

Academic Session: 2017-18
First Term Examination
Subject - Science
M/3/2

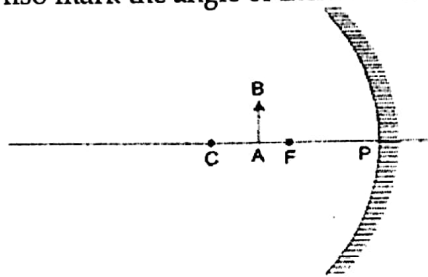
M.M. 80

TIME : 3 Hrs.

GENERAL INSTRUCTIONS:

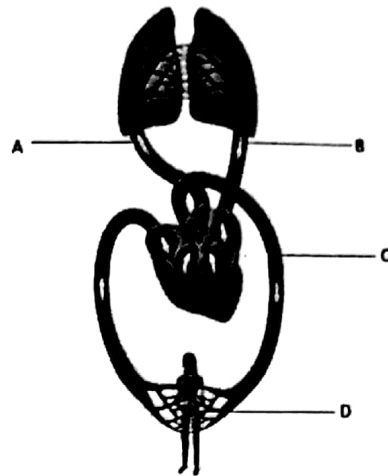
- All questions are compulsory.
- Q1-Q2 are very short answer and carry one mark each.
- Q3-Q5 are short answer and carry two marks each.
- Q6-Q15 are short answer and carry 3 marks each. This section has two choice questions.
- Q16- Q 21 are long answer and carry 5 marks each. This section has one choice question.
- Q22-Q27 are practical based questions and carry two marks each.
- This paper has 5 printed pages.

- Q1 Redraw the diagram given below on your answer sheet and show the direction of the path of a ray of light incident from B and passing through F after reflection from the mirror. Also mark the angle of incidence 'i' and the angle of reflection 'r'. 1



- Q2 Identify the substance reduced and substance oxidized in the following reaction – 1
$$\text{CuO} + \text{Zn} \longrightarrow \text{Cu} + \text{ZnO}$$
- Q3 The absolute refractive index of glass and water are $\frac{3}{2}$ and $\frac{4}{3}$ respectively. If the speed of light in water is 2.25×10^8 m/s, calculate the speed of light in vacuum and glass. 2
- Q4 Translate the following statement into chemical equation and balance it – 2
a) Iron (III) oxide reacts with Aluminium to form molten iron and Aluminium oxide
b) Hydrogen sulphide gas reacts with oxygen gas to form solid sulphur and liquid water
- Q5 Give reasons for the following statements: 2
(a) The existence of decomposers is essential for an ecosystem.
(b) The number of trophic levels in a food chain is limited.
- Q6 Define the SI unit of power. 3
You are given two lenses A and B of focal lengths +20cm and -20cm respectively. State the nature and power of each lens. Which of the two will form a virtual and magnified image of an object placed 10cm from the lens?
- Q7 Explain the following in brief:- 3
(a) It takes some time to see objects clearly when we just enter a cinema hall from bright sunlight.
(b) We are able to read a book and also look at the stars with our eyes distinctly.

- Q8 What should be the position of the object when a spherical mirror is to be used as 3
 (a) Anti shoplifting device
 (b) In torches and searchlights
 Name the type of spherical mirror used and give reason in each case.
- Q9 A) Identify the compound of calcium which is yellowish white powder and is used for 3
 disinfecting drinking water .
 a) Write its chemical name and formula .
 b) How is it manufactured ? Write the chemical equation for the reaction .
- B) Mention the nature of toothpastes . How do they prevent tooth decay ?
- OR
- A) A white coloured powder is used by doctors for supporting fractured bones ;
 a) Write chemical name and formula of the compound .
 b) When this white powder is mixed with water a hard solid mass is obtained . Write
 balanced chemical equation for the change .
- B) A farmer adds quick lime or limestone to treat his soil. What is the nature of the soil ?
 Why does he add quicklime to it?
- Q10 How is displacement reaction different from double displacement reaction ? Give one 3
 example of equation for each .
- Q11 You have to extract metal M from its enriched sulphide ore . If M is in the middle of 3
 the reactivity series , write various steps with equations used in the extraction of this
 metal .
- Q12 Name the hormone synthesized at the shoot tips. How does it help the plant to 3
 respond to light?
- Q13 Draw a neat and well labelled diagram of neuron and list the steps of movement of 3
 nerve impulse through the neuron.
- Q14 Mr. Bhuvan told his daughter Reeta that one can make manure from the daily 3
 household waste on their own. In order to make manure Reeta started disposal of all
 household wastes like waste food, vegetable peel, glass, plastic, tin etc. Into a pit in
 their backyard for a week. She then covered the pit with soil and spilled water on it.
 After a month, she noticed that vegetable peels and food waste in the pit started to
 decompose. However, items like plastic, tin, glass remained the same.
 a) What do you learn from the experiment?
 b) How will you use your knowledge from the experiment in your day - to - day life?
 c) How can you use your knowledge in your locality?



b) What is lymph?

