GALGOTIAS UNIVERSITY

ADMISSION NUMBER

School of Computing Science and Engineering

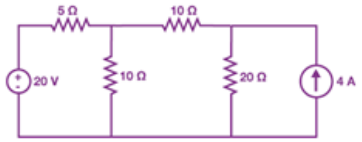
Bachelor of Technology in Computer Science and Engineering
Semester End Examination - Aug 2024

Duration : 180 Minutes
Max Marks : 100

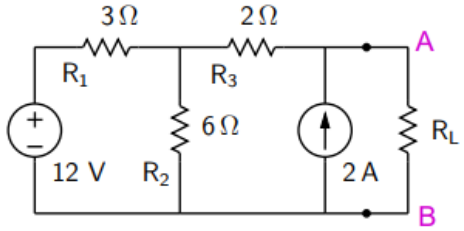
Sem I & II - G2UA120B/BEE01T1003 - Basic Electrical and Electronics Engg.

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	Recall the phasor diagram.	K1(2)
2)	Explain the working principal of piezoelectric electric sensor.	K2(4)
3)	Summarize the differences between Zener and Avalanche breakdown.	K2(6)
4)	Solve the problem to find the current flow through 5Ω resistor using superposition theorems.	K3(9)



5)	Solve the problem to find the load current across RL using superposition theorem when RL=4Ω.	K3(9)



6)	Interpret the selection factors for choosing a sensor.	K5(10)
7)	Analyze Idc, Irms, ripple factor and rectifier efficiency of a Full Wave bridge rectifier circuit.	K4(12)
8)	Define the Magnetic Field Intensity. A coil of insulated wire of 1000 turns and 5 ohm resistance is closely wound on a cast iron ring. The ring has mean diameter of 25 cm and uniform cross-sectional area 20 cm2. Determine total flux in the ring when 15 V DC supply connected two ends of the winding. Assume the relative permeability of cast iron is 250.	K5(15)
9)	Define the permeability. A ring is composed of three sections. The cross sectional area is 0.001 m2 for each section. The mean arc lengths are la = 0.3 m, lb = 0.2 m and lc =0.1 m. An air gap length of 0.1 mm is cut in the ring. Relative permeability for sections a, b	K5(15)

and c are 5000, 1000 and 10000 respectively. Flux in the air gap is 7.5 X 10-4 Wb. Determine (i) mmf, (ii) exciting current if the coil has 100 turns, (iii) reluctance of the sections.

10) (a) Design a pure resistive AC circuit and derive its current and voltage. (b) Design a series RLC Circuit with L=160mH, C=100μF, and R=40Ω connected to a 40V AC supply with angular frequency 200 rad/s. Calculate the overall impedance, power factor and resonance frequency of the circuits. K6(18)