1E2408

B. Tech. II - Sem. (Main) Exam., May - 2019
ESC
2FY3 – 08 Basic Electrical Engineering
Common for all Branches

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

Instructions to Candidates:

Attempt all five questions from Part A, four questions out of six questions from Part B and two questions out of three 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

(Answer should be given up to 25 words only)   [5×2=10]

All questions are compulsory

Q.1   The current in a 2H inductor varies at a rate of 2 A/s. Find the voltage across the inductor

and the energy stored in the magnetic field after 2s.

Q.2   Explain the average power delivered to the circuit.

Q.3   Define Transformer losses.

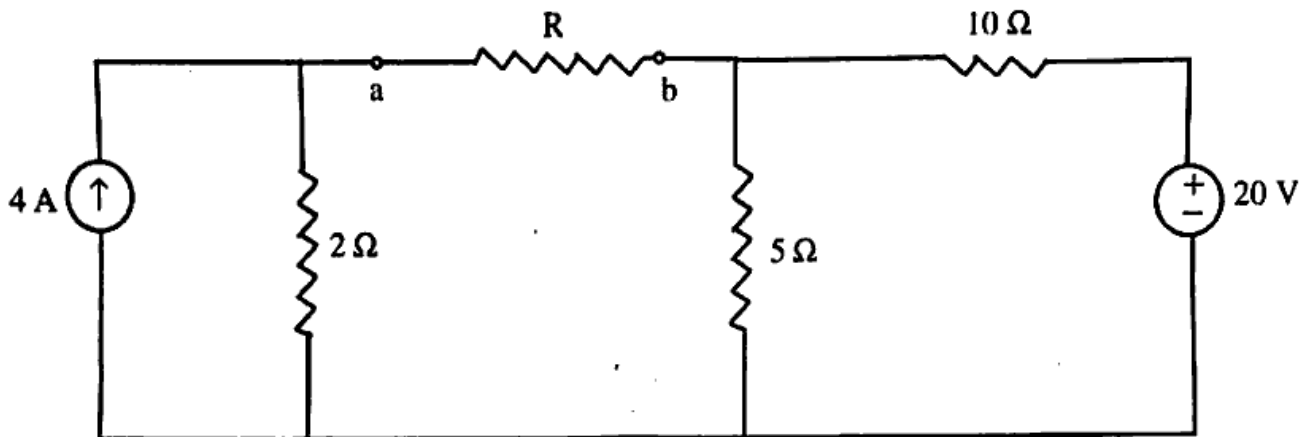Q.4   Explain PN Junction diode.

Q.5   Draw and explain MCB.

PART – B

(Analytical/Problem solving questions) [4×10=40]

Attempt any four questions

Q.1 What should be the value of R such that Maximum power transfer can take place from the Rest of the Network to R. Obtain the amount of this power?


Q.2 Explain in detail the construction, working principle and emf equation of a single phase transformer. http://rtuonline.com

Q.3 Distinguish between self-excited and separately excited DC machine. How the self-excited DC machines are classified.

Q.4 Explain the construction, of three phase induction motor with suitable diagrams.

Q.5 Draw the input and output characteristics of common emitter configuration and explain active saturation and cut-off region.

