

45) lead dioxide, zinc.

46) $R_1, R_2, R_3, R_4, R_5 = 5\Omega$ $R_{P1}, R_{P2}, R_{P3}, R_{P4} = 10\Omega$

$R_A, R_B, R_C, \& R_D$ are in parallel.

R_1 and R_2 are in series $R = 5 + 5 = 10$; $R + R_{P1} =$

$$\frac{1}{R} + \frac{1}{R_{P1}} = \frac{1}{10} + \frac{1}{10} = \frac{2}{10} = \frac{1}{5} \quad R_A = 5$$

R_A and R_3 are in series $R = 5 + 5 = 10$; $R + R_{P2} =$

$$\frac{1}{R} + \frac{1}{R_{P2}} = \frac{1}{10} + \frac{1}{10} = \frac{2}{10} = \frac{1}{5} \quad R_B = 5$$

R_B and R_4 are in series $R = 5 + 5 = 10$; $R + R_{P3} =$

$$\frac{1}{R} + \frac{1}{R_{P3}} = \frac{1}{10} + \frac{1}{10} = \frac{2}{10} = \frac{1}{5} \quad R_C = 5$$

R_C and R_4 are in series $R = 5 + 5 = 10$; $R + R_{P4} =$

$$\frac{1}{R} + \frac{1}{R_{P4}} = \frac{1}{10} + \frac{1}{10} = \frac{2}{10} = \frac{1}{5} \quad R_D = 5$$

The equivalent resistance between A and B = 5Ω

- 47) 1) Lead aprons and lead gloves are to be used while working in hazardous area.
2) Nuclear devices can be operated using remote control system.
3) Clean up contamination in the work area promptly.

SECTION – III

PART –I

- 48) Life cycle – description - 3 marks
Schematic diagram - 2 marks
- 49) Endocrine glands and their location - 2 marks
Description of any two - 3 marks ($1\frac{1}{2} \times 2$)

PART –II

- 50) i) Dehiscent and indehiscent fruit - 2 marks
ii) Aggregate and multiple fruits comparison – 3 marks
- 51) i) Green chemistry definition – 1 mark
ii) Principles any two - 2 marks
iii) alternates to petroleum - 2 marks

PART –III

- 52) i) findings of modern atomic theory - 3 marks
ii) No. of moles 2 - 2 marks
- 53) i) relation between vapour density and molecular mass – 3 marks
ii) calculation - 2 marks

PART –IV

- 54) i) Newton's law of gravitation - 3 marks
ii) Mass and weight differentiation - 2 marks
- 53) $R = -30\text{cm}$ $h = 5\text{cm}$ $u = -10\text{cm}$
Radius of curvature = 2 x focal length; $f = R / 2$; $-30 / 2 = -15$
- 54) i) Achievements of Chandrayan – 3 marks
ii) Space stations - 2 marks