

**KARNATAKA SECONDARY EDUCATION EXAMINATION BOARD**

**MODEL PAPER – 1 FOR THE YEAR 2019-20**

**REGULAR FRESH**

**Subject : Science**

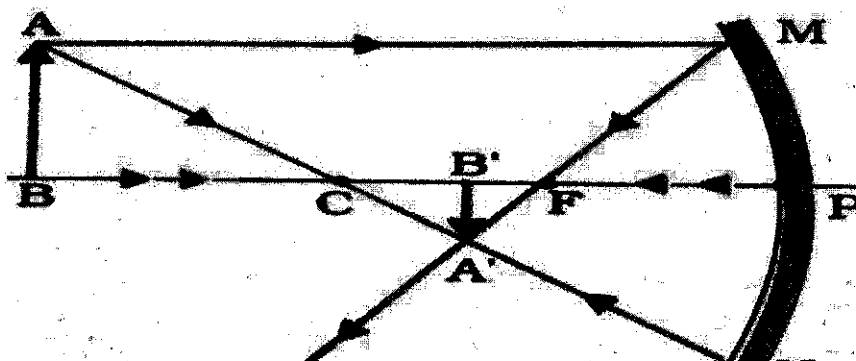
**Code : 83E**

**Duration : 3 hours**

**Max. Marks : 80**

**I. Four alternatives are provided for each of the following questions or incomplete statements. Choose the most appropriate alternative and write with its alphabet. 8 X 1 = 8**

1. Identify the correct statement among the following with respect to plant hormones.
  - A) Cytokinin promotes wilting of leaves
  - B) Auxin inhibits stem elongation
  - C) Abscisic acid inhibits growth of plants
  - D) Gibberellin promotes falling of leaves
  
2. A heat producing device should be used in an electric circuit. This device should have
  - A) high resistance and low melting point
  - B) low resistance and high melting point
  - C) high resistance and high melting point
  - D) low resistance and low melting point
  
3. Observe the figure. The image formed in the figure is



- A) Real, inverted, diminished
- B) Virtual, erect, diminished
- C) Virtual, erect, enlarged
- D) Real, inverted, enlarged

4. Reactive metals are good reducing agents. The most suitable example related to this is

- A)  $\text{PbO} + \text{C} \longrightarrow \text{Pb} + \text{CO}$
- B)  $3\text{MnO}_2 + 4\text{Al} \longrightarrow 2\text{Al}_2\text{O}_3 + 3\text{Mn}$
- C)  $\text{ZnO} + \text{C} \longrightarrow \text{Zn} + \text{CO}$
- D)  $\text{CuO} + \text{H}_2 \longrightarrow \text{Cu} + \text{H}_2\text{O}$

5. The traditional method of sustainable natural resource management is

- A) Following water harvesting method
- B) Minimising the establishment of factories
- C) Using fossil fuels abundantly
- D) Preventing overgrazing of cattle in forest areas

6. The group of compounds which are in homologous series is,

- A)  $\text{CH}_4$ ,  $\text{C}_2\text{H}_4$ ,  $\text{C}_2\text{H}_2$
- B)  $\text{CH}_4$ ,  $\text{CH}_3\text{OH}$ ,  $\text{HCHO}$
- C)  $\text{CH}_4$ ,  $\text{C}_2\text{H}_6$ ,  $\text{C}_3\text{H}_8$
- D)  $\text{C}_2\text{H}_2$ ,  $\text{C}_3\text{H}_6$ ,  $\text{C}_4\text{H}_{10}$

7. Observe the following table

- |   |                 |
|---|-----------------|
| a) Reverses the direction of electric current | i) Galvanometer |
| b) Safety device                              | ii) Commutator  |
| c) Detects the presence of electric current   | iii) Fuse       |

The correct arrangement is

- A) a - iii, b - i, c - ii
- B) a - ii, b - i, c - iii
- C) a - ii, b - iii, c - i
- D) a - iii, b - ii, c - i

8.  $\text{CH}_3 - \text{CH}_2\text{OH} \xrightarrow{\text{Conc. H}_2\text{SO}_4} \text{CH}_2 = \text{CH}_2 + \text{H}_2\text{O}$

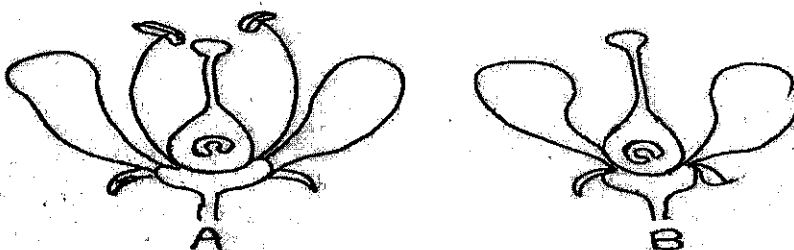
This chemical reaction is

- A) Neutralization reaction because water is released
- B) Oxidation reaction because oxygen is removed from the reactant
- C) Addition reaction because hydrogen is added to the reactant
- D) Dehydration reaction because water is removed from the reactant

**II. Answer the following questions**

**8 X 1 = 8**

9. Define one volt (1V) potential difference.
10. Among the flowers A and B, which flower undergoes self pollination? Why?



