Dr Lambs

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2016

BT/BTDD IV Semester

COURSE CODE: 15B11EC411 MAX. MARKS: 15

COURSE NAME: Basic Electronics

COURSE CREDITS: 4 MAX. TIME: 1 HR

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Use of calculator is allowed.*

Q1. (a) Find the polar form representation of current in a circuit having capacitor of $10\mu F$ connected in series with a 220V, 50Hz supply.

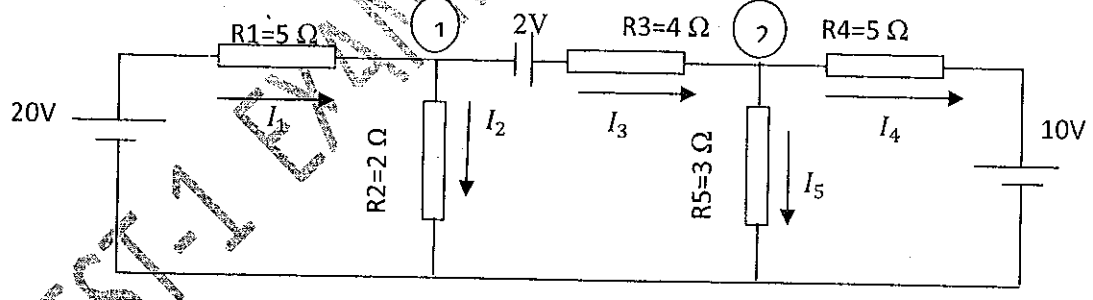
(b) If two electric bulbs, each designed to operate with the power of 100W in 220V line, are put in series in a 110V line, what will be the power dissipated by each bulb?

(c) State Kirchhoff's Law.

[1+2+2]

Q2 (a) What do you understand by current source and voltage source transformation in electrical circuits?

(b) For the circuit shown in Fig. below, determine the current I_1 to I_5 by using node-voltage analysis.



(c) The instantaneous values of two emfs are $e_1 = 20 \sin\left(\omega t + \frac{\pi}{6}\right) V$ and $e_2 = 30 \sin\left(\omega t + \frac{\pi}{4}\right) V$. Find the expression for instantaneous values of (i) e1+e2 (ii) e1-e2.

[1+2+2]

Q3) (a) What is mass action law?

(b) What are different types of semiconductors?

(c) Explain working of centre- tap full wave rectifier. In a centre-tap full wave rectifier if V_m is the peak voltage between the centre-tap and one end of the secondary, what will be the maximum voltage across the reverse biased diode?

[1+2+2]

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