3790

Design & Synthesis of Mechanism
(1080/1090)

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. Answer **any five** questions.
5. Figures to the right indicate full marks.
6. Use of non programmable calculator is allowed.
7. Draw neat sketch and assume suitable data if necessary.
8. Graphical solutions draw on drawing sheets.

1.   Write short note on.   **20**

   a) Pole and centrode.

   b) Inflection point and Inflection circle.

   c) Ball's point.

   d) Coupler curve.

2.   Explain dwell mechanism and its synthesis using the curvature   **20**
          theory.

3.   Explain Hartmann construction to find the location of the center of   **20**
          curvature of the locus of a point on a moving body.

4.   Describe the terms-   **20**

   a) Dimensional synthesis.

   b) Function generator.

c) Path generator.

d) Motion generator.

5. A four bar mechanism having co - ordinated motion of input **20** and out put links are as follows.

$\phi_1 = 0^0$ $\psi_1 = 35^0$

$\phi_2 = 30^0$ and $\psi_2 = 55^0$

$\phi_3 = 60^0$ $\psi_3 = 75^0$

Synthesis the above mechanism by using Freudenstein's equation.

6. Describe the graphical, mechanical and structural errors in detail. **20** Also explain the importance of these errors in design of mechanisms.

7. State and prove the Bobillier theorem. **20**

8. Explain the following. **20**

a) Euler - Savary equation.

b) Pole Triangle.

c) Transmission angle.

d) Mechanical advantage.

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