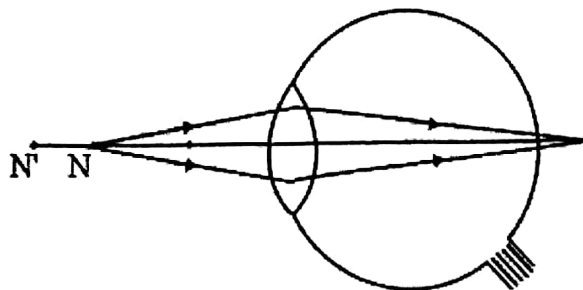
OR

List the three events that occur during the process of photosynthesis. Explain the role of stomata in this process.

Q16 (a) An object is kept in front of a concave mirror of focal length 30cm. The image is three times the size of the object. Find the possible distance(s) of the object from the mirror. 5

(b) A child reads the words of a book with a convex lens keeping it close to the book. He finds the words enlarged and erect. Now he gradually withdraws the lens away from the book. At one position, the words again become distinctly visible but the words are now enlarged and inverted. Explain this difference with the help of ray diagram for both cases. Mention the position of the words in each case. [Only ray diagram required]

Q17 Study the diagram below and answer the following questions :- 5



- Identify the defect of vision.
- Give two possible causes of the defect.
- How can we rectify the defect? Draw the diagram for correction of the defect.

OR

- What is atmospheric refraction?
- In the absence of atmosphere, what change would be observed in the length of a day on earth? Explain scientifically.
- Draw the figure to show the arrangement for observing the phenomenon of scattering of light in the laboratory.

(d) Why does the sky appear reddish in the morning and evening?

Q18 A) Show the bond formation taking place in CaO. 5

a) Will it conduct electricity in solid state or aqueous state and why ?

b) Does it have high melting point or low and why ?

B) Give reasons for the following –

a) Aluminium oxide is considered as an amphoteric oxide .

b) Sulphide ores are first converted to their metal oxide before extraction of metal .

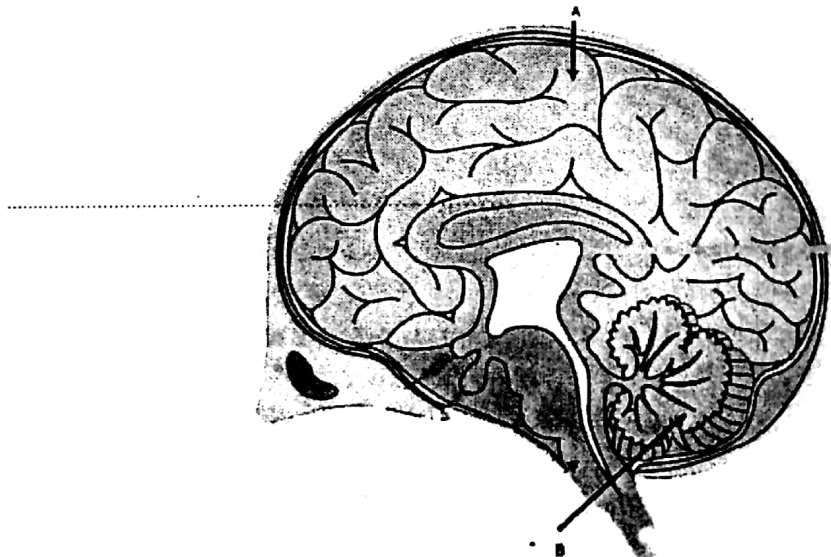
Q19 A) With the help of an activity explain why HCl , HNO₃ , etc. show acidic character in aqueous solutions while solutions of compounds like alcohol and glucose do not show acidic character ? 5

B) Explain the action of sodium hydroxide on the following with chemical equations ;

a) Zinc granule

b) hydrochloric acid

Q20 a) Observe the given diagram and label the parts marked A and B. Give function each of the labelled parts. 5



b) Name the hormone secreted by the thyroid gland and also write its function.

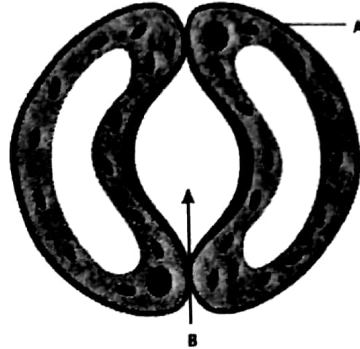
c) Explain feedback mechanism with an example.

Q21 a) Draw a well labelled diagram of human excretory system. 5

b) Give any two ways by which plants excrete their waste products.

Q22 In the given figure, identify A and B and give their functions.

2



Q23 Differentiate between plumule and radicle.

2

Q24 A ray of light incident on a rectangular glass slab immersed in any medium emerges parallel to itself. Draw a labeled diagram to justify the statement. Mark lateral displacement D , angle of incidence i and angle of emergence e .

2

Q25 A student focused the image of a candle flame on a white screen using a convex lens.

2

He took the following observations:-

Position of candle = 16cm

Position of convex lens = 50cm

Position of screen = 84 cm

- (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 33cm?
- (c) What will be the nature of the image formed if he further shifts the candle towards the lens?

Q26 A solution 'X' gives orange colour when pH paper is dipped into it. On the other hand, another solution 'Y' gives bluish green colour when pH paper is dipped into it. What are the types of solution 'X' and 'Y' and in what range their pH value will fall?

2

Q27 What will be the nature of solution formed when calcium oxide is dissolved in water? Name the substance formed when carbon dioxide gas is passed through this solution. Write equations for these reactions.

2