MAHARAJA MANINDRA CHANDRA COLLEGE
B.Sc. PART-II PHYSICS (GEN.) PRACTICAL EXAMINATION, 2021
PAPER: II-A
FULL MARKS: 50

ANSWER ANY FIVE: (5X10=50)

1. Define moment of inertia of a body. What is its C.G.S. and S.I. unit? Write the formula for calculating the moment of inertia of a bar, about an axis of rotation through the centre of gravity and perpendicular to the breadth. Calculate the vernier constant for a slide-callipers where 9 main scale division coincide with 10 vernier scale division (Given: 1 main scale division = 1 mm). (3+1+1+3+2)
2. Define rigidity modulus of a solid material. What is its CGS and SI unit? Write the formula for determining the rigidity modulus of a metal wire. Describe all the variables used. Calculate the dimension of rigidity modulus. How does the modulus of rigidity of the wire change when its length is increased and radius decreased? (3+2+3+2)
3. Write the two formulas to calculate the horizontal component of the Earth's magnetic field. Mention each term used. Mention tangent A and tangent B positions of magnetometer. Why is a torsion-less thread used in oscillation magnetometer? (3+3+2+2)
4. Write down the working formula needed to determine the frequency of a tuning fork by using a sonometer. Draw a schematic diagram of the frequency versus resonance length (n - l) curve for a sonometer wire. How can you make the string emit a sound which is one octave lower than at present? What is the difference between a tone and a note? (3+3+3+1)
5. Write down the condition for null point to measure the resistance by Carey Foster's method. Draw the circuit diagram to determine the unknown resistance by Carey Foster's Bridge. Write down the expression and S.I. unit of average resistance per unit length in Carey Foster's bridge. (2+4+3+1)
6. Define coefficient of linear expansion of a metallic rod and find out its dimension. Write down its S.I. unit. Write down the working formula to measure the coefficient of linear expansion and explain each and every term used in the equation. Suppose 49 division of a main scale coincides with 50 divisions of a vernier scale. Calculate the vernier constant for the vernier scale where 1 main scale division = 1 mm. (2+1+1+3+3)