MID TERM/10

**Time: 3Hrs.** **SCIENCE** **M.M: 80**

**General Instructions:**

1. The question paper comprises of two sections, A and B. You are to attempt both the sections.
2. All questions are compulsory.
3. There is no choice in any of the questions. However, an internal choice has been provided in two questions of three marks each and one question of five marks.
4. All questions of section A and B are to be attempted separately.
5. Question numbers 1 and 2 in section A are one-mark questions. These are to be answered in one word or in one sentence.
6. Question numbers 3 to 5 in section A are two-mark questions. These are to be answered in about 30 words each.
7. Question numbers 6 to 15 in section A are three-marks questions. These are to be answered in about 50 words each.
8. Question numbers 16 to 21 in section A are five-marks questions. These are to be answered in 70 words each.
9. 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

Q1 Why do we store silver chloride in dark coloured bottles? 1

Q2 What is the role of saliva in the digestion of food? 1

Q3 Write chemical name of bleaching powder .Which gas is released when it is exposed to air? Write chemical reaction involved in preparation of bleaching powder. 2

Q4 For making cake, baking powder is taken. If you use baking soda instead of baking powder in cake,

a) How will it affect the taste of cake and why?
b) How can baking soda be converted into baking powder? 2

Q.5 a) Refractive index of glass is 1.5, what is meant by this statement?

b) Refractive index of diamond with respect to glass is 1.6 and absolute refractive index of glass is 1.5, find out the absolute refractive index of diamond. 2

Q.6 Write balanced chemical equation for the reaction involved and also identify the type of decomposition reaction.
Ferrous sulphate decomposes with the evolution of a gas having a characteristic odour of burning Sulphur. 3

Q.7 Explain the following: 3

a) Aluminum is more reactive than Iron but it still does not corrode like Iron
b) Sodium catches fire when put in water.
c) Zinc oxide is regarded as an amphoteric oxide.

Q8. (a) Why is the rate of breathing in aquatic organisms much faster than in terrestrial organisms?

(b) Why do veins have valves ?

(c) What will happen if mucus is not secreted by the gastric glands?

**OR**

Differentiate between Aerobic and Anaerobic respiration. 3

Q9. Name the different components of hind brain and state their functions. 3

Q10. (a) How will an organism be benefitted if it reproduces through spores? (Give two points)

(b) Name one bacterial and one viral sexually transmitted disease.

(c) Name 2 intrauterine contraceptive devices. 3

Q.11 Name the spherical mirror used as

a) Rear-view mirror in vehicles.

b) Reflector in search light.

Also, draw the suitable ray diagram for each. (½ + ½ + 2) =3

Q.12 Explain why 3

a) The series arrangement is not used for the domestic circuit.

b) The heating element of electric heating devices, such as toasters and electric iron are made of an alloy rather than a pure metal.

c) Current will flow more easily through a thick wire than a thin wire of the same material when connected to the same source.

Q.13 a) What are magnetic field lines? 3

b) Explain why no two magnetic field lines of force can ever intersect each other.

c) When is the force experienced by a current carrying conductor placed in a magnetic field maximum? Also, name the law used to identify the direction of force on the conductor.

**OR**

a) Draw the magnetic field pattern around a current carrying circular loop.

b) Comment on the strength of magnetic field produced in the circular loop as compared to magnetic field produced due to a straight current carrying conductor.

c) Name any two factors on which the strength of magnetic field produced by a current carrying circular loop depends.

Q.12 Explain why 3

a) The series arrangement is not used for the domestic circuit.

b) The heating element of electric heating devices, such as toasters and electric iron are made of an alloy rather than a pure metal.

c) Current will flow more easily through a thick wire than a thin wire of the same material when connected to the same source.

Q.13 a) What are magnetic field lines? 3

b) Explain why no two magnetic field lines of force can ever intersect each other.

c) When is the force experienced by a current carrying conductor placed in a magnetic field maximum? Also, name the law used to identify the direction of force on the conductor.

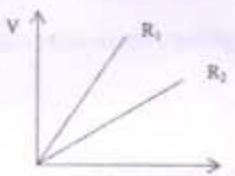
**OR**

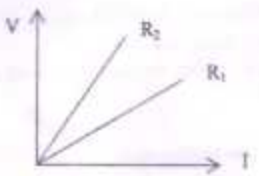
a) Draw the magnetic field pattern around a current carrying circular loop.

b) Comment on the strength of magnetic field produced in the circular loop as compared to magnetic field produced due to a straight current carrying conductor.

c) Name any two factors on which the strength of magnetic field produced by a current carrying circular loop depends.

Q.14 a) Two students perform experiment on two given resistors $R_1$ & $R_2$ and plot the following V-I graphs. If $R_1$ is greater than $R_2$ which of the two diagrams correctly represents the situation on the plotted curve? Justify your answer. 3




b) Out of two electric bulbs 50W-220V and 100W-220V, find resistance of each bulb and which one will glow brighter when they are connected in series, justify your answer.

