

8. What is register in digital systems ?
9. Draw the block diagram of communication system and explain its operation.
10. What is ISDN ?

PART - B (5 × 16 = 80 Marks)

11. (a) (i) A series circuit has $R = 5\text{ohms}$, $L = 13\text{mH}$, and $C = 140\ \mu\text{F}$ and is supplied with 230V , 50Hz single phase. Find (i) Impedance (ii) current (iii) power (iv) power factor of the circuit. (8)
- (ii) Two impedances $(8 + j10)\ \text{ohm}$ and $(7 + j9)\ \text{ohm}$ are connected in parallel. Find magnitude and phase angle of total impedance. Another impedance $(5 - j2)\ \text{ohm}$ is connected in series with above combination. Find overall impedance. (8)
- OR**
- (b) Explain the construction and principle of operation of single phase energy meter. (16)
12. (a) (i) Describe various types self excited of DC generators with their circuit layout. (8)
- (ii) Explain the characteristics of DC shunt motor. (8)
- OR**
- (b) Explain the tests on single phase transformer and develop an equivalent circuit from the above tests. (16)
13. (a) (i) Explain V-I characteristics of zener diode and applications with necessary diagrams. (8)
- (ii) Explain the operation of full wave rectifier with necessary diagrams. (8)
- OR**
- (b) Explain how you will obtain the static characteristics of common emitter configuration. (16)

14. (a) (i) List various types of logic gates with its logic symbols and truth table. List also universal gates. (8)

(ii) Realize the logic expression $Y = (A + B) (A' + C) (B + D)$ using basic gates. (8)

OR

(b) Explain the full adder circuit with its expressions and truth table. (16)

15. (a) What is meant by modulation ? Explain different types of analog and digital modulation techniques with neat diagrams. (16)

OR

(b) (i) Draw the block diagram of B/W TV receiver and explain it. (8)

(ii) Draw the block diagram of optical fibre communication system and explain it. (8)