Student Exam No._____

GANPAT UNIVERSITY

B. Tech. Semester: V -Marine Engineering

Regular Examination November – December 2014

2MR502- Machine Design & Drawing

Time: 3 Hours **Total Marks: 70**

Instructions: (1) Attempt all Questions.

(2) Assume suitable data if necessary.

(3) Figure to the right indicates full Marks.

(4) Start new Question on New Page.

Section - I

Que. – 1	(a)	List the different types of Design and explain any one in detail.	**6**
	(b)	List General considerations in Machine Design.	**6**
		OR	
Que. – 1	(a)	Define factor of safety and state the important factors affecting the factor of safety.	**6**
	(b)	Define limits, fits, and tolerance.	**6**
Que. – 2	(a)	What is stress concentration? Explain methods to relieve stress concentration?	**6**
	(b)	Explain different types of keys with neat sketch.	**5**
		OR	
Que. – 2		Design a muff coupling to transmit 30 kW at 100 rpm. The allowable shear stress for the shaft and key are 40 MPa. Take width of key = Shaft diameter/4 and thickness of key = Shaft diameter/6. Take stress for the muff 15 MPa.	**11**
Que. – 3		Explain design procedure of Sliding contact bearing	**12**

Section – II

Que. – 4		Draw a neat sketch of a protected type flanged coupling and write the design procedure with the design equations for different failure criteria.	**12**
		OR	
Que. – 4	(a)	Derive the equation of tension ratio of flat belt drive.	**6**
	(b)	List the Different types of Flat belt Drive.	**6**
Que. – 5	(a)	Classify the different types of riveted joints with neat sketch.	**6**
	(b)	List the different types of bearings with neat sketch.	**5**
		OR	
Que. – 5	(a)	What are the advantages of welded joint over riveted joint?	**11**
	(b)	Write a short on slip and creep of belt?	
Que. – 6		Find the diameter of a solid steel shaft to transmit 15 KW at 300 r.p.m. The ultimate shear stress for the steel may be taken as 360MPa and a factor of safety as 6. If a hollow shaft is to be used in place of solid shaft, find the inside and outside diameter when the ratio of inside to outside diameter is 0.5.	**12**

END OF PAPER