Morning

Date: 25/11/2015.

Student Exam No._____

GANPAT UNIVERSITY

B. Tech. Semester: Vth -Marine Engineering

Regular Examination November – December 2015

2MR502- Machine Design and 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 stresses and explain anyone in detail.	6
	b)	List General considerations in Machine Design.	6

OR

Que. – 1		Design a key using in shaft to transmit 30 kW at 100 rpm. The allowable shear stress for the shaft and key are 40 MPa. Take crushing stress for the key 80MPa.	12
Que. – 2	a)	List the different types of coupling and explain with neat sketch.	6
	b)	Explain design procedure of muff coupling	5

OR

Que. – 2		Explain design procedure of key.	11