

X STANDARD SCIENCE

Model Question Paper - 4

Time : 2.30 Hrs.

Marks : 75

SECTION - A

I. Answer all questions :

15 x 1 = 15

1. Theory of natural selection was proposed by _____
(Charles Darwin, Hugo-de-vries,
Gregor Johann Mendel, Jean Baptise Lamarck)
2. The most serious form of malaria is caused by Plasmodium _____
(P.Ovale, P.Malariae, P.falciparum, P.Vivax)
3. If a water soaked seed is pressed, a small drop of water comes out through _____
(Stomata, Lenticel, micropyle, radicle)
4. The roots of coconut tree are seen away from the plant.
Such kind of movement of root for want of water is _____
(Phototropism, Geotropism, chemo tropism, Hydrotropism)
5. _____ is the chief component of Coal.
(sulphur, Carbon, Hydrogen, Nitrogen)
6. If carbon disulphide is a solvent in a given solution, then the solution is _____
(Aqueous solution, Non-aqueous solution,
Standard solution, True solution)
7. $\text{Zn} + 2\text{HCl} \longrightarrow \text{ZnCl}_2 + \text{H}_2 \uparrow$
The above reaction is an example of
(Combination reaction, Double displacement reaction,
Displacement reaction, Decomposition reaction)
8. A process employed for the concentration of sulphide ore is _____
(Gravity separation, Froth floatation,
Magnetic separation, Chemical method)

9. Modern periodic law states that the physical and chemical properties of elements are the periodic function of their _____
(atomic weight, mass number, atomic number, neutron number)
10. IUPAC name of first member of alkyne is _____
(methane, methyne, ethene, ethyne)
11. The weight of 50 Kg person at the surface of earth is _____
(50 N, 35 N, 380 N, 490 N)
12. The potential difference required to pass a current 0.2 A in a wire of resistance 20 ohm is _____
(100 V, 40 V, 0.1 V, 4V)
13. Fuse is a piece of wire made of an alloy _____
(63% lead 37% tin, 37% lead 63% tin, 65% lead 35% tin, 35% lead 65% tin)
14. The focal length of a concave lens is 2.m then the power of the lens is _____
(0.2D, -0.2D, 0.5 D, -0.5D)
15. The magnification produced by a mirror is $\frac{1}{3}$, then the type of mirror is _____
(Concave, Convex, Plane, all the above)

SECTION - B

II. i. Short Answers :

20 x 2 = 40

ii. Answer any twenty questions.

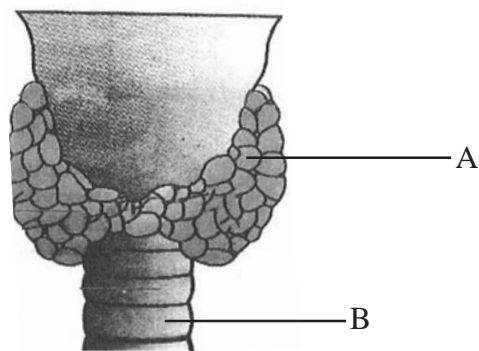
16. Match the followings.

a) Garden Pea plant	-	Dolly
b) Mono hybrid cross	-	Vaccine
c) Edward Jenner	-	3 : 1
d) Dr. Ian Wilmut	-	Pisum sativum
17. You suspect that your friend is suffering from Amoebic dysentery. What are the questions you will ask your friend to confirm the disease.

18. Copy the diagram and label any two parts in the given group (cyton, axon, dendron, myelin sheath)



19. Mark A and B in the given diagram



20. a) Unipolar neurons are found in _____

a) Brain

b) Spinal chord

c) Embryonic nervous tissue

d) Adult nervous tissue

- b) In meiosis -1, the pairing of homologous chromosomes take place during _____ stage.