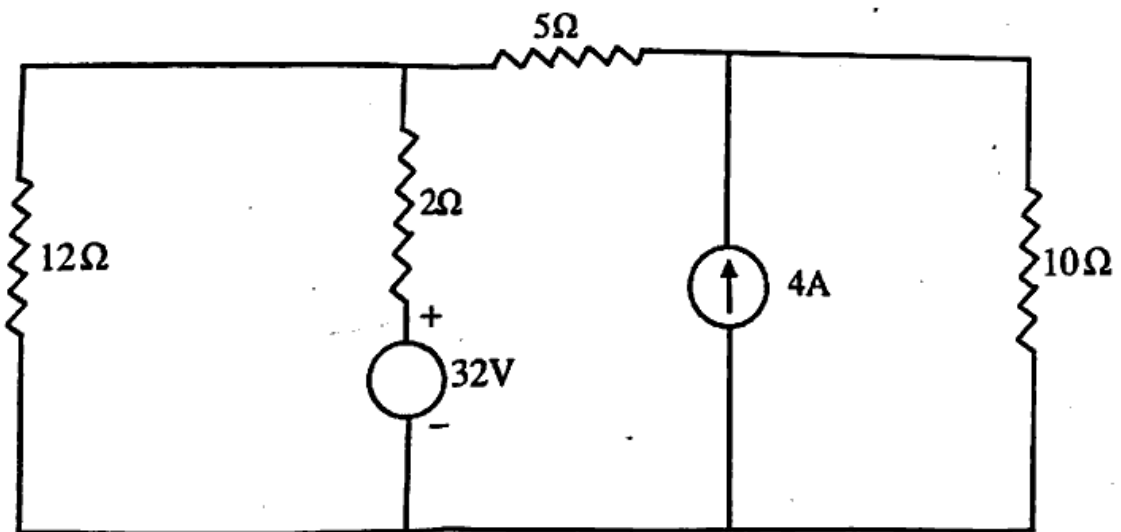Q.6 Explain the switch fuse unit (SFU), ELCB and MCCB.

PART – C

Q.1 (a) Find the current through the 1Ω resistor node voltage method for the circuit shown below. [8]
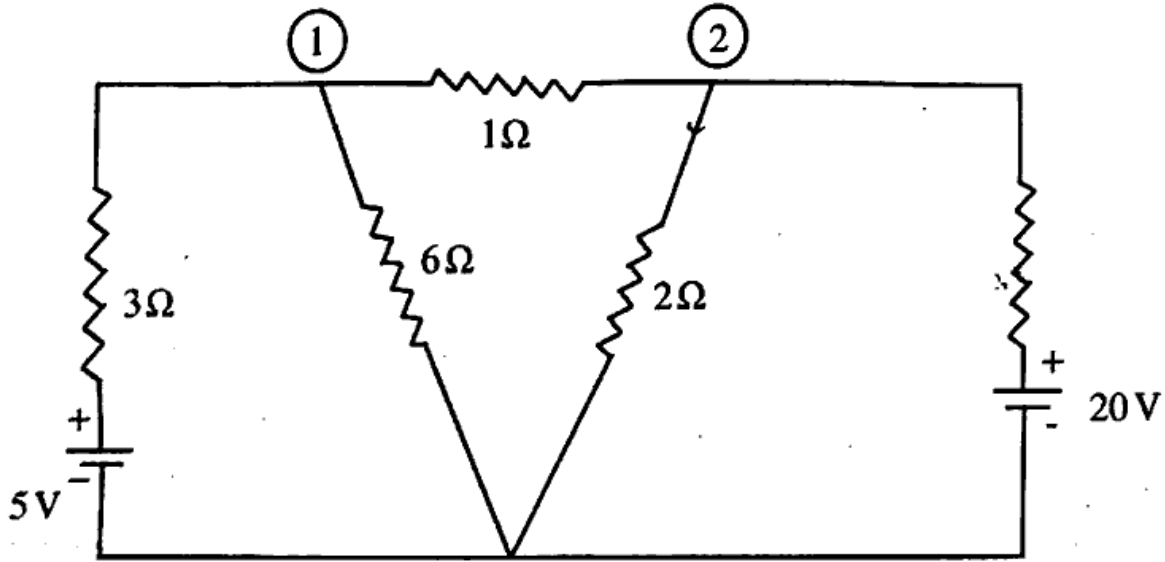
(b) Compute the power dissipated in 9Ω Resistor by applying superposition in circuit of fig. http://rtuonline.com [7]

Q.2 (a) A 400 V, three – phase supply feeds an unbalanced three-wire star-connected load. The branch impedances of the load are $Z_R = (4 + j8)\Omega$. $Z_Y = (3 + j4)\ \Omega$ and $Z_B = (15 + j20)\Omega$. Find the line current and voltage across each phase impedance. Assume R Y B phase sequence. http://rtuonline.com   [10]

(b) Write down star to delta and delta to star transformation.   [5]

Q.3 Write short notes on the following :

(a) Ideal Transformer on load   [5]

(b) Commutator   [5]

(c) DC – DC Converter   [5]