# ALTERNATING CURRENT

## Test Paper-III

**MAX MARKS: 30** **TIME: 90Mts**

| Sl. No. | QUESTION | ANSWER PAGE | MARKS |
|---|---|---|---|
| 1 | What is purpose of a transformer? Give the principle on which a transformer works. | Page:259 | ½ + ½ |
| 2 | Explain the working of a transformer with a neat labelled diagram | Page:260 | 3 |
| 3 | Give any two arrangements in which the coils can be placed to form transformer | Page:260 | ½ + ½ |
| 4 | Give the differences between step up transformer and step down transformer | Page:261 | 2 |
| 5 | What are the different losses in case of a transformer? How will you reduce these losses? | Page:261 | 3 |

**Marks: 12 marks** **Match the following** **Page: 262**

| | Part-A | Part-B |
|---|---|---|
| 1 | Rms value of current | I= 0.707im |
| 2 | Mean value of current over complete cycle | $V=V_m \sin\omega t$ |
| 3 | Ac voltage | $X_L=\omega L$ |
| 4 | Capacitive reactance | cosϕ |
| 5 | Inductive reactance | $\omega_0$ L/R |
| 6 | Power factor | zero |
| 7 | Q-factor | $\omega_0 = 1/\sqrt{LC}$ |
| 8 | Resonant frequency | VI cosϕ |
| 9 | Average power loss over a complete cycle | $Z=\sqrt{R^2+(X_L-X_C)^2}$ |
| 10 | Impedance of LCR series circuit | $Is=\left[\frac{Np}{Ns}\right]Ip$ |
| 11 | Voltage across the secondary of a transformer | Xc= 1/ωC |
| 12 | Current through the primary of a transformer | $Vs=\left[\frac{Ns}{Np}\right]Vp$ |

**Write the dimensional formula of the following** **8 marks**

**Page: 264**

1 Rms value of current ----------

2 rms voltage----------

3 Capacitive reactance----------

4 Inductive reactance----------

5 Power factor----------

6 Q-factor----------

7 Resonant frequency----------

8 Impedance of LCR series circuit----------