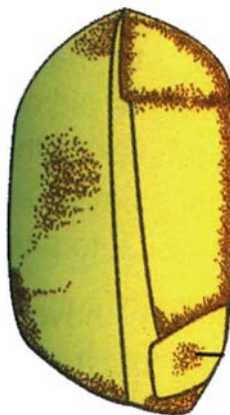
a) leptotene

b) Zygotene

c) Pachytene

d) diplotene

21. Draw and label any two parts of the monocot seed.



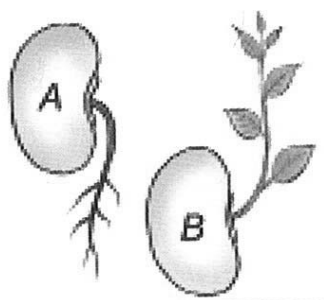
22. Spot the error in the given statement and correct it.

The closure of auriculo ventricular valve of the heart produce “dubb” sound, opening of such valve produce “lubb” sound.

23. Fill up the blanks

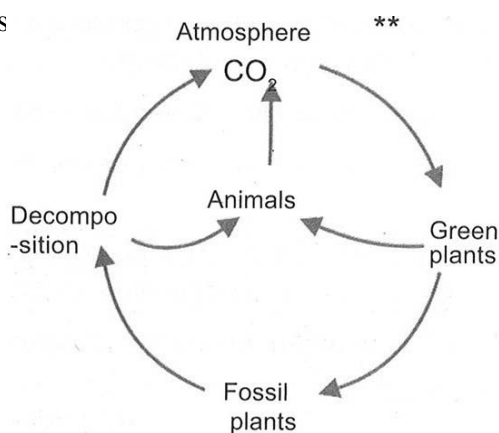
- a) The heart beat of a normal human is _____ times in a minute. (62, 72)
b) _____ are the only mammals capable of powered flight. (Bat, Kangaroo)

24. Observe the diagram given below.



- a) Mention the type of movements shown in figure A and B.
b) How does the movement differ from the movement of mimosa.

25. Answer the followings



- a) Name the processes noted as No.1 and 3.
b) Define the process 1.

26. A non renewable resource is a natural resource. If it is replaced by natural process at a rate comparable or faster than its rate of consumption by humans.

Read this statement and confirm whether it is correct, or incorrect. If it is incorrect give correct statement.

27. “Stagnation of waste water from residential house and industries causes variety of communicable diseases”.

Arise questions related to the above statement.

28. a) Which is a non-renewable resource?
(Coal, petroleum, natural gas, all the above)
- b) _____ is the Chief component of natural gas.
(ethane, methane, propane, butane)
29. In order to transport substances from one part of the body to the other, the circulatory system has evolved.
- a) who discovered the circulation of Blood in man?
- b) How many chambers are there in the human heart?
30. You have prepared a saturated solution of sugar at a given temperature. Is it possible to dissolve some more grams of sugar to this solution at the same temperature. Give reason.
31. Match the solution with examples.
- | | | |
|-----------------|---|--------|
| Solid in solid | - | cloud |
| Solid in gas | - | Cheese |
| Liquid in gas | - | Alloys |
| liquid in Solid | - | Smoke |
32. One mole of any substance contains 6.023×10^{23} particles. If 3.0115×10^{23} particles are present in CO_2 Find the number of moles.
33. The hydroxyl ion concentration of a solution is $1.0 \times 10^{-4}\text{M}$. Find the pH of the solution.
34. Identify the colour of the precipitate :
- a) When aqueous solution of silver nitrate and sodium chloride are mixed.
- b) Name the acid present in curd.
35. “Electrolytic refining method is used to purify copper”. – Raise the questions related to the above statement.

36. Give below is the diagram of electrolytic refining of Aluminium. Redraw it and label the parts given below.

(Graphite rods, Electrolyte, Refined aluminium)

37. Denaturation of ethyl alcohol makes it unfit for drinking purposes. – Reason out.

38. Fill in the blanks.

- Force = mass x acceleration then momentum = _____
- Liquid hydrogen is for rocket, then _____ for MRI.

