Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VI. EXAMINATION – SUMMER 2016

Subject Code:X61902 **Date:13/05/2016**

Subject Name:Dynamics of Machinery

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)**	Explain the method of balancing of several masses rotating in different planes.	**07**
	(b)	Explain partial balancing of reciprocating engine.	**07**
Q.2	**(a)**	Explain the following terms (1) Variation of tractive (2) Swaying couple (3) Hammer blow	**07**
	(b)	Explain dry friction or coulomb damping.	**07**
		OR	
	(b)	What is over damping and under damping of a system?	**07**
Q.3	**(a)**	Explain energy method for finding the natural frequency of vibration system.	**07**
	(b)	Explain following terms (1) Equivalent spring (2) Equivalent damper	**07**
		OR	
Q.3	**(a)**	What do you understand by transient vibration?	**07**
	(b)	A spring mass damper system has a mass of 80 Kg. suspended from a spring having stiffness of 1000N/m and a viscous damper with a damping coefficient of 80 N-S/m. If the mass is subjected to a periodic disturbing force of 50N at undamped natural frequency. Determine (1) The undamped natural frequency (2) The damped natural frequency (3) The amplitude of forced vibration of mass	**07**
Q.4	**(a)**	What do you mean by critical speed of shaft? State its significant	**07**
	(b)	Explain Dunkerley's method to determine the natural frequency of shaft carrying number of points load.	**07**
		OR	
Q.4	**(a)**	How natural frequency of torsional vibration of two rotor system is determined?	**07**
	(b)	Explain the concept of torsional equivalent shaft.	**07**
Q.5	**(a)**	Shortnotes on forced vibration due to reciprocating unbalance	**07**
	(b)	How vibration measuring instruments are classified?	**07**
		OR	
Q.5	**(a)**	Explain working principles of (1) Velocity pick ups (2) Accelerometers	**07**

(b) What are the various instrumentation systems used for condition monitoring? **07**

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