ELECTIVE - I
Advanced Machine Design
(New) (1252)

P. Pages : 2

Time : Three Hours   **Max. Marks :100**

Instructions to Candidates :
1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any two** sub - questions from each unit.
5. Use PSG design data book if required.
6. Assume suitable data if necessary.
7. Use of non - programmable electronic calculator is allowed.

UNIT - I

1. a) Explain Johnson's method of optimum design. Write steps used for normal specification.   **10**

    b) Derive the equation for optimum design of super gear with minimum power transmitting capacity.   **10**

    c) Explain the following terms used in optimum design.   **10**

    i) Desirable effects and undesirable effects.

    ii) Material parameters & Geometrical parameters.

UNIT - II

2. a) Explain in detail modelling friction and damping.   **10**

    b) Derive an expression $K = a^2 KA$ for modelling & elasticities.   **10**

    c) Explain :   **10**
        i) Mathematical model.
        ii) Value Engineering.

UNIT - III

3. a) Explain Polydyne cam with its advantages and disadvantages.   **10**

b) Explain ramp height & its adjustment.   **10**

c) Explain Jump phenomenon in detail.   **10**

UNIT - IV

4. a) What is Crank shaft. Explain design procedure for Crank shaft.   **10**

b) Explain Design consideration and materials for a piston.   **10**

c) Explain design of cylinder.   **10**

UNIT - V

5. a) Explain design of wire ropes.   **10**

b) Explain stresses in curved beam.   **10**

c) Explain design of hoisting chains and drums.   **10**

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