

21508	Roll No. _____	Total No of Pages: 4
	21508 B. Tech. II Sem. (Main) / B. Tech. I Sem. (Back) Exam., May - 2019 ESC 2FY3-08 / 1FY3-08 Basic Electrical Engineering	

Time: 2 Hours

Maximum Marks: 80

Instructions to Candidates:

Part – A: Short answer questions (up to 25 words) 5×2 marks = 10 marks. All five questions are compulsory.

Part – B: Analytical/Problem solving questions 4×10 marks = 40 marks. Candidates have to answer four questions out of six.

Part – C: Descriptive/Analytical/Problem Solving questions 2×15 marks = 30 marks. Candidates have to answer two questions out of three.

Schematic diagrams must be shown wherever necessary. Any data you feel missing 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

Q.1 Write the condition for maximum power transfer to load. [2]

Q.2 What is the phase-difference between $v_1(t)$ and $v_2(t)$, given as follows? [2]

$$v_1(t) = 220\sqrt{2} \sin(314t)$$

$$v_2(t) = 220\sqrt{2} \cos(314t + 20^\circ)$$

Q.3 What are the difference between the ideal transformer and practical (real) transformer? [2]

Q.4 What is slip in an induction motor? [2]

Q.5 What is the difference between holding current and latching current in SCR? [2]

PART – B

Q.1 Determine the current in the 14Ω resistance in the circuit shown in fig. 1 using Thevenin's theorem. <http://www.mgsuonline.com> [10]

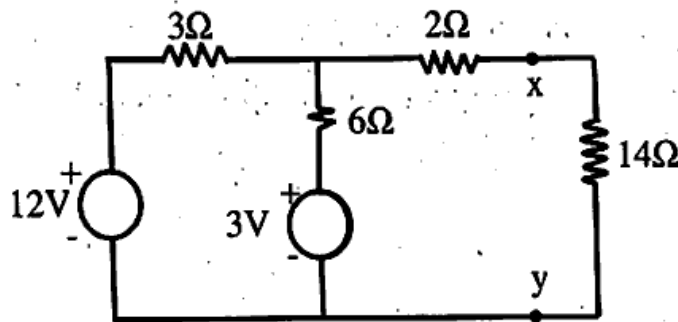


fig.1

Q.2 In the circuit shown in fig.2 below, find the total impedance, current I and voltage across each element. [10]

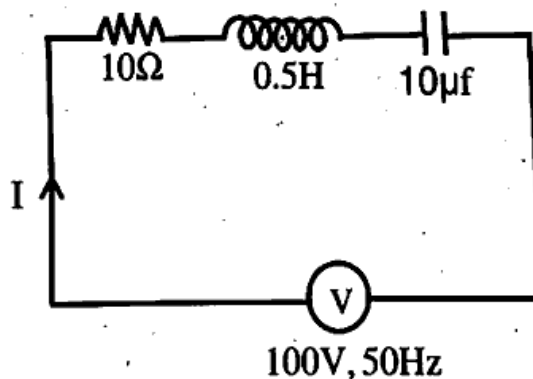


fig.2

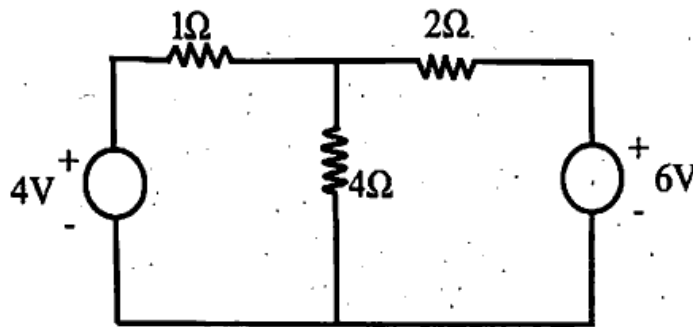
http://www.mgsuonline.com

http://www.mgsuonline.com

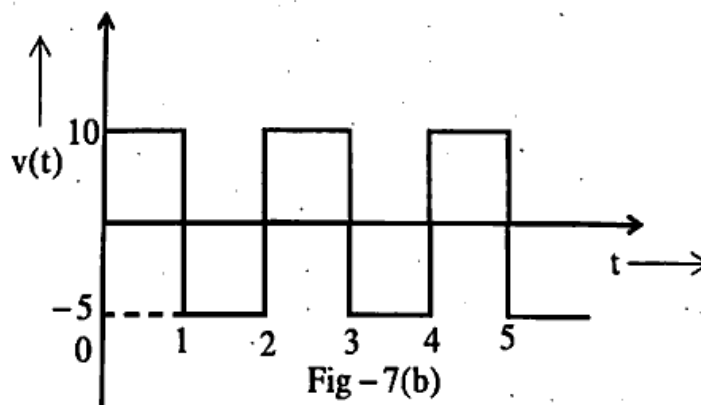
- Q.3 Draw and explain the phasor-diagram of an ideal transformer at No-load and On-load. [10]
- Q.4 Describe the torque-slip characteristics of an induction motor. [10]
- Q.5 Describe the characteristics of silicon controlled Rectifier (SCR) [10]
- Q.6 What are the functions of earthing? Explain any one type of earthing in detail. [10]

PART - C

- Q.1 (a) Find the current in 2Ω resistor in the circuit shown in fig.3 using nodal analysis. [9]



- (b) Derive the e.m.f. equation of transformer. [6]
- Q.2 (a) Find the average value of voltage, $v(t)$ shown in fig.4 below. Using integration of one-cycle. [9]



- (b) A three-phase 6-pole induction motor runs by a voltage of 50Hz with the speed of 960rpm. Calculate the slip of the motor and frequency of rotor current. [6]

- Q.3 (a) Describe the two-wattmeter method for the measurement of three-phase active power and power factor of the load. [9]
- (b) Write a short-note on DC-DC converter. [6]
-

<http://www.mgsuonline.com>

Whatsapp @ 9300930012

Your old paper & get 10/-

पुराने पेपर्स भेजे और 10 रुपये पायें,

Paytm or Google Pay से