1E3108

Roll No. _____ Total No. of Pages: 3

1E3108

B. Tech. I - Sem. (Main / Back) Exam., - 2023

1FY3 – 08 Basic Electrical Engineering

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five from Part C.

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

[10×2=20

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 Explain the phasor representation of power.

Q.2 State Kirchoff's voltage law.

Q.3 What is fuse?

Q.4 State the torque-slip characteristics of induction motor.

Q.5 Discuss the transformer EMF equation.

Q.6 What are the transformer losses?

Q.7 What is BJT?

Q.8 Explain working principle of induction motor.

Q.9 Explain MCB.

Q.10 What is resonance?

PART – B

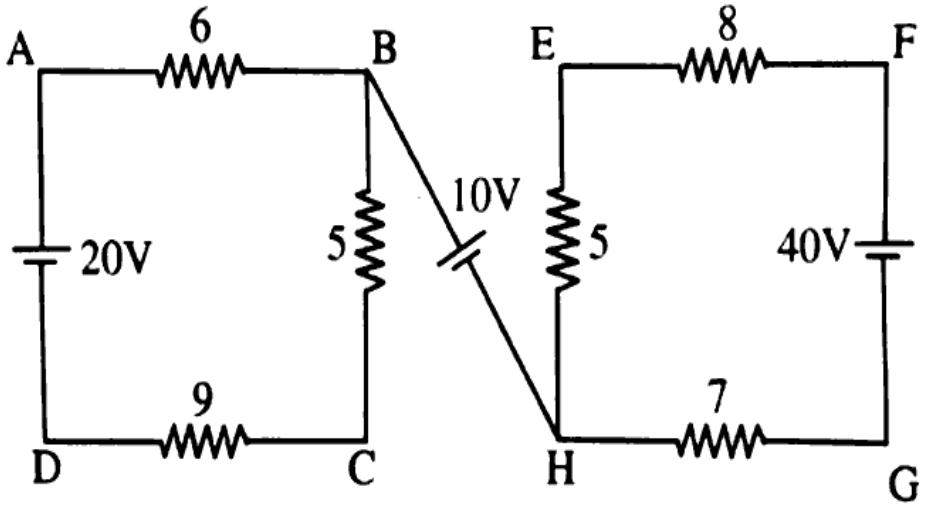
[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 State maximum power transfer theorem.

Q.2 For the circuit shown in Fig. find VCE and VAG



Q.3 An alternating voltage is given by V=230sin 314t. Calculate frequency and maximum average & RMS value of voltage.

Q.4 Describe the construction details of single phase transformer.

Q.5 With a neat circuit diagram, explain the construction and principle of operation of DC machine.

Q.6 Explain IGBT in detail with neat diagrams.

Q.7 With suitable example, explain the calculations for energy consumption.

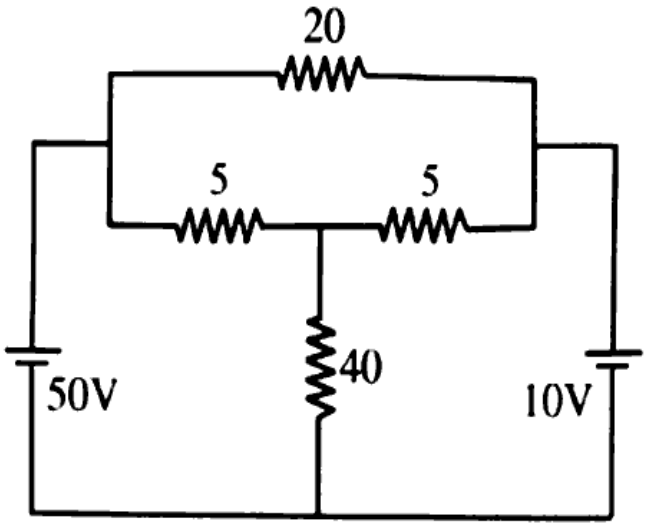
PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 Use Superposition Theorem to find the current in 40 ohm, in the network shown:



Q.2 Explain about Star and Delta connected three phase balanced circuits.

Q.3 Explain the tests on a single phase transformer and develop an equivalent from the above tests.

Q.4 Explain the different characteristics of DC Motor.

Q.5 Explain different types of Earthing with suitable diagram.
