DPS (VK)

MID TERM EXAMINATION
SCIENCE
MT–2017–10–(B)

Time Allowed : 3 Hours **M.M.: 80**

General Instruction:

- **The question paper comprises of two sections, A and B. You are to attempt both the sections. Section A is theory based questions 68 marks and section B is practical based questions of 12 marks.**
- **All questions are compulsory. However, internal choice has been provided in two questions of three marks each and one question of five marks. Only one option in such questions is to be attempted.**
- **All questions of section A and all questions of section B are to be attempted separately.**
- **Question numbers 1 and 2 in section A are one mark questions. These are to be answered in one word or in one sentence.**
- **Question numbers 3 to 5 in sections A are two marks questions. These are to be answered in about 30 words each.**
- **Question numbers 6 to 15 in section A are three marks questions. These are to be answered in about 50 words each.**
- **Question numbers 16 to 21 in section A are five marks questions. These are to be answered in about 70 words each.**
- **Question numbers 22 to 27 in Section B are two marks questions based on practical skills. These are to be answered in brief.**

SECTION–A
THEORY BASED QUESTIONS

Q1. A ray of light travelling in air enters obliquely into water. Does the light ray bend towards the normal or away from the normal? Why? (1)

Q2. What are the products at anode and cathode when aqueous solution of sodium chloride (brine) is electrolysed. (1)

Q3. Give reason for the following:
i) Platinum, gold and silver are used to make jewellery
ii) Aluminium is a highly reactive metal yet it is used to make utensils for cooking. (2)

Q4. Give any two main advantages associated with using solar cells. (2)

Q5. Wind energy is an efficient source of renewable energy but can not be used widely. Enlist any two limitations in harnessing wind energy. (2)

Q6. (a) Which plant hormone is present in greater concentration in fruits & seeds. Justify with reason.
(b) Explain the movement of leaves in a sensitive plant (like touch me not). (3)

Q7. (i) Mention the part of the human brain which performs the following function
   a) Precision of voluntary action
   b) Controlling blood pressure
   c) Riding a bicycle
   d) Protects the brain
   (ii) What is the role of the following in our nervous system:
   a) Vertebral column
   b) Fluid filled balloon in which brain is present. (2+1=3)

Q8. Draw a neat diagram of excretory system in human beings & label the part where:

a. Urine is produced
b. Urine is stored
c. Which transports urine from site of urine formation to storage organ.
d. The blood vessel which brings blood to the site of urine formation. (3)

OR

Draw a neat diagram of reflex arc & label the following:
a. The neuron which sends message to Central Nervous System (CNS)
b. Effector organ
c. The neuron from CNS to effector organ
d. Spinal cord (3)

Q9. A spherical mirror forms 1/3 times the magnified real image of an object placed 21cm in front of it. Calculate the image distance and state the nature of the spherical mirror. Draw the ray diagram to show image formation for the same. (3)

Q10. A man cannot see objects closer than 1m from the eye clearly. Name the defect of vision he is suffering from. How can it be corrected? Write two causes for this defect. Draw ray diagram for its correction. (3)

OR

What is dispersion of white light? Draw a diagram to show dispersion of white light by a glass prism. What is the cause of the dispersion? (3)

Q11. The values of current 'I' flowing in a given resistor for the corresponding values of potential difference 'V' across the resistor are given below:

I (Amp)	1.0	2.0	4.0	6.0	8.0
V (Volts)	3.0	6.0	12.0	18.0	24.0

Plot a graph between V and I and calculate the resistance of that resistor. (3)

Q12. Ramesh is a student of class X. He organized many activities in his school to convey the students about the various advantages of renewable sources of energy. Many students of the school participated and concluded about the best choices of energy sources on this basis:
   (i) Which two values are reflected in Ramesh's thought of action.
   (ii) Write any four characteristics of a good fuel. (3)

Q13. i) Show the formation of sodium oxide by transfer of electrons.

ii) Why ionic compounds are usually hard? Strong force of attraction.

iii) Ionic compounds in the solid state do not conduct electricity and they do so when in molten state. Why? (3)

Q14. Write the common name and chemical formula of a commercially important compound which has ten water molecules as water of crystallization. How is this compound prepared? Give two uses? (3)

Q15. A compound 'P' forms the enamel of teeth. It is the hardest substance of the body. It does not dissolve in water but gets corroded when the pH is lowered below a value of 5.5.

