21508

Roll No. _____ Total No. of Pages: 3

21508

B. Tech. II - Sem. (Old Scheme) (Back) Exam., (Academic Session 2021- 2022)

All Branch

2FY-3 – 08 Basic Electrical Engineering

Common to all Branches

Time: 2 Hours **Maximum Marks: 80**

Min. Passing Marks:

Instructions to Candidates:

Part – A: *Short answer questions (up to 25 words) 2 × 3 marks = 6 marks. Candidates have to answer **two** questions out of **five**.*

Part – B: *Analytical/Problem solving questions 3 × 15 marks = 45 marks. Candidates have to answer **three** questions out of **six**.*

Part – C: *Descriptive/Analytical/Problem Solving questions 1 ×29 marks = 29 marks. Candidates have to answer **one** questions out of **three**.*

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A 2

Q.1 Distinguish between a Mesh and a Loop of a circuit.

Q.2 What is the Back E.M.F in DC motor?

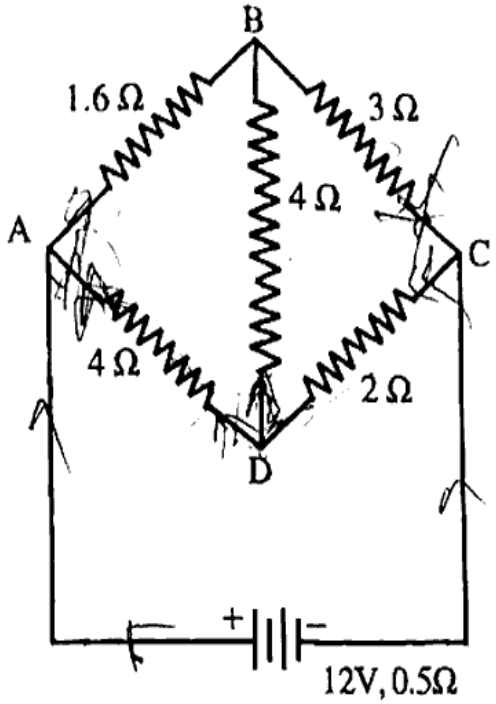
Q.3 What is meant by Eddy Current Damping?

Q.4 What are the basic techniques used to construct a transistor?

Q.5 Calculate the current & resistance of a 100W and 200V electric bulb.

PART – B

Q.1 Find the Norton's Theorem the current in the arm BD which is shown in the figure.



Q.2 A series RC load takes a power of 6400 watts when connected to a 250 Volt 25Hz mains. The voltage drop across the resistor is 160 Volts. Calculate –

(a) Impedance

(b) The power factor

(c) The current

(d) The resistance

(e) The capacitance

Write the equation for the voltage & current.

Q.3 (a) What is the function of transformer oil in a transformer?

(b) Give the E.M.F equation of a transformer and define each term.

(c) Define voltage regulation an efficiency of a transformer.

(d) An 1100/4000 Volts, 50Hz single phase transformer has 100 turns on the secondary winding. Calculate the number of turns on its primary.

Q.4 Explain principle, construction and working of single phase induction motor.

Q.5 Explain switchgear and its components in detail.

Q.6 (a) What is power transistor? Explain current amplification factor in CB & CE transistor configuration.

(b) Explain how unidirectional current flow is possible through a P-N Junction diode.

PART – C

Q.1 (a) What is rectifier? Distinguish between a half wave and a full wave rectifier.

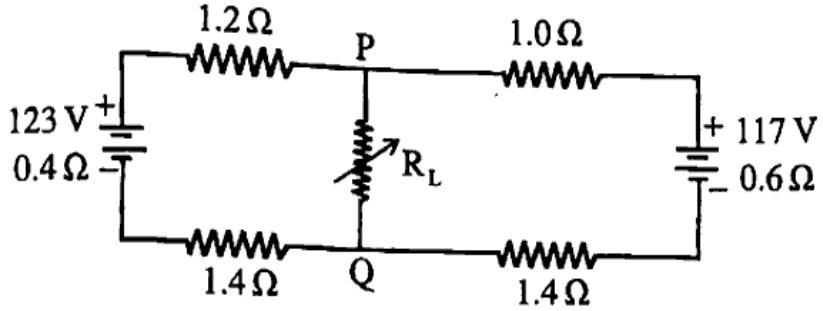
(b) What is the basic principle of DC Motor? Explain all the application of DC Motor?

Q.2 (a) Find the Ohmic value of R_L in the circuit of figure, when its power is maximum. Also, find –

(i) The maximum load power

(ii) The total power delivered by both the batteries

(iii) Overall efficiency



(b) What is the difference between holding current & latching current in SCR?

Q.3 (a) What is the difference between a star & a delta connection?

(b) For the circuit of figure, Calculate -

(i) The total equivalent resistance between P & Q

(ii) The battery current.