

KARNATAKA SECONDARY EDUCATION EXAMINATION BOARD

MODEL PAPER – 2 FOR THE YEAR 2019-20

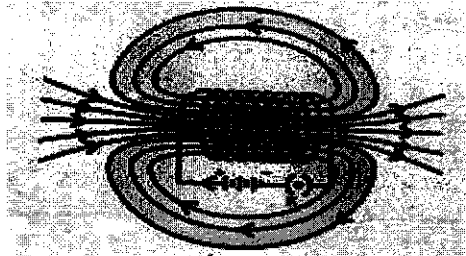
REGULAR FRESH

Subject : Science
Duration : 3 hours

Code : 83E
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. Significant role of stomata in transportation is to
 - A) create upward pressure
 - B) absorb carbon dioxide
 - C) release oxygen
 - D) perform transpiration continuously
2. Hydrogen gas is not liberated when a metal reacts with concentrated nitric acid because nitric acid
 - A) does not contain hydrogen atoms
 - B) oxidises itself
 - C) oxidises hydrogen to form water
 - D) is a strong reducing agent and gains hydrogen
3. Observe the following figure. We can understand that



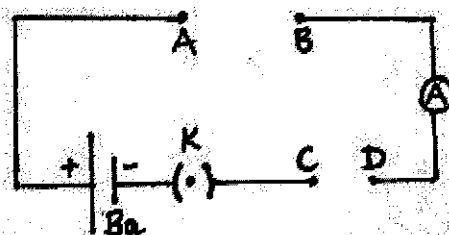
- A) there is a uniform magnetic field around the solenoid
 - B) the magnetic field is same at all points inside the solenoid
 - C) solenoid is kept in a strong magnetic field
 - D) solenoid is experiencing mechanical force
4. In a power station coal is burnt to heat water to produce steam which further runs the turbine to generate electricity. This power station is a
 - A) Thermal power plant because coal is burnt
 - B) Hydro power plant because water is heated
 - C) Nuclear power plant because turbine runs
 - D) Bio gas power plant because coal is used

5. A response that does not happen in plants due to their growth is
- Bending of shoot towards light
 - Penetration of roots in deep soil
 - Folding of leaves when touched
 - Climbing tendrils of a creeper
6. In the environment, materials causing biomagnification
- get recycled quickly
 - decompose only in soil
 - remain as permanent residues
 - are stored in less amount in trophic levels
7. Ferrous sulphate crystals are taken in a test tube and heated ; the correct statement related to this chemical reaction is
- This is a photolytic decomposition reaction, and white coloured solid ferric oxide is formed
 - This is a thermal decomposition and green coloured fumes of ferric oxide is formed
 - This is a photolytic decomposition reaction and brown coloured fumes of ferric oxide is formed
 - This is a thermal decomposition reaction and brown coloured solid ferric oxide is formed
8. If one hydrogen atom of propane is replaced by a ketone group, then the molecular formula of the compound obtained is
- C_4H_8O
 - C_3H_8O
 - $C_3H_6O_2$
 - $C_4H_{10}O$

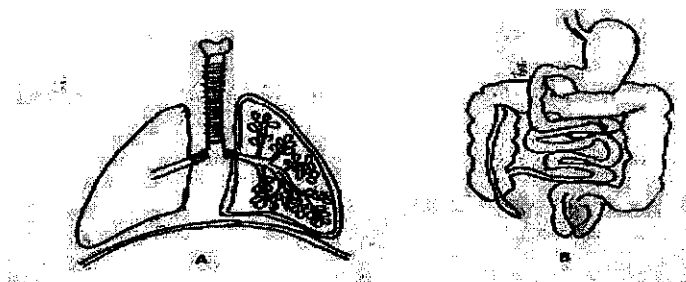
II. Answer the following questions.

8 X 1 = 8

9. Complete this diagram by connecting two resistors R_1 & R_2 in series between A and B, also connecting two resistors R_3 & R_4 in parallel between C & D.



10. What is esterification reaction?
11. **Give scientific reason :** "The magnetic field produced by a current carrying conductor increases as the number of turns in the coil increases".
12. What similarity is observed in the structures of 'A' and 'B' with respect to their function?



13. A student connects a water heater to a 5A electric circuit. Is this correct? Give suitable reason to your answer.
14. Use of CFC free refrigerators is considered as eco friendly. Why?
15. Write the products obtained when sodium oxide reacts with hydrochloric acid.
16. Does the chemical reaction take place when zinc is added to ferrous sulphate solution? Justify your answer.

III. Answer the following questions

8 X 2 = 16

17. Draw the diagram showing longitudinal section of a flower and label the part where pollination takes place.
18. Explain the cleansing action of soaps.

OR

Explain the method of converting ethanol into ethanoic acid with the help of chemical equation.

19. Draw the diagram of the arrangement of apparatus to show the action of steam on a metal and label the part where hydrogen is collected.