Q15. In Arun's class a thorough medical checkup of all students was conducted by a team of doctors which included physical examination as well as their blood and urine test .On analyzing the report, the doctor came to the conclusion that student A is suffering from goitre, student B from diabetes and student C with dwarfism. What are the causes of sufferings of ailments of students A, B and C ? Also give symptoms of each disease . 3

Q.16 Give reasons

a) We need to brush our teeth with tooth paste after eating sugary food.

b) Name two industries based on the use of washing soda.

c) X,Y,Z have pH value 8,9,10.Arrange them in order of increasing basic character

d) What is the action of litmus on

(i) Dry ammonia gas

(ii )Solution of ammonia gas in water. Give reason for your answer. (1 +1+1+2) = 5

Q.17 a) Draw a well labelled diagram of electrolytic refining and explain it.
b) Write reaction of iron with steam.
c) What is an amalgam? (3 + 1 + 1) = 5

**OR**

a) Explain how mercury is extracted from its sulphide ore cinnabar. Give equations of the reactions involved. (2+ 1 + 2 ) =5

b) Why are ionic compounds hard?

c) Give reason for the following.

i) Hydrogen is not evolved when a metal reacts with Nitric acid.

ii) Metals like Na, K, Ca are never found in their free state in nature.

Q18. (a) State the function of gustatory receptors and olfactory receptors. (1+ 2 + 2 ) = 5

(b) Differentiate between sensory neuron and motor neuron.

(c) Draw neat labelled diagram of Neuron.

Q19. Draw neat labelled diagram of Human Digestive System. (4+1)= 5
Also explain the statement: Bile does not contain any enzyme but it is essential for digestion.

Q.20 A student focused the image of a candle flame on a white screen using a convex lens, he noted down the position of candle, screen and the lens as under.

(2+1 +1 +1) = 5

Position of candle = 12.0cm

Position of [illegible]

a) Explain how mercury is extracted from its sulphide ore cinnabar. Give equations of the reactions involved. (2+ 1 + 2 ) =5

b) Why are ionic compounds hard?

c) Give reason for the following.

i) Hydrogen is not evolved when a metal reacts with Nitric acid.

ii) Metals like Na, K, Ca are never found in their free state in nature.

Q18. (a) State the function of gustatory receptors and olfactory receptors. (1+ 2 + 2 ) = 5

(b) Differentiate between sensory neuron and motor neuron.

(c) Draw neat labelled diagram of Neuron.

Q19. Draw neat labelled diagram of Human Digestive System. (4+1)= 5
Also explain the statement: Bile does not contain any enzyme but it is essential for digestion.

Q.20 A student focused the image of a candle flame on a white screen using a convex lens, he noted down the position of candle, screen and the lens as under. (2+1 +1 +1) = 5

Position of candle = 12.0cm
Position of convex lens = 50.0cm
Position of screen = 88.0cm

a) What is the focal length of the convex lens?

b) Where will the image be formed if he shifts the candle towards the lens at a position of 31.0 cm?

c) What will be the nature of image formed if he further shifts the candle towards the lens?

d) Draw a ray diagram to show the formation of the image in case 'c' as said above.

Q.21 a) Name and state the principle on which the electric generator works.

b) Name two safety measures commonly used in electric circuit and appliances.

c) Explain the term 'short-circuit'.

d)What is the difference between a direct current and an alternating current? How many times does AC used in India change its direction in 1second? (1 ½ + 1 + 1+ 1 ½ ) =5

## SECTION – B (PBA)

Q.22 An iron nail was placed in an unknown blue solution for a couple of hours .A reddish brown coating was formed on the iron nail. 2

a) Identify the unknown solution.
b) What type of reaction is it called?
c) Write equation for the reaction.

Q.23 A student took dil. hydrochloric acid in a test tube and added solid sodium carbonate. 2

(a) Give the observation
(b) What will happen if a burning splinter is brought near the mouth of the test tube?
(c) What will happen if this gas is passed through lime water?
(d) Identify the gas.

Q24. While preparing a temporary stained mount of a leaf epidermal peel 2

(a) How is the extra stain removed?

(b) Why is the temporary mount of the leaf epidermal peel pinkish-red under the microscope?

Q25. Name the types of asexual reproduction in which two individuals are formed from a single parent and the parental identity is lost. Draw the initial and the final stages of this type of reproduction. 2

Q.26 A student focuses the image of a well illuminated distant object on a screen using a convex lens if the distance between the lens and the screen is 15.0cm. 2

a) What is the focal length of the lens?

b) If he gradually moves the object towards the lens and each time focuses its image on the screen by adjusting the lens then in which direction – towards the screen or away from the screen does he moves the lens?

c) What happens to the size of the image in case (b)?

d) What happens to the image on the screen when the object is very close to the lens?

Q.27 The following apparatus is available in a laboratory. 2

Cell : Adjustable from 0 to 4.5V

Q25. Name the types of asexual reproduction in which two individuals are formed from a single parent and the parental identity is lost. Draw the initial and the final stages of this type of reproduction. 2

Q.26 A student focuses the image of a well illuminated distant object on a screen using a convex lens if the distance between the lens and the screen is 15.0cm. 2

a) What is the focal length of the lens?

b) If he gradually moves the object towards the lens and each time focuses its image on the screen by adjusting the lens then in which direction – towards the screen or away from the screen does he moves the lens?

c) What happens to the size of the image in case (b)?

d) What happens to the image on the screen when the object is very close to the lens?

Q.27 The following apparatus is available in a laboratory. 2

| | |
|---|---|
| Cell | : Adjustable from 0 to 4.5V |
| Resistors | : 3Ω and 6Ω |
| Ammeters | : $A_1$ of range 0 to 3A; Least count 0.1A |
| | $A_2$ of range 0 to 1A; Least count 0.05A |
| Voltmeters | : $V_1$ of range 0 to 10V; Least count 0.5V |
| | $V_2$ of range 0 to 5V; Least count 0.1V |

Find the best combination of Voltmeter and Ammeter for finding the equivalent resistance of resistors in series. Give reason for your choice.