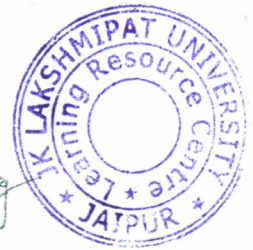


JK Lakshmipat University Jaipur

INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mid Term Examination-I, February 2015
B. Tech. in Electrical Engineering, Semester II



Backlog

Roll No.....

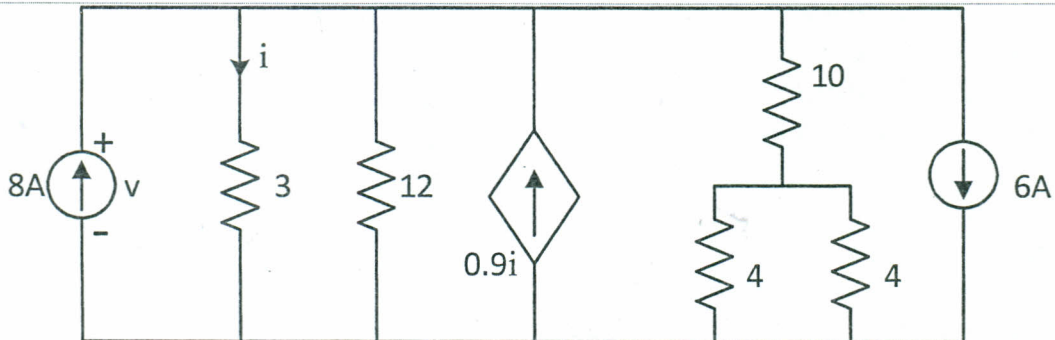
EE201: ELECTRICAL AND ELECTRONICS ENGG. Time: 1.5 hours Max. Marks: 40

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A	Objective type/ short answer type questions (5 questions @ 1 mark)	05
i.	Electrical appliances are not connected in series because (a) appliances has different current ratings (b) series circuit is complicated (c) power loss is more (d) none of the above	
ii.	Electrical appliances are connected in parallel because it (a) makes the operation of the appliances independent of each other (b) is a simple circuit (c) draws less current (d) results in less power loss	
iii.	One coulomb of charge is equal to (a) 625×10^{16} electrons (b) 62.5×10^{16} electrons (c) 6.25×10^{16} electrons (d) 0.625×10^{16} electrons	
iv.	A d.c. circuit usually has as the load (a) resistance (b) inductance (c) capacitance (d) all of the above	
v.	When a number of resistances are connected in parallel, the total resistance is (a) less than the smallest resistance (b) greater than the smallest resistance (c) less than the largest resistance (d) greater than the largest resistance	
Q.1B	Short answer type questions (2 questions @ 2.5 marks)	05
i.	What is electric circuit? Give an example.	
ii.	What do you mean by 'open' and 'short' in an electric circuit? Give examples also.	
Q.2A	A copper conductor has a resistivity of $1.6 \times 10^{-6} \Omega \text{ cm}$ at 0°C and a resistance temperature coefficient of $1/254.5$ per $^\circ\text{C}$ at 20°C . Find	3+2



	(i) the specific resistance (ii) the resistance temperature coefficient at 60°C	
Q.2B	A circuit has four 100 W lamps connected in parallel across a 230 V supply. Inadvertently a voltmeter has been connected in series with the lamps. Voltmeter resistance is 1500 Ω and that of lamps under this condition is six times of their value than burning normally. What will be the reading of the voltmeter?	05
Q.3A	A resistance of 10 Ω is connected with two resistors each of 15 Ω arranged in parallel. What resistance must be shunted across parallel combination so that the total current taken shall be 1.5 A with 20 V applied?	05
Q.3B	*Write the duality between series and parallel circuits. Provide atleast five points.	05
	OR	
Q.3B	Define Ohm's law. What are resistance and conductance? Define resistivity and conductivity. Give units also.	1+2 +2
Q.4A	Define work, power and energy. The following are the details of load on a circuit connected through a supply meter: a) 6 lamp of 100 W each working for 4 hours per day. b) 2 fluorescent tube of 40 W each working for 2 hour per day. c) One 1500 W heater working for 3 hour per day. If each unit of energy costs Rs. 5.5 what will be the electricity bill for the month of July?	2+3
Q.4B	State and explain Kirchhoff's laws. Provide examples also.	2+3
	OR	
Q.4B	 Find current i, power and voltage of the dependent source in the given figure. All resistances are in ohms.	05