Subject Code : 247

FACULTY OF ENGINEERING & TECHNOLOGY
F.E. (All) (Old) Examination
NOVEMBER/DECEMBER, 2017

Elements of Electrical Engineering

Time: Two Hours Max. Marks: 40

"Please check whether you have got the right the question paper"

Note: i) *Q. No. 1 is compulsory.*
ii) *Solve any two question from question no 2 to 5*
iii) *Assume suitable data if required*

Q.1 Solve any Five from the following **2x5=10**

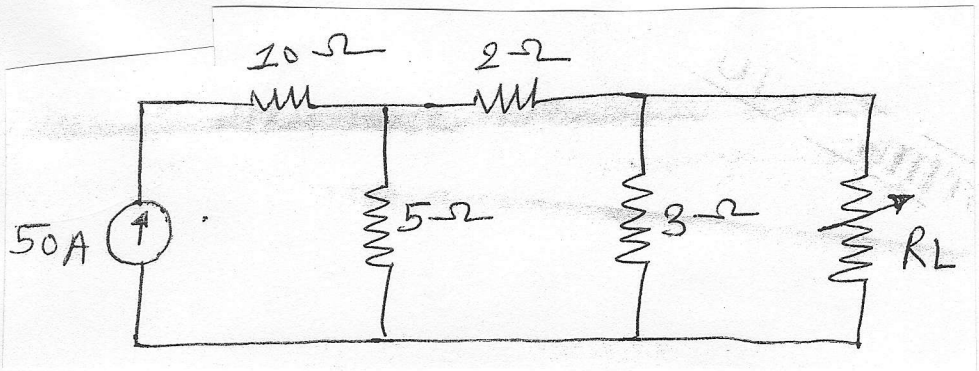
(a) What is difference between self induced emf and mutually induced emf.
(b) What are the factors affecting the value of self inductance 'L'?
(c) State the effect of temperature on plastic and copper.
(d) Define reluctance.
(e) Define permeability.
(f) Define superposition theorem
(g) Define resistivity and state its expression.
(h) State 'Maximum Power Transfer' theorem

Q.2 (a) Derive the Discharging equation of the capacitor **05**

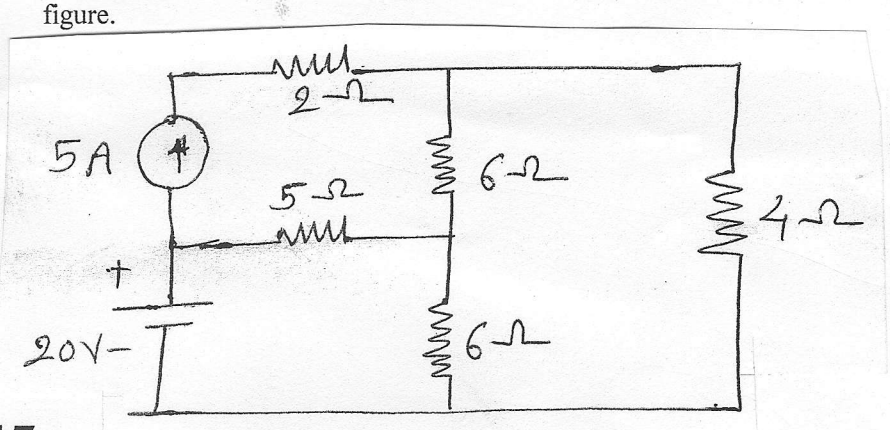
(b) State and explain with neat diagram mutually induced e.m.f. **05**

(c) Prove; $\alpha_2 = \dfrac{\alpha_1}{1+\alpha_1(t_2-t_1)}$ **05**

Q.3 (a) Determine the 'maximum power delivered to the load in the circuit shown in figure. **05**



(b) Use 'superposition theorem find current in 4Ω resistance of show in figure. **05**



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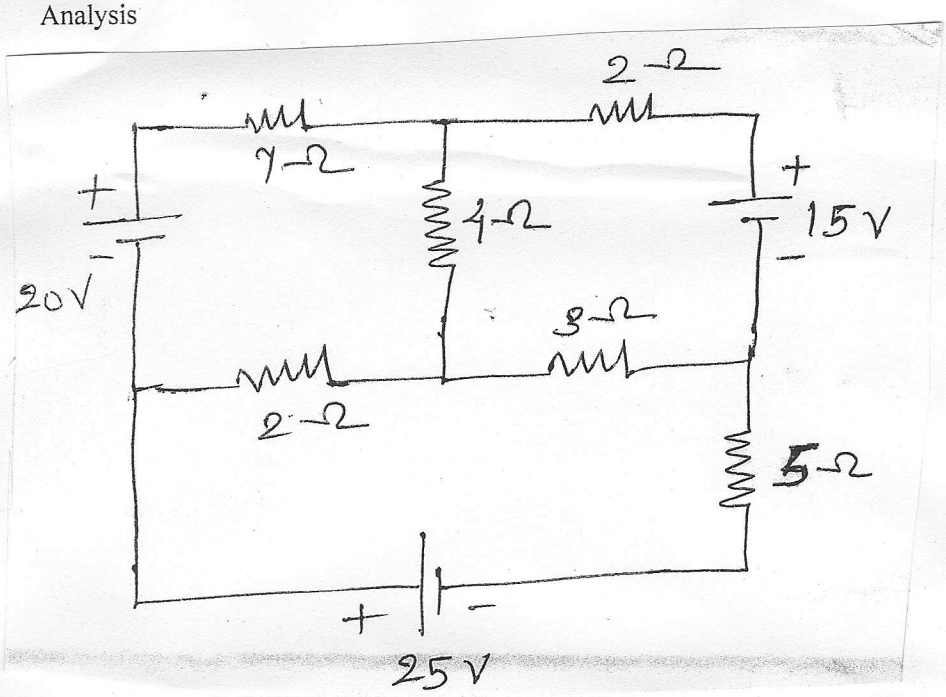
Q.3 (c) State and Explain ''Thevenin theorem' **05**

Q.4 (a) Comparison between Electric and Magnetic Circuit **05**

(b) Find the current flowing through '4'Ω resistance by using Mesh or Loop Analysis **05**



(c) A coil of 200 turns and resistance of '20'Ω is wound uniformly on an iron ring of mean circumference 50 cm and cross sectional area 4 cm^2 It is connected to 24V d.c. supply ($\mu_P = 800$) **05**

Find :

i) MMF
ii) Magnetising force
iii) Total flux
iv) Reluctance

Q.5 (a) State and Explain Eddy current loss

(b) State and explain hysterisis loss

(c) State and explain magnetic fringing and magnetic leakage.

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