U.G. 3rd Semester Examination - 2020
PHYSICS
[HONOURS]
Generic Elective Course (GE)
Course Code : PHY-H-GE-P-1
(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** questions: 5×4=20

1. What is series resonance in an electric circuit? Draw the necessary circuit diagram. Derive an expression of resonant frequency and quality factor for the above circuit.   1+2+2

2. Write down the Thevenin's and Norton's theorems. Draw the circuit diagram of De' Sauty's bridge. 2+3

3. What is the CDR and current sensitivity of a ballistic galvanometer? Write the formula for measurement of the charge Q flowing through a ballistic galvanometer.   2+2+1

4. 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. 3+1+1

5. Write the Maximum power transfer theorem. Write the necessary formula to calculate the self inductance of a coil by Rayleigh's method. What order of resistance can be measured by a Carey-Foster bridge?   2+2+1

6. What do you understand by the term "Impedance", "Reactance" and "Power factor" of an A.C circuit? What is a parallel resonant circuit?   3+2

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