - c. Different colour pigments from an extract of flower petals
15. Draw voluntary and involuntary muscles and write one difference between them.
16. a) What are the macronutrients of plants?
 b) What are weeds? Name any two common weeds.
- 17a) Write the main difference between capture fishery and culture fishery.

- b) Which one is nutrient specific—fertilizer or manure?
- 18 a). Draw the diagram of sclerenchyma cells and label any three parts.
b) what will happen if the apical meristem is cut?
19. Write three differences between cell wall and cell membrane.

20. Name the following:

- a) Tissues that forms inner lining of our mouth.
b) Tissues that connect s muscles to bones in human body.
c) Tissues that Transport food in plants.
d) Connective tissue with a fluid matrix.
e) Tissues that stores fat in our body.

OR

a) Write three differences between prokaryotic cell and Eukaryotic cell.

b) Write two differences between osmosis and diffusion.

21. State all the factors which affect the rate of evaporation .Discuss how each one of these factors affect the rate of reaction .

Evaporation OR

✓ How is fractional distillation different from simple distillation? Draw a diagram to show simple distillation

22. Differentiate between metals and non-metals.

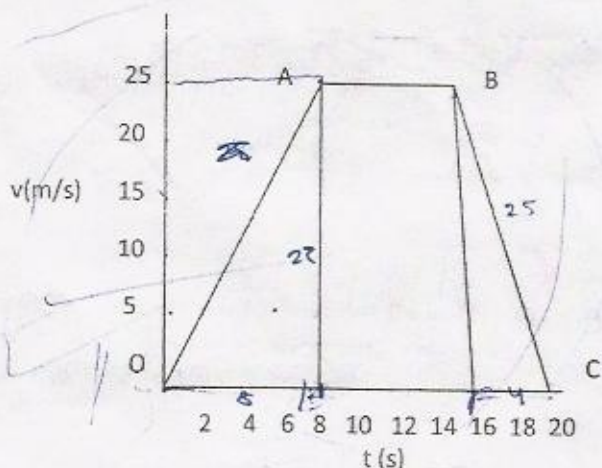
What are metalloids? Name any two?

OR

Compare true solution and suspension based on the following properties

1. Particle size 2. Filterability 3. Tyndall effect 4. Stability. 5. Type of mixture

Q 23) Study the graph and answer the following:



$$\frac{1}{2} \times 8 \times 25 = 100 \text{ m.}$$

$$\frac{25}{8} \left| \frac{25}{4} = \dots \right.$$

- a) Which part of the graph shows accelerated? Calculate the acceleration.
b) Which part of the graph shows retardation? Calculate the retardation.
c) Calculate the distance covered in 8 seconds.

OR

What does the rate of change of displacement called as?

Define the physical quantity whose unit is m/s^2 .

An object moves a certain distance with a speed of x for time t and comes back with a speed y for time t . Derive the expression for average speed.

d) How many times does an object change the direction while moving in a circular path?

e) In what situation the speed and velocity will have the same value?

when a body move in straight

②

Q24 .State Newton's second law of motion.

A man pushes a box of 50 kg with a force of 150N . What will be the acceleration of the box due to this force?
What will happen to the acceleration if the mass is halved?

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OR

Define momentum of a body.

Prove that the total momentum of two bodies is conserved during collision provided no external force is applied.

A car 'A' of mass 1200 kg, travelling at 25 m/s collides with another car 'B' of mass 2000 kg travelling at 12 m/s in the same direction. After collision, the velocity of the car A becomes 20 m/s. Calculate the velocity of the car B after collision.

SECTION - B

Q25. While performing the experiment on Newton's third law of motion action and reaction forces do not cancel each other, because

- a) They act in same direction
- b) They act on different objects
- c) They act on same object
- d) They are never equal to each other.

Q26. In a spring balance , 10 divisions make 25g.wt.. The least count of the spring balance is:

- a) 25 g wt
- b) 2.5g wt
- c) 2 g wt
- d) 1 g wt.

27. A true solution of sugar and water is prepared. A student observed that it is
a. Homogeneous b. Transparent c. Clear d. All of the above

28. The colour of the product obtained on burning of magnesium ribbon is
a. white b. black c. brown d. blue

29. While determining the boiling point of liquid the thermometer should be fixed so that
a. its bulb completely dips into liquid
b. its bulb is placed above the liquid
c. its bulb should touch the bottom of the container
d. it should be placed slanting in the liquid.

30. What is the colour of the precipitate formed when sodium sulphate is added to a solution of barium chloride
a. white b. black c. brown d. blue

31. Meera heated the mixture of iron filings and sulphur powder. Which of the following observations is reported correct
a. Mixture turns black
b. sulphur powder retains its appearance.
c. iron can be separated
d. There is no effect of heating.

32. The gas evolved during reaction of Zn with dilute sulphuric acid is
a. Hydrogen b. Carbondioxide c. sulphurdioxide d. sulphur fumes

33. In a reaction iron nails and copper sulphate solution the brown coating formed after the reaction is of

- a. Fe b. Sulphur c. FeSO_4 d. Cu

34. A student has been given Egg Albumen, chalk powder, sugar and common salt and asked to dissolve them separately in water. Which will form suspension

- a. Salt b. Sugar c. egg Albumen d. chalk

35. Which substance will sublime in the mixture of sodium chloride, ammonium chloride, copper sulphate and sand

- a. sodium chloride b. ammonium chloride c. copper sulphate d. sand

36. The colour of Ferrous sulphate is

- a. white b. black c. brown d. green

37. The features that best describe the cells of parenchyma are:

- a) Dead cells, thick-walled, no intercellular spaces
b) Living cells, thin walled, no intercellular spaces
c) Dead cells, thin-walled, large intercellular spaces
d) Living cells, thin walled, large intercellular spaces

38. Genetic material of a prokaryotic cell contains

- a) Nucleolus b) Nucleus c) Nucleoplasm d) Nucleoid

39. Collenchyma is a type of

- a) complex tissue b) simple tissue c) xylem d) phloem

40. The correct order of the parts of nerve cell through which the nerve impulses is transmitted is:

- a) Nerve ending, dendrites, axon, cell body
b) Cell body, axon, dendrites, nerve endings
c) dendrites, nerve endings, Cell body, axon
d) dendrites, Cell body, axon, , nerve endings

41. Cardiac muscles fibres are

- a) Branched b) striated c) involuntary d) all the above.

42. 8. A cell placed in hypotonic solution bursts up, if it is:

- a) Animal cell b) bacterial cell c) plant cell d) a fungal cell