

EEN Question Bank (17318) IE/IS/EJ-3G Unit Test – I

Chapter – 1 (A.C.Fundamentals)

- 1) List out advantages of AC over DC . (3 Marks)
- 2) Define peak factor, form factor, RMS value and average value. (3 Marks)
- 3) Define wave form, instantaneous value, time period, frequency. (3Marks)
- 4) An alternating current given by equation $i = 142.14 \sin 628 t$. Find (3 Marks)
 - i) RMS value ii) Average Value iii) Frequency
- 5) Draw the Phasor Diagram to represent the following voltages:
 $V_1=50 \sin wt$, $V_2=75 \sin wt$, $V_3= 200 \sin (wt + \pi/3)$, $V_4 =100 \sin (wt+ \pi/4)$. (3M)
- 6) Define power factor in 3 different ways .and give its significance. (3M)
- 7) For RC circuit i)Draw the circuit diagram ii)write the voltage & current equations .
iii)Draw the vector diagram. iv)Draw the impedance triangle. (4M)
- 8) A coil of resistance 10Ω and inductance 0.1 H is connected in series with a capacitor of $150 \mu\text{F}$ across 200 V , 50 Hz supply. Calculate
Inductive reactance iii) Capacitive reactance
Impedance iv) Current (4 M)
- 9) A coil having a resistance of 10Ω and inductance of 0.2 H is connected to 100 V , 50 Hz supply. Calculate i)Impedance of the coil ii) Current taken iii)Reactance of the coil
iv) Phase difference between current and applied voltage (4 M)
- 10) Draw a power triangle for inductive load. Define active power, reactive power and apparent power in A.C. Circuits (4 M)
- 11) A Series R-L-C circuit has $R=25 \Omega$, $L=25\text{mH}$ and $C=25 \mu\text{F}$. Find Inductive and Capacitive reactances, Impedance ,Current ,Power factor of the circuit. Across 230V , 50 Hz supply.
Also comment on the nature of circuit. Draw phasors. (4 M)
- 12) Draw the graph of resonance in RLC series circuit. Write conditions for series resonance. (4 M)
- 13) Compare series resonant circuit and parallel resonant circuit. (4 M)

Chapter -2 (Poly Phase system)

- 14) State the relationship between line and phase quantities for star and delta connected load (3 M)
- 15) State any four advantages of poly phase system. (3M)
- 16) Write down the equations to find out the active power , reactive power in 3phase system. (3M)
- 17) State the meaning of three phase balanced and unbalanced load. (3M)
- 18) Three resistance of 25Ω each are connected in delta across a 3 phase 400V A.C. supply find i)phase current ii)line current iii)phase voltage iv)total power consumed. (4M)
- 19) Calculate the line current, phase current, power factor and total power for a delta connected circuit having the resistance of 10Ω and inductance of 5Ω for 3 phase 440 V, 50 Hz A.C. (4 M)
- 20) Draw a 3phase star connected supply system and state the relation between V_{ph} and V_L , I_{ph} , and I_L . State an expression to determine power in the circuit. (4M)
- 21) A delta connected balanced load has an impedance of $(3+j4) \Omega$ connected to a 230v,50 Hz A.C. supply. Calculate values of line and phase currents, line and phase voltages power consumed by each impedance and total power consumed. (4M)
- 22) State the principal of three phase e.m.f generation. and sketch three phase voltage waveform. Write voltage equations. (4M)