PVP 23

Code: 23ES1202

I B.Tech - II Semester – Supplementary Examinations
DECEMBER 2024

BASIC ELECTRICAL & ELECTRONICS ENGINEERING
(Common for EEE, ECE, CSE)

Duration: 3 hours Max. Marks: 70

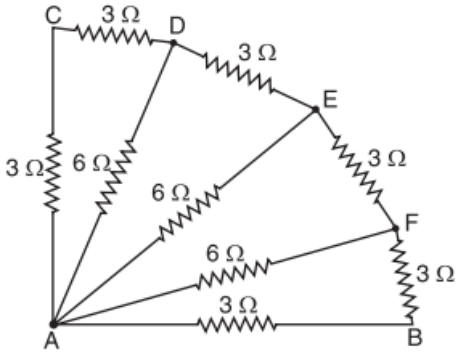
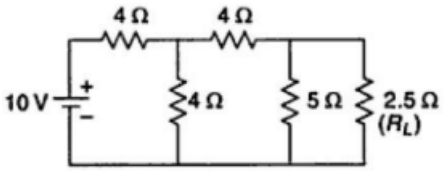
Note: 1. This question paper contains two Parts: Part-A and Part-B.
2. Each Part contains:
- 5 short answer questions. Each Question carries 1 Mark and
- 3 essay questions with an internal choice from each unit. Each question carries 10 marks.

3. All parts of Question paper must be answered in one place.

PART – A

1.a)	What is Power factor?
b)	State Flemings right hand rule.
c)	List out the causes to get an electric shock.
d)	When two equal Resistors are connected in parallel, the total resistance is 2R, when the similar resistors are connected in series, Calculate the Total Resistance.
e)	What is the equilibrium condition for measuring instruments?

			Max. Marks
UNIT-I			
2	a)	State and explain Kirchhoff's law with an example.	5 M

	b)	Find the effective resistance between the points A and B for below circuit?  	5 M
OR			
3	a)	Find the total power delivered by the source for the following circuit?  	5 M
	b)	A series RLC circuit consists of a resistance of 25Ω, inductance 0.4H, capacitance of 250 μF is connected a supply of 230V, 50 Hz. Find the total impedance, current, power consumed and power factor?	5 M
UNIT-II			
4	a)	Explain the working Principle and operation of Single-Phase Transformer.	5 M
	b)	Illustrate the construction and working principle of Moving Iron Instrument.	5 M
OR			
5	a)	Differentiate the slipring and squirrel cage type Induction motors.	5 M
	b)	Explain the working principle of Wheat Stone bridge.	5 M

UNIT-III			
6	a)	Sketch the layout and discuss the operation of Nuclear Power generation.	5 M
	b)	Illustrate the working principle and operation of Miniature circuit breaker, also write its merits and demerits.	5 M
OR			
7	a)	List out the factors of selection of the site for hydroelectric power stations.	5 M
	b)	Explain the types of earthing with a neat sketch.	5 M

PART – B

f)	Why BJT is known as current controlled device?
g)	What is Avalanche breakdown?
h)	Define peak inverse voltage.
i)	What is the function of XOR Gate?
j)	Write Excess-3 code for a decimal number 54.

			Max. Marks
UNIT-IV			
8	a)	Explain the operation of PN Junction diode and sketch its V-I characteristics.	5 M
	b)	Show the position of Fermi level in N type and P type semiconductors.	5 M
OR			
9	a)	Develop the input and output characteristics of a transistor in CC configuration.	5 M

	b)	Illustrate the operation of Zener diode and draw its characteristics.	5 M
UNIT-V			
10	a)	Explain the operation of full wave bridge rectifier and its characteristics with capacitor filter.	5 M
	b)	Sketch the block diagram of Public Addressing System and explain the function of each block.	5 M
OR			
11	a)	Illustrate the construction and working of common emitter RC coupled amplifier with a neat sketch.	5 M
	b)	With a block diagram, explain the functioning of an electronic instrumentation system.	5 M
UNIT-VI			
12	a)	Differentiate the combinational circuit and sequential circuit and give the examples of combinational and sequential circuit.	5 M
	b)	Explain the operation of D flip-flop with circuit diagram and truth table.	5 M
OR			
13	a)	Draw full-adder circuit using basic gates and explain its operation with truth table.	5 M
	b)	Convert $(725.25)_8$ to its decimal and Hexadecimal equivalent.	5 M