Total No. of Pages: 02
SECOND SEMESTER
MID SEMESTER EXAMINATION
— 148 —
Roll No. ....
B.Tech. (Group-A)
(Mar-2019)

EE-102 BASIC ELECTRICAL ENGINEERING

Time: 1:30 Hours

Max. Marks: 30

NOTE: Attempt ALL Questions.
       Assume suitable missing data, if any.

Q.1 Answer the following :

   (i) Indicate the series – parallel connections of individual elements in the circuit of Fig.1, as it is. [2]
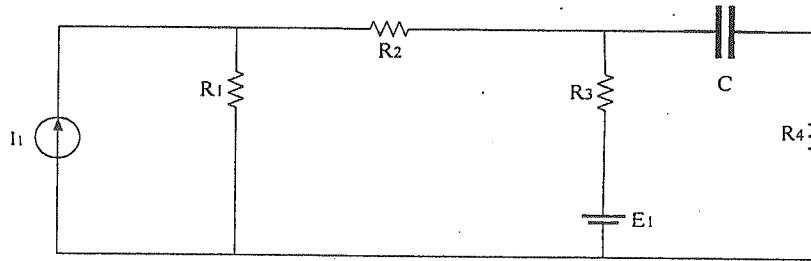

Fig. 1

   (ii) Is superposition principle applicable on the following functions? Explain.   [2]
        a) $y = 5x^2 + 2x + 7$
        b) $y = \sin x$

   (iii) What are the various types of dependent sources. Draw the symbol of each.   [2]

Q. 2 The voltage waveform shown in Fig. 2 is applied to a pure capacitor of 1 F. Sketch the current waveform over the specified time interval.
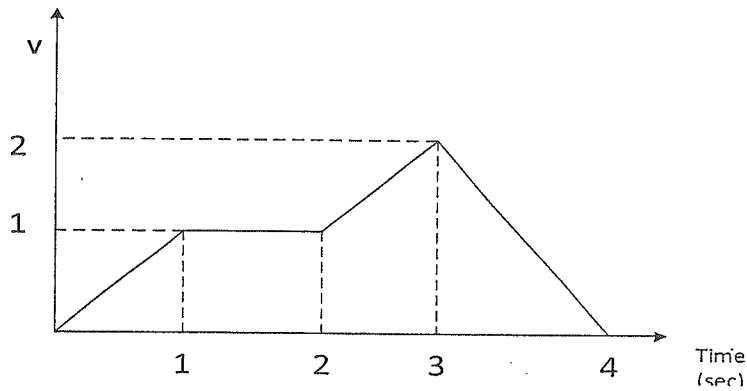

Fig. 2   [4]

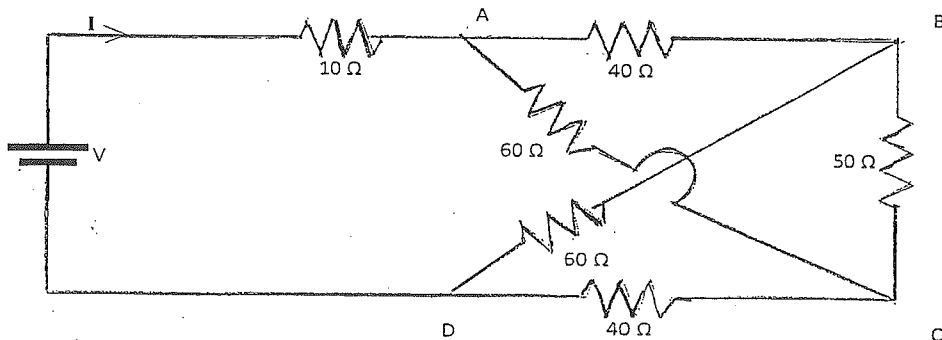Q. 3 For the network shown in Fig.3, use star – delta transformation to find voltage V that makes current I=3A.   [4]

Fig. 3

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Q.4 In the circuit of Fig. 4, determine the value of resistor R_L that will absorb maximum power and wha is the value of this power?
[4]

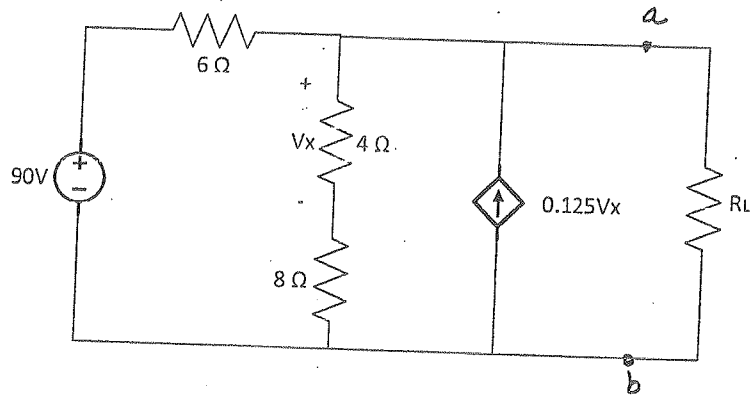
Fig. 4

Q. 5 Find the average and effective values of the voltage for the waveform shown in Fig. 5.
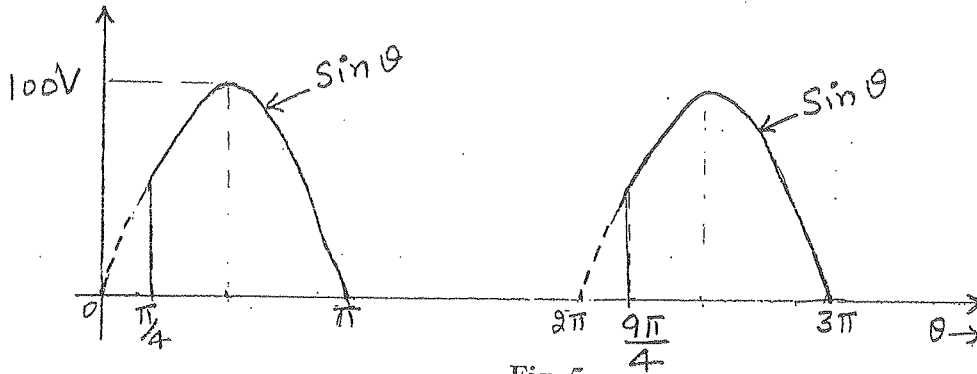[4]

Fig. 5

Q. 6 What are the characteristics of a series RLC resonance circuit. Derive the expressions of curren and power at lower and upper cut-off frequencies.
[4]

Q. 7 The parallel circuit shown in Fig. 6 is connected across a single phase 200 V, 33.5 Hz ac supply. Calculate (i) total current (ii) power factor and (iii) draw the phasor diagram.
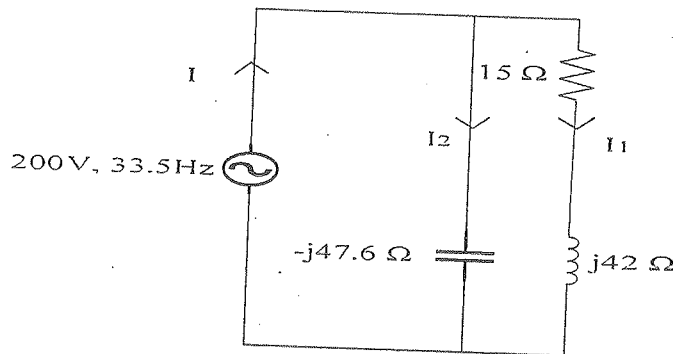[4]

Fig. 6