

U.G. 5th Semester Examination - 2021

PHYSICS

[PROGRAMME]

Course code : PHY-G-DSE-P-01 (Electricity and Magnetism)

PRACTICAL

Full Marks : 20

Time : 2 Hours

Answer any **two** questions from the following :

1. What do you mean by "resonance" in electrical circuit ? What do mean by sharpness of resonance ? What are the practical applications of resonance in AC circuits ? What do you mean by the Q-factor of a series LCR circuit ? Sometimes Q is called magnification factor - why ?
(2+2+2+2+2)

2. State (a) Thevenin's theorem,(b) Norton's theorem, (c) Superposition theorem and (d) Maximum Power transfer theorem. Are the network theorems applicable to AC networks ? What do you mean by 'short-circuit' ?
(2+2+2+2+1+1)

3. What do you understand by the term "Impedance", "Reactance" and "Power factor" of an AC circuit ? What are the units of reactance and impedance ? What do you mean by active and passive circuit elements ?
(2+2+2+2+2)

4. State Kirchoff's laws. Point out the differences between series resonant and Parallel resonant circuits. Explain the following terms: (a) Anti resonance frequency and (b) Wattless current.
(4+2+2+2)