

GUJARAT TECHNOLOGICAL UNIVERSITY
BE -SEMESTER-VIII• EXAMINATION – SUMMER 2015

Subject Code:182007**Date:05/5/2015****Subject Name:Theory of Mechanisms****Time:10:30 am to 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Briefly explain (i)number synthesis(ii)Grashof's conditions with neat sketch or example. **07**
- (b) Differentiate between kinematic analysis and synthesis giving example and neat sketch.Also brief about(i)motion generation(ii)function generation. **07**
- Q.2** (a) What is meant by Chebychev's spacing of points?State with related example. **07**
- (b) Describe the procedure for three position graphical method stating an example. **07**
- OR**
- (b) Considering example of four bar linkage , explain 'poles and relative poles'. **07**
- Q.3** (a) For a four bar mechanism,how a graphical method can be applied for dynamic force analysis? Explain with related sketches etc. **07**
- (b) Write a short note on 'Vibration Isolation'. **07**
- OR**
- Q.3** (a) Explain (i)free vibrations(ii)damped vibrations giving related equations with sketches. **07**
- (b) Explain friction in 'four bar mechanism' and 'slider crank mechanism'. **07**
- Q.4** (a) Explain 'Principal modes of vibrations' for two degree freedom system. **07**
- (b) For a stepped shaft ,how an application of torsional vibrations could be possible?Explain briefly. **07**
- OR**
- Q.4** (a) Write a short note on 'Whirling of shafts'. **07**
- (b) Giving example and related equation,explain any one of (i)longitudinal(ii)transverse vibrations. **07**
- Q.5** (a) State the vibration measuring instruments and explain any one of them. **07**
- (b) What are 'continuous systems'?How vibration analysis of such systems can be carried out? **07**
- OR**
- Q.5** (a) For any one example (or system),explain the mathematical modeling procedure and steps showing related equations and sketch. **07**
- (b) What are 'multi degree' systems?How are such systems studied for vibration point of view? **07**
