

U.G. 3rd Semester Examination - 2021

PHYSICS

[HONOURS]

Generic Elective Course (GE)

Course Code : PHY-H-GE-P-01

(Electricity and Magnetism)

[PRACTICAL]

Full Marks : 20

Time : 2 Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any **four** question:

5×4=20

1. How can you use a Multimeter for measuring
 - a) Resistances,
 - b) AC and DC Voltages,
 - c) DC Current,
 - d) Capacitances, and
 - e) Checking electrical fuses? 1+1+1+1+1
2. What is the half deflection method for the measurement of resistance of a mirror galvanometer?

Draw the necessary circuit diagram. Define figure of merit. 2+2+1

3. Draw the necessary circuit diagram to calculate an unknown resistance using Carey Foster's Bridge. Write the necessary formula to calculate the above mention resistance. What order of resistance can be measured by a Carey-Foster bridge? 2+2+1
4. What is series resonance in an electric A.C circuit? Draw the necessary circuit diagram. Derive an expression of resonant frequency and quality factor for the above circuit. 1+2+2
5. Write the Maximum power transfer theorem. Write the necessary formula to calculate the self inductance of a coil by Rayleigh's method. Draw the necessary circuit diagram to compare capacitances using De' Sauty's bridge. 1+2+2
6. Draw the circuit diagram for the measurement of high resistance by the method of leakage of charge of a charge condenser. What order of resistance can be measured by this method? Can you measure this resistance by a P.O box? Explain your answer. 2+1+2

[Turn over]