

O.P. JINDAL SCHOOL, SAVITRI NAGAR
PERIODIC TEST –III (Round-1) (2025-26)

CLASS-X
SUBJECT-SCIENCE

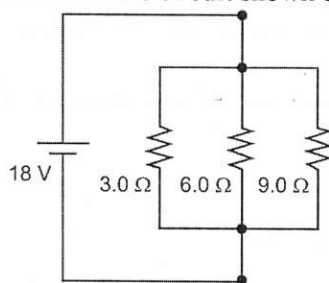
MAX.MARKS-20
MAX.TIME-1 Hour

General Instruction:-

- (i) All questions are compulsory. There are 12 questions in this question paper with some internal choice in section B and C.
- (ii) **SECTION –A:** Question numbers 1 to 6 are MCQs, carrying 1 mark each.
- (iii) **SECTION –B:** Question numbers 7 to 10 are short answer questions carrying 2 marks each.
- (iv) **SECTION –C:** Question numbers 11 and 12 are long questions carrying 3 marks each.

SECTION A

Q1. The total power dissipated in watt in the circuit shown below is:



- (a) 108W
 (b) 198W
 (c) 120W
 (d) 90W
- Q2.** Which section of DNA provides information for one protein
 (a) Nucleus
 (b) Chromosomes
 (c) Trait
 (d) Gene
- Q3.** The total number of electrons shared in the formation of ethyne molecule is:
 (a) 6
 (b) 3
 (c) 10
 (d) 4
- Q4.** Who have a perfect pair of sex chromosomes?
 (a) Girls only
 (b) Boys only
 (c) Both girls and boys
 (d) It depends on many other factors
- Q5.** A current of 2 A passing through conductor produces 80J of heat in 10 seconds. The resistance of the conductor is
 (a) 0.5Ω
 (b) 2Ω
 (c) 4Ω
 (d) 20Ω
- Q6.** Which of the following hydrocarbons is different from the others?
 (a) C₄H₁₀
 (b) C₇H₁₄
 (c) C₅H₁₂
 (d) C₆H₆

SECTION B

Q7. Attempt either (A) or (B):

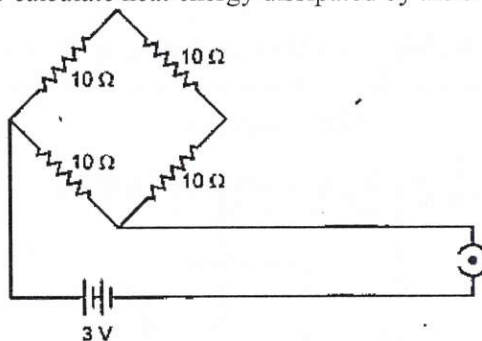
(A):

- (i) Why are the conductors of electric heating devices, such as bread-toasters and electric irons, made of an alloy rather than a pure metal?
- (ii) State Joule's law of heating.

OR

(B):

Find the current drawn from the battery by the network of four resistors as shown in the circuit diagram below. Also calculate heat energy dissipated by the circuit in 5 seconds.



Q8. Attempt either (A) and (B):

(A):

Draw the electron dot structure of the following:

- (i) Nitrogen molecule
- (ii) Ethene molecule

OR

(B):

- (i) Write the molecular formula of benzene and draw its structure.
- (ii) Write the number of single and double covalent bonds present in a molecule of benzene.

Q9. Explain the given reactions with example:

- (i) Substitution reaction
- (ii) Oxidation reaction

Q10. Attempt either (A) or (B):

(A):

Why are the traits acquired during the lifetime of an individual are not inherited?

OR

(B):

- (i) What is a gene?
- (ii) What is heredity?

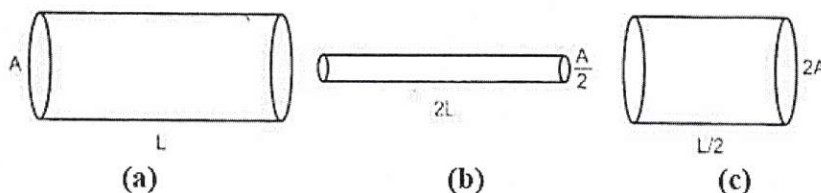
SECTION C

Q11. Attempt either (A) or (B):

(A):

Three bulbs each having power P are connected in series in an electric circuit. In another circuit, another set of three bulbs of same power are connected in parallel to the same source.

- (i) Will the bulbs in both the circuits glow with the same brightness? Justify your answer.
- (ii) The figure below shows three cylindrical copper conductors along with their face areas and lengths. Discuss in which geometrical shape the resistance will be highest. Give reason for your answer.



OR

(B):

In a household, the following appliances are used daily throughout the month of November:

- One electric bulb (40 W), used for 20 hours per day
- One conventional ceiling fan (75 W), used for 10 hours per day
- One electric geyser (2000 W), used for 30 minutes per day .

Answer the following:

- (i) Calculate the total electrical energy consumed by these appliances in one day.
- (ii) Determine the total electrical energy consumed during the month of November.
- (iii) Calculate the total cost of electricity consumed during November, if the electricity tariff is ₹4 per unit (1 unit = 1 kWh).

Q12. Attempt either (A) or (B):

(A):

- (i) Why is the F_1 progeny always of tall plants when a tall plant is crossed with a short pea plant?
- (ii) How is F_2 progeny obtained by self-pollination of F_1 progeny different from F_1 progeny? Give reason for this observation.
- (iii) State a conclusion that can be drawn on the basis of this observation.

OR

(B):

“It is a matter of chance whether a couple will have a male or a female child.” Justify this statement by drawing a flow chart.
