Code: 9D15102

M.Tech I Semester Supplementary Examinations August/September 2018

ADVANCED MECHANISMS

(Machine Design)

(For students admitted in 2013, 2014, 2015 & 2016 only)

Time: 3 hours Max. Marks: 60

Answer any FIVE questions

All questions carry equal marks

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1 (a) Explain the mobility criteria for planar mechanisms and state its limitations.
(b) Differentiate between spherical mechanism and spatial mechanism.

2 (a) Explain with neat sketch, Hartmann's constructions.
(b) Explain the term collineation axis and its use for finding inflection points.

3 (a) State and prove Carter hall circle theorem.
(b) Explain circling point curve for coupler of a four bar mechanism.

4 Explain in detail how Burmester curve will be drawn for a four bar mechanism.

5 Mechanize the function Y = $\log_{10}$ in the interval $1 \leq X \leq 10$ with the range is divided into six intervals and use overlay method.

6 Design and draw a four bar mechanism such that the crank angles required will be coordinates as follows:

ø	0	30	60
φ	20	40	80

7 (a) Assign coordinate frames based on D-H representation for the SCARA.
(b) Establish link coordinate system for a PUMA robot with neat sketch.

8 (a) Explain the formulation of Jacobian for planar manipulator.
(b) Explain in brief about articulated and spherical manipulator.

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