



विद्या सर्वार्थ साधिका

ANANDALAYA
PERIODIC TEST -1
Class: X

Subject: Science
Date : 07- 01- 2023

MM : 40
Time: 1 Hr 30 min

General Instructions:

1. There are 17 questions in this question paper. All questions are compulsory.
2. This question paper has four sections: Section A, Section B, Section C and Section D.
3. Section A - Q. No. 1 to 5 are objective type questions and carry 1 mark each.
4. Section B - Q. No. 6 to 10 are short answer questions and carry 2 marks each.
5. Section C - Q. No. 11 to 15 are also short answer questions and carry 3 marks each.
6. Section D - Q. No. 16 and 17 are long answer questions and carry 5 marks each.
7. There is no overall choice. However, an internal choice has been provided in one question of three marks and one question of five marks. You have to attempt only one of the choices in such questions.

SECTION A

1. Give two advantages of connecting electrical devices in parallel with the battery instead of connecting them in series. (1)
2. Write the two succeeding members of the following homologous series: C_2H_6 , C_3H_8 . (1)
3. A student added 5g of crystals of acetic acid to 100 ml of water in a beaker. His observation would be: (1)
(A) Crystals settled at the bottom of beaker
(B) A white precipitate was formed immediately
(C) A gas evolved with effervescence
(D) Crystals dissolved completely
4. The offspring formed by sexual reproduction exhibit more variation than those formed by asexual reproduction because: (1)
(A) Sexual reproduction is a complex but slow process.
(B) Gametes of parents have qualitatively different genetic composition
(C) Genetic material comes from parents of different species
(D) Greater amount of DNA is involved in sexual reproduction
5. **Assertion:** A pollen grain of flowering plant produces two male gametes. (1)
Reason: Two male gametes are essential for double fertilisation.
(A) Both assertion and the reason are true and the reason is the correct explanation of assertion.
(B) Both assertion and reason are true but reason is not the correct explanation of assertion.
(C) Assertion is true but the reason is false.
(D) Assertion false but the reason is false

SECTION B

6. The potential difference between the terminals of an electric heater is 60 V when it draws a current of 4 A from the source. What current will the heater draw if the potential difference is increased to 120 V? (2)
7. A given wire is stretched to double its length. How will the resistance change? (2)
8. Identify from the following, the hydrocarbon that undergo addition reaction : (2)
 C_3H_8 , C_2H_6 , CH_4 , C_2H_4 . Justify your answer by giving a chemical equation.

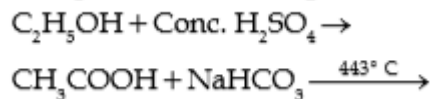
9. In guinea pigs black fur (BB) is dominant to white fur (bb). A monohybrid cross was performed between guinea pigs pure for these contrasting traits. If the heterozygous F1 individual is crossed with a homozygous recessive parent, what would be the phenotypic and genotypic ratio? (2)
10. (A) Which one is the underground stem - onion or potato? Justify your answer. (2)
 (B) What will be the effect, if gall bladder is surgically removed in a patient? (2)

SECTION C

11. (A) Three resistors $R_1 = 10 \text{ ohm}$, $R_2 = 20 \text{ ohm}$ and $R_3 = 30 \text{ ohm}$ are connected in series. This combination is connected across a battery of three cells (2V each) along with an ammeter, a voltmeter and a key. The voltmeter is used to measure the pd across R_2 . Draw a circuit diagram to show the above connections. (3)
 (B) If the voltmeter reading is 2 V, what will be the power dissipated across R_2 ?

OR

- (A) What is electrical resistivity? Give the relation between resistance and resistivity.
 (B) Resistance of a metal wire of length 1 m is 26Ω at 20°C . If the area of cross section of the wire is $3.0 \times 10^{-8} \text{ m}^2$, what will be the resistivity of the metal at that temperature?
12. (A) Complete the following chemical reactions - (3)



- (B) What is saponification? Illustrate it with the help of a chemical equation.
 (C) How will you differentiate between ethanol and ethanoic acid?
13. (A) Write the names of the following compounds: $\text{CH}_3\text{CH}_2\text{COOH}$, C_6H_6 (3)
 (B) What will happen if methanol reacts with ethanoic acid in the presence of an acid? Name the reaction. Write the chemical equation for this reaction.
14. (A) Draw electron dot structure of methane molecule. (3)
 (B) Explain the cleansing action of soap with a diagram?
15. A homozygous tall pea plant with green seeds (TTyy) is crossed by a dwarf pea plant with yellow seeds (ttYY). (3)
 (A) Derive F1 generation and write the phenotype and genotype of the F1 generation.
 (B) State Mendelian law of Independent Assortment.

SECTION D

16. (A) Define electrical potential difference. (5)
 (B) What is the SI unit of electrical potential difference?
 (C) Three resistors 10Ω , 15Ω and 30Ω are connected in parallel. What will be the equivalent resistance of this combination?
 (D) Two resistors are connected in series and connected across a cell. The current through them is measured as I_1 . When the two resistors are connected in parallel across the same cell the current measured is I_2 . Which one will be greater - I_1 or I_2 ?
17. (A) Name one unisexual and one bisexual plant. (5)
 (B) When does DNA copying occur?
 (C) Explain process of budding in Hydra with the help of diagrams

OR

- (A) Draw the human female reproductive system and label the following parts:
 (i) Site of ova production (ii) Site of fertilisation (iii) Site of embryo implantation
 (B) How does the embryo get nourishment?
 (C) Name two STDs.