

Jayesh Foundation Kalwan
JAYESH FOUNDATION SCHOLARSHIP EXAMINATION 2022
Descriptive Paper (PCB)

Time : 3:00 hrs.

Max. Marks : 100

PHYSICS

General Instructions

- All questions are compulsory.
 - This question paper has three sections: Section A ,Section B & Section C,
 - Section A contains five questions of one mark each, Section B contains four questions of two marks each and Section C Contains four Questions of three marks each.
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Section (A)

1. Is it possible ever for a silver wire to have a higher resistance than an iron wire? Comment on your reply.
2. What is the function of lens of human eye?
3. How many times the direction of current in the coil of an electric motor changes in one complete rotation?
4. The refractive index of diamond is 2.42. What is the meaning of this statement?
5. What are the electrical specifications of the domestic supply in India?

Section (B)

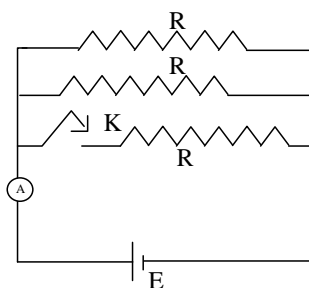
6. Can magnification be negative for a convex mirror? If not, why?
7. Suggest the suitable lens for correcting vision of a person whose near point reads away to 75cm.
8. For the same current, the heating element of an electric iron become so hot but the connecting wires remain cold. Why?
9. A 2 Coulomb charge is carried from a point A which is at 20 Volt to another points B. If the work done in the process is 100 Joule, calculate the potential of point B.

Section (C)

10. An object, 4.0 cm in size, is placed at 25.0 cm in front of a concave mirror of focal length 15.0 cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? Find the nature and the size of the image.
11. What do you mean by myopia?
 - (a) A person suffering from myopia wants to see movie in cinema hall. Will he be able to see the movie properly with bare eyes?
 - (b) Which lens should he use to correct the vision, if his far point is 1.2m?
 - (c) What are the possible reasons that cause short sightedness?
12. A coil of insulated copper wire is connected to a galvanometer.
What will happen if a bar magnet is (i) pushed into the coil, (ii) withdrawn from inside the coil, (iii) held stationary inside the coil?

13. Consider the given electrical circuit.

When the key 'K' was left open, the reading of ammeter was 6A. What will be the reading of the same ammeter if the key 'K' is closed?



CHEMISTRY

Each question carries 5 marks

1.

(a) Define a balanced chemical equation. Why should an equation be balanced?

(b) Write the balanced chemical equation for the following reaction:

(i) Phosphorus burns in presence of chlorine to form phosphorus pentachloride.

(ii) Burning of natural gas.

(iii) The process of respiration.

2.

(a) Write one example for each of decomposition reaction carried out with help of

(i) Electricity (ii) Heat (iii) Light

(b) Which of the following statements is correct and why?

(i) copper can displace silver from silver nitrate

(ii) silver can displace copper from copper sulphate solution.

3. An element X which is a yellow solid at room temperature shows catenation and allotropy. X form two oxides which are also formed during the thermal decomposition of ferrous sulphur crystals and are the major air pollutants.

(a) Identify the element X.

(b) Write the electronic configuration of X.

(c) Write the balanced chemical of equation for the thermal decomposition of ferrous sulphate crystals.

(d) What would be the nature (acidic/ basic) of oxides formed?

(e) Locate the position of the element in the Modern Periodic Table.

4. An organic compound A is widely used as a preservative in pickles and has a molecular formula $C_2H_4O_2$. This compound reacts with ethanol to form a sweet smelling compound B.

(a) Identify the compound A.

(b) Write the chemical equation for its reaction with ethanol to form compound B.

(c) How can we get compound A back from B.

(d) Name the process and write the corresponding chemical equation.

(e) Which gas is produced when compound A reacts with washing soda? Write the chemical equation?

5.

(a) Mention the pH range within which our body works. Explain how antacids give relief from acidity. Write the name of one such antacid.

(b) Fresh milk has a pH of 6. How does the pH will change as it turns to curd? Explain your answer.

(c) A milkman adds a very small amount of baking soda to fresh milk. Why does this milk take a longer time to set as curd?

(d) Mention the nature of toothpastes. How do they prevent tooth decay?

BIOLOGY

Section (A) (1 MARK)

1. What are vestigial organs? Give one example.
2. What is meant by cellular respiration?
3. Name the type of reproduction occurs in Hydra.
4. What is pollination?
5. Acetyl choline is released by.....

Section (B) (2 MARKS)

6. What would be the consequences of the deficiency of hemoglobin in the human body?
7. Give scientific reason: the roots of plants grow away from the light.
8. What do you mean by Translation & Translocation
9. Define fossil. Explain the importance of fossils as proof of evolution.
10. Distinguish between aerobic and anaerobic respiration with the help of flow chart.
11. What is the role of microbes in compost production?
12. Give reason: All vertebrates are chordates but all chordates are not vertebrates.
13. What are the benefits of mixing ethanol with petrol and diesel?
14. Explain the meaning of vaccination.
15. Evidence of Evolution (any four)

Section (C) (3 MARKS)

16. Differentiate between Mendel's monohybrid cross and dihybrid cross.
17. What is embryology? How does its study lead us to understand evolution?
18. Write the name and function of the parts of human nervous system.
19. Explain the sex determination in Human being.
20. Explain the Menstrual cycle.

Section (D) (4 MARKS)

21. Answer the following questions with respect to the sexual reproduction in plants:
 - i. State the name of the functional unit concerned with sexual reproduction.
 - ii. Name the part made up of the stigma, style and ovary.
 - iii. Name the swollen lower part of the carpel.
 - iv. Name the male part of the flower.
 - v. Where are the pollen grains produced?
22. Explain cell division: Mitosis and Meiosis with the suitable diagram.