11. You are given a copper coil, 6V battery and iron filings. What effects of electric current can you demonstrate using these materials?
12. Write the formula to calculate the magnification produced by a spherical mirror.
13. What is the meaning of "Repurpose" with respect to conservation of environment?
14. What is an exothermic reaction? Which of the following is an exothermic reaction?
- i) Heating calcium carbonate
  - ii) Adding water to calcium oxide
15. Aqueous solutions of sodium chloride, sodium sulphate and calcium chloride are taken in three separate test tubes. Using aqueous barium chloride how do you identify sodium sulphate?
16. Copper when exposed to air for a long time acquires a green coat. Why?

**III. Answer the following questions.**

**8 X 2 = 16**

17. How does nervous system differ from the endocrine system in forming control and co-ordination in animals?

18. Draw the circuit diagram showing the combination of resistors  $R_1$ ,  $R_2$  and  $R_3$  in parallel including ammeter and voltmeter and mark the direction of current.

19. What are ionic compounds? Mention any two properties of ionic compounds.

**OR**

Name any two metals that react with cold water very quickly. Write the products formed when these metals react with cold water.

20. Draw the diagram of the apparatus used in electrolytic refining of copper and label the electrode where pure copper is deposited.

21. What are the methods used by plants to get rid of excretory products?

**OR**

Mention the importance of transpiration in plants.

22. Draw the ray diagram showing the position of the object and image, to get the real inverted image whose size is same as the object using a convex lens.

23. Draw the diagram of the arrangement of apparatus showing the reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning and label the soap bubbles filled with hydrogen.

24. Imagine that in an area containing green bushes, almost equal number of brown grasshoppers and green grasshoppers are living. Which grasshoppers would be eaten by the birds easily? Why? Population of which grasshoppers increases gradually? Name the phenomenon which directs evolution here.

**IV. Answer the following questions**

**9 X 3 = 27**

25. Define the rule used to identify the direction of induced current in an electric generator. How can we increase the amount of electric current produced in the electric generator? Mention the property of the current produced by AC generator. Mention an important advantage of this type of current.

**OR**

On what principle an electric motor works? Define the rule used to identify the direction of force on the conductor in an electric motor. Explain the parts used in a commercial motor.

26. Explain the flow of energy and harmful chemicals in an ecosystem.
27. What is nuclear energy? What are the hazards of nuclear power generation?

**OR**

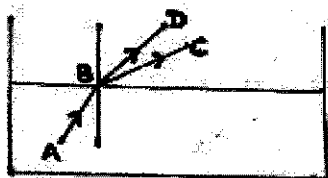
List the four characteristics of a good source of energy. Name any two sources of energy which are dependent on solar energy.

28. When sulphuric acid is added to 1g solid sodium chloride taken in a test tube, which gas is released? What changes do you observe when you test the gas with dry and wet litmus paper? What conclusion do you draw by this experiment?

**OR**

The pH values of four solutions A, B, C and D are 5, 12, 8 and 9 respectively. Arrange them in the increasing order of their hydroxyl ion concentration. Which solution among them has strong acidic property? Explain what happens if our mouth contains the pH of solution 'A'.

29. Write the functions of Forebrain, Medulla and Cerebellum in human brain.
30. The molecular formula of three fatty acids A, B and C present in oil or fat is  $C_{12}H_{29}COOH$ ,  $C_{15}H_{29}COOH$  and  $C_{16}H_{29}COOH$ . Which of these is derived from i) Alkane ii) Alkene and iii) Alkyne? Which of them becomes rancid earlier? How can we increase its shelf life?
31. A tall plant with red flowers (TtRr) is self pollinated. Represent the plants obtained in  $F_2$  generation with the help of a checker board (Punnet square). The traits which are not found in the parental plants are expressed in the offspring. Why?
32. Observe the following figure. AB is light ray travelling from liquid to air. BC and BD are refracted rays.



- Which is the refracted ray if the liquid taken is benzene?
- Which is the refracted ray if the liquid taken is water?

Justify your answer. (The absolute refractive index of water and benzene are 1.33 and 1.5 respectively)

**OR**

An object 2cm tall is kept on the principal axis of a converging lens of focal length 8 cm. Find the position, nature and size of the image formed if the object is at 12cm from the lens. Also find the magnification produced by the lens.

33. Explain the three types of decomposition reaction with the help of balanced chemical equation for each.

**V. Answer the following questions.**

**4 X 4 = 16**

34. Draw the diagram showing the structure of human alimentary canal and label the following parts.

- The part which stores bile juice
- The longest part of the alimentary canal

35. How did Mendeleev arrange the elements? He left empty places in his periodic table. Why? Explain the limitations of Mendeleev classification.

36. There are two metallic wires of the same thickness made from iron and silver. If the length of iron wire is 12cm what should be the length of silver wire which is equal to the resistance of iron wire?

Data :- Resistivity of iron =  $10 \times 10^{-8} \Omega\text{m}$   
Resistivity of silver =  $16 \times 10^{-8} \Omega\text{m}$

37. a) Explain why variations are observed in the offsprings formed by sexual reproduction?

- What are the advantages of vegetative propagation?

**OR**

- Write the structure and functions of placenta.
- What are the changes that occur in a flower after fertilization.

**VI. Answer the following question.**

**1 X 5 = 5**

38. Stars appear to be twinkling but planets do not twinkle. Why? Explain why the colour of the clear sky during day appears blue and during sunset appears red.