39. Correct the mistakes, if any, in the following statements.

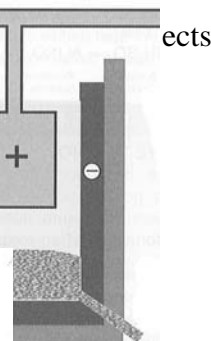
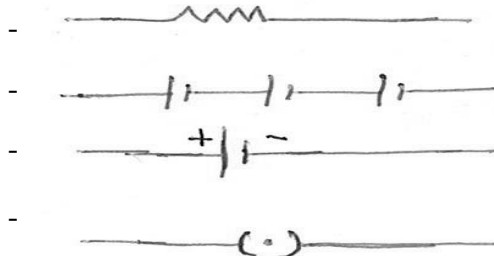
- Mass is measured using spring balance and weight is measured using physical balance.
- In the absence of external balanced force, mass remains unchanged or conserved during _____

40. Match the components and its symbols.

Components

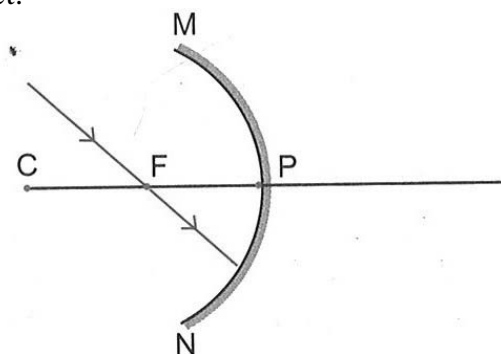
Symbols

- An electrical cell
- Closed plug key
- A resistor
- A battery



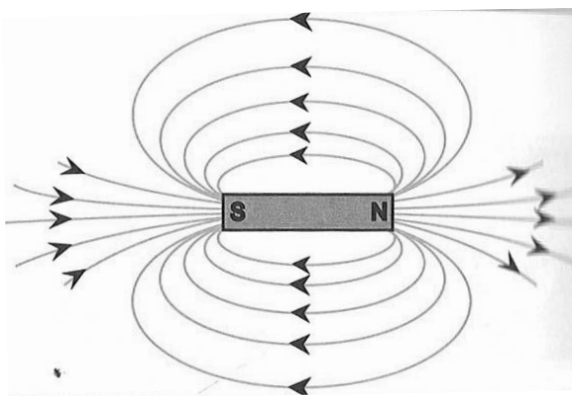
- Three resistances having the values 5Ω , 10Ω , 30Ω are connected parallel with each other. Calculate the total circuit resistance.
- In volta cell the anode is _____ (Iron / Copper) and in Lechlanche cell the cathode is _____. (Zinc / Copper)
- In traffic signals Red colour light is used to stop vehicles. Give reason.

44. The ray diagram shown below is introduced to show how a concave mirror forms an image of an object.



- identify the mistake and draw the correct ray diagram.
- write your justifications for your corrections.

45.



- The above diagram represents _____
- Mention any one property of the above.

SECTION - C

- Note :
- Answer any 4 questions by choosing one question from each group.
 - Each question carries five marks.
 - Draw diagram wherever necessary.

$$4 \times 5 = 20$$

GROUP - A

- Write the uses of Bio-sensor and Bio-chips.
 - Write about science today-Gene therapy.

47. Describe the life cycle of malarial parasite - plasmodium.

GROUP - B

48. (a) Fruit is the product of fertilization. Is there any fruit is formed without the act of fertilization.
b) Represent the classification of fruits in a diagrammatic sketch.
49. a) In your area there is scarcity of water due to this the people are affected. So what are the measures to be taken by you to meet out the scarcity of water.
b) What is food chain?

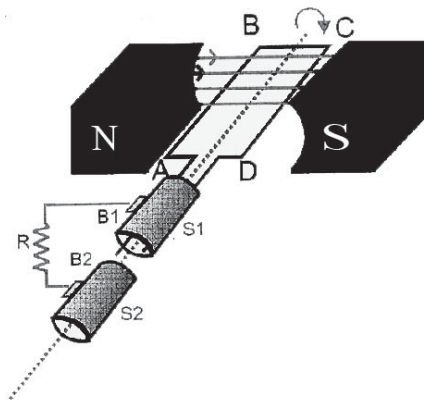
GROUP - C

50. a) Define relative Atomic Mass (Based on carbon scale) (2)
b) Define – Mole (2)
c) What is the atomicity of oxygen (1)
51. a) What is the Functional group of alcohol? (1)
b) Write the Esterification reaction. (2)
c) Write any two uses of Ethanol . (2)

GROUP - D

52. a) $F = \frac{G m_1 m_2}{d^2}$ is the mathematical form of Newtons' law of gravitation.
Give the statement of Newton's law of gravitation.
b) Chandrayaan achieved 95% of its planned objectives. Justify it.