i) Identify the compound P.

ii) How does it undergo damage due to eating of chocolates and sweets? What should we do to prevent tooth decay? (3)

Q16. a) A metal 'M' found in nature as sulphide ore (M_2S) is one of the good conductor of heat and electricity and used in making electrical wires.

i. Identify the metal M

ii. Describe the method used for refining of metal M

b) Explain the following terms

i. Mineral

ii Calcination (5)

OR

a) What are amalgams? Give one example.

b) Explain how the following metals are obtained from their compounds by the reduction process.

i) Metal X which is high up in the reactivity series

ii) Metal Y which is in the low reactivity series.

c) Define corrosion (5)

Q17. i) What happens when (write chemical equation also)

a) Potassium iodide solution is added to lead nitrate solution.

b) Dilute HCl is added to solid sodium carbonate.

ii) a) Identify the substance getting oxidized & the substance getting reduced in the following reaction

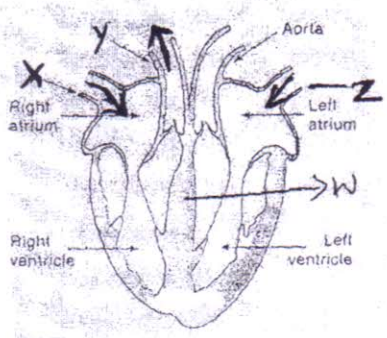
$H_2S+Cl_2 \rightarrow 2HCl+S$

b) Name the phenomenon due to which the taste and smell of oily food changes when kept for a long time? Suggest one method to prevent it? (5)

Q18. a) The timing & amount of hormone released are precisely regulated. Name the mechanism involved & give example.

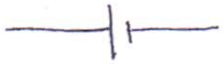
b) Name the hormone synthesised in the body due to intake of iodised salt. Which physiological disorder is caused by its deficiency? Give one symptom of this disorder. (3+2=5)

Q19. Observe the diagram showing a vertical section of human heart.



a. Name the blood vessels X,Y & Z. Name W.
b. Give any one structural and one functional characteristic of capillaries.
c. Name the colourless fluid in body which is similar to plasma & has less proteins. (5)

Q20. (a) Name an instrument that measures potential difference between two points in a circuit. Define the unit of potential difference.
(b) What do the following symbols mean in a circuit diagram

(i)  (ii) 

(c) An electric circuit consisting of a 1m long nichrome wire XY, an ammeter, a voltmeter, two cells of 1.5V each and a key. Draw a diagram of this electric circuit to study the relation between the potential difference across XY and electric current flowing through it.
(d) What is the shape of V-I graph for a metallic wire? Why? (5)

Q21. Give reasons for the following:
a. The planets donot twinkle but stars twinkle
b. Morning and evening sky appears reddish.
c. Pencil partly immersed in water appears to be bent at the water surface.
d. Danger signals are red in colour
e. Violet colour appears at the bottom of spectrum. (5)

SECTION-B
PRACTICAL BASED QUESTIONS

Q22. A milliammeter has graduations marked 0,100,200,300,400,500. The space between 0-100 marks is subdivided into 20 divisions. If in an experiment pointer of milliammeter is indicating seventh graduation after 350 marks, what is the current flowing in the circuit? (2)

Q23. Why is emergent ray parallel to the incident ray for refraction through rectangular glass slab? (2)

10 SC B2

Q24. a) When few drops of phenolphthalein are added to a dilute solution of hydrochloric acid solution it remains colourless.

i) What will be the colour of the final mixture when excess of NaOH is added do it?

b) What will happen when zinc metal is dropped into a dilute solution of sulphuric acid? (2)

Q25. Five solutions A, B, C, D and E when tested with universal indicator showed the pH as 4, 1, 11, 7, 9 respectively.

Arrange the pH in increasing order of hydrogen ion concentration and suggest which one will be

a) Most acidic

b) Most basic solution (2)

Q26. Answer the following questions with respect to the experiment, 'To prepare a temporary stained mount of leaf peel to show stomata':

a) Why do we take the peel from the lower surface of leaf?

b) A brush is used to transfer stained leaf peel from watch glass to slide. Give one reason. (2)

Q27. a) Why is KOH solution put in the small test tube in the conical flask in the experiment– CO_2 is given out during respiration?

b) Why is vaseline used in such an experimental set up? (2)