20. Draw the ray diagram showing myopic eye and correction for myopia.

OR

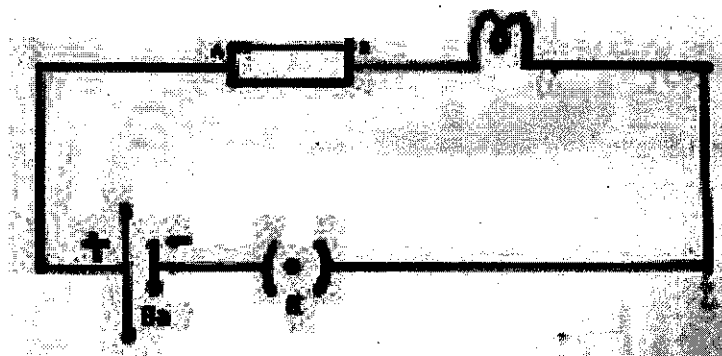
Draw the ray diagram showing the recombination of the spectrum of white light.

21. "We need to look for alternative sources of energy". Justify this statement scientifically.

22. Write the events occurring during photosynthesis.

23. Explain the formation of covalent bond taking the example of methane and write the electron dot structure of methane.

24. In the following circuit, which device can be connected in place of AB to increase or decrease the brightness of the bulb? Give reason for your answer.



IV. Answer the following questions.

9 X 3 = 27

25. Draw the ray diagram showing the image formation by a convex lens, when the object is kept between principal focus and optic centre. With the help of the diagram mention the nature of the image formed.

26. The reaction between lead nitrate and potassium iodide solutions is an example for what types of chemical reaction? Explain. Write the balanced chemical equation for this reaction.

27. a) An object is kept between centre of curvature & principal focus of a concave mirror. Write the nature of the image formed.

b) Define focal length of a convex mirror. Write the relationship between focal length and radius of curvature of a convex mirror.

OR

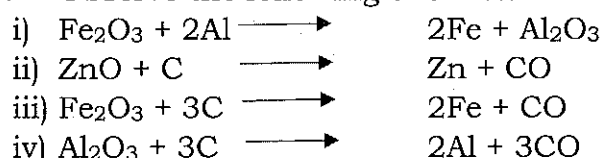
- a) Give any two examples for refraction of light in daily life. State the laws of refraction of light.
- b) "The power of a lens is -2.5D. Which type of lens is this?"

28. In the modern periodic table, 'A' and 'B' are two elements belonging to first and seventeenth group respectively and both of them belong to the third period. Write their electronic configuration. Which of them is a metal? Why? Write the chemical formula of the compound obtained when these two elements react with each other.

OR

$^{12}_6\text{C}$ and $^{14}_6\text{C}$ are two elements. Do both these elements get different positions in modern periodic table? Explain your answer. Identify the period and group to which they belong in the modern periodic table with suitable reason.

29. Observe the following chemical reactions



Which of the above reaction is wrong? How is the metal present in the wrong equation extracted? Which of the above reaction can be used to join the broken parts of the machines. Why?

30. How is the end product of nutrition glucose breaks down among all the organisms under the conditions given below.
- i) In the presence of atmospheric oxygen
- ii) In the absence of atmospheric oxygen
- iii) In muscle cells due to lack of oxygen

OR

Explain the methods of

- i) Oxygen supply to the cells
- ii) Release of carbon dioxide to the atmosphere from the cells during the process of transportation in humans.

31. Draw the diagram showing longitudinal section of human brain and label the following parts.
- i) Part of hind brain that controls involuntary functions
- ii) The part that interprets sensory information

32. An electric motor is taken out from a toy car. How do you convert this motor into a small electric generator? Compare the function of electric generator with the phenomenon of electromagnetic induction.
33. Which ancient systems of water harvesting can be rejuvenated? What is the major advantage of these methods?

OR

“Conscious usage of natural resources nowadays is inevitable.” Why? Give reasons for your answer.

V. Answer the following questions

4 X 4 = 16

34. Two black female mice are crossed with a brown male. Later female **I** produced 9 black and 7 brown offsprings, female **II** produced 57 black offsprings during first filial generation. Then
- What inference can you make concerning inheritance of black and brown coloured mice?
 - With the help of phenotype given, find out what are the genotypes of parents?
35. a) What is Tyndall effect? Give two examples for Tyndall effect.
- b) What is the meaning of power of accommodation of eye? How does this help us to see objects at different distances?
36. a) Name the gas released at anode during chlor-alkali process and mention the uses of this gas.
- b) Which gas is released when sodium carbonate reacts with hydrochloric acid? How do you test this gas? Write the word equation for this reaction.

OR

- What happens if too much of acid is produced in the stomach? What is the remedy for this situation?
- What is water of crystallization? How is plaster of paris prepared? Write any two uses of plaster of paris.

37. a) Explain any two practical applications of heating effect of electric current.

b) An electric bulb is connected to a 220V generator. If the current drawn by the bulb is 0.5A, then calculate the power of the bulb.

VI. Answer the following question.

1 X 5 = 5

38. How are general growth and sexual maturation different from each other? Which are the symptoms observed in sexually matured females? When a matured female receives male sex cells due to sexual contact what changes will happen in her uterus?