53.



- Redraw the above diagram.
- This diagram represents _____
- Label the parts of the diagram.
- Write the principles of the name of the device denoted by this diagram.
- Show the method of finding direction of current in this device.

ANSWERS
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1. Charles Darwin
2. P.falciparum
3. Micropyle
4. Hydrotropism
5. Carbon
6. Non-aqueous solution
7. Displacement reaction
8. Froth floatation method
9. Atomic number
10. Ethyne
11. 490N
12. 4V
13. 37% lead, 63% tin
14. -0.5D
15. Convex lens
16. 1-4, 2-3, 3-2, 4-1
17. i) fever ii) constipation and abdominal pain and cramps iii) stools with excess mucous and blood clot.
18. Please refer to a text book page 34
19. A- Thyroid B- Trachea
20. A) Embryonic nervous tissue b) zygotene
21. please refer to a text book page no.: 67
22. The closure of auriculo ventricular valve of the heart produces **lubb** sound, opening of

such valve produce **dubb** sound.

23. a) 72 b) Bat

24. a) A- Geotropism B- phototropism

b) These two movement are classified under movement dependent on growth, but in the case of mimosa classified under movement independent of growth.

25.a) 1- photosynthesis 3- Respiration

b) The materials are taken in the form of carbon dioxide and water which are converted into carbohydrates in the presence of light and chlorophyll.

26. It is incorrect. A renewable resource is a natural resource. If it is replaced by natural process at a rate comparable or faster than its rate of consumption by humans.

27.i) Mention any two places of waste water stagnation

ii) Stagnation of waste water from residential houses and industries will not cause diseases. Is it correct or incorrect. If it is incorrect give the correct statement.

28 a) all the above b) methane

29.a) William Harvey b) 4 chambers

30. At the same temperature adding more sugar to the saturated sugar solution is not possible. If the temperature increases you can mix some more sugar.

31. 1-3,2-4,3-1,4-2

$$\begin{aligned} \text{32. No. of moles of carbon dioxide} &= \frac{\text{No. of particles}}{6.023 \times 10^{23}} \\ &= \frac{3.0115 \times 10^{23}}{6.023 \times 10^{23}} \\ &= \frac{1}{2} \\ &= 0.5 \text{ moles} \end{aligned}$$

$$\begin{aligned}
 33. \text{P}^{\text{OH}} &= -\log (\text{OH}^-) \\
 &= -\log (10^{-4}) \\
 &= 4 \\
 \text{P}^{\text{H}} + \text{P}^{\text{OH}} &= 14 \\
 \text{P}^{\text{H}} &= 14 - 4 \\
 \text{P}^{\text{H}} &= 10
 \end{aligned}$$

34.a) White precipitate b) Lactic acid

35. i) Name the method used to purify copper

ii) Electrolytic refining method is not used to purify copper. Is it true or false

36. please refer to a text book page no.: 185

37. When ethyl alcohol mixed with pyridine, ethyl alcohol loses its nature. So ethyl alcohol is unfit for drinking purpose.

38. a) momentum = mass x velocity
b) liquid helium

39. a) mass is measured using physical balance and weight is measured using spring balance.
b) In the absence of external unbalanced force, the total momentum of a system of objects remains unchanged or conserved by collision.

40. a-3, b-4, c-1, d-2

$$\begin{aligned}
 41. \text{Total resistance} &= 1/R_1 + 1/R_2 + 1/R_3 \\
 &= 1/5 + 1/10 + 1/30 \\
 1/R_p &= 6/30 + 3/30 + 1/30 \\
 1/R_p &= 10/30 \\
 R_p &= 3 \text{ ohm.}
 \end{aligned}$$

42. Copper, zinc

43. Due to high wave length of red colour, this is used in traffic signals to stop vehicles.

44.a) Please refer to a text book page no.: 267 b) A ray passing through the principal focus of a concave mirror, after reflection will emerge parallel to the principal axis.

45. a) Magnetic lines of force
b) No two field lines are found to cross each other.