

M. Tech. Mechanical Engineering Design (CBCS) Semester-II
MED21 - Analysis & Synthesis of Mechanisms

P. Pages : 1

Time : Three Hours



GUG/S/25/14193

Max. Marks : 70

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- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.
 5. Solve **any five** questions.

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| 1. | a) | Write a short notes on | 7 |
| | | 1) Transmission angles 2) Deviation angles | |
| | b) | Write a short notes on | 7 |
| | | 1) Synthesis for path generation, 2) Center point and circle point curves | |
| 2. | | What do you mean by precision or accuracy points in the design of mechanisms? What are the types of error? What is the structural error? Explain in details. | 14 |
| 3. | | What is velocity and acceleration analysis? What are the methods of acceleration and velocity analysis of simple and complex mechanisms? Explain in details. | 14 |
| 4. | a) | What are the applications of dwell mechanisms? | 7 |
| | b) | State and prove Robert Chebyshev theorem. | 7 |
| 5. | a) | Write a short notes on. | 7 |
| | | 1) Burmester points, 2) Branch Order Defects | |
| | b) | What do you mean by cubic of stationary curvature? Explain one graphical method to draw it. | 7 |
| 6. | a) | What is the degree of freedom of mechanism? How it is determined? | 7 |
| | b) | Write a short notes on | 7 |
| | | 1) Inflection circle, 2) Cubic of stationary curvature | |
| 7. | a) | Explain the terms: | 7 |
| | | 1) Function Generation 2) Path Generation, | |
| | | 3) Motion Generation | |
| | b) | What is the of Bobillier constructions? Explain all Bobillier constructions with supporting sketches. | 7 |
| 8. | | Write down short notes on: | 14 |
| | | 1) Bobillier Theorem 2) Freudenstein's equation | |
