

**SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY****ADITYA SILVER OAK INSTITUTE OF TECHNOLOGY****BE - SEMESTER-I • MID SEMESTER-I EXAMINATION – WINTER 2018****SUBJECT: BASIC ELECTRICAL ENGINEERING (3110005) (CE/EC)**

DATE: 05-10-2018

TIME: 02:00 pm to 03:30 pm

TOTAL MARKS: 40

- Instructions:**
1. Q. 1 is compulsory.
  2. Figures to the right indicate full marks.
  3. Assume suitable data if required.

- Q.1 (a) Give Answer with most suitable/correct option. [05]
- Condition for lagging power factor in R-L-C series circuit.  
(a)  $X_L = X_C$  (b)  $X_L > X_C$  (c)  $X_L < X_C$  (d) None of them
  - With 21V applied, if  $R_1 = 5$  ohms,  $R_2 = 35$  ohms, and  $R_3 = 14$  ohms, what is the current of  $R_2$  if  $R_1$  is series connected with parallel circuit  $R_2$  and  $R_3$ ?  
(a) 200mA (b) 400mA (c) 600mA (d) 800mA
  - 1-phase AC R-L-C circuit having  $P = 2.3$  KW,  $V_s = 230$  V,  $f = 50$  Hz,  $Z = 23\Omega$  then power factor is  
(a) Unity (b) Zero (c) Lagging (d) Leading
  - Superposition theorem obeys the principle of  
(a) Linearity (b) Homogeneity (c) Both (a)&(b) (d) None
  - If line voltage is 400V in 3-phase star connection what is the phase voltage?  
(a) 400V (b) 250V (c) 240V (d) 230V
- (b) Explain method of measuring of 3-phase power with Two Watt-meters. [05]

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- Q.2 (a) Derive the relation between phase & line values of voltages & currents & draw the phasor diagram in 3-phase Delta Connection. [06]  
 (b) Describe Thevenin's theorem with Example. [05]  
 (c) Explain 1-phase A.C R-L circuit with waveform & Phasor diagram. [04]

**OR**

- Q.2 (a) Describe Superposition's theorem with Example. [06]  
 (b) Define with equation & Unit (a) R.M.S Value (b) Average Value (c) Form Factor (d) Peak Factor (e) Frequency [05]  
 (c) Explain KCL & KVL. [04]

- Q.3 (a) Derive the relation between phase & line values of voltages & currents & draw the phasor diagram in 3-phase Star Connection. [06]  
 (b) Prove that  $I_{r.m.s} = 0.707 I_m$  [05]  
 (c) Explain 1-phase A.C R-C circuit with waveform & Phasor diagram. [04]

**OR**

- Q.3 (a) Explain R-L-C Series Circuit with phasor diagram. [06]  
 (b) Describe Norton's theorem with Example. [05]  
 (c) Prove that  $e = E_m \sin \omega t$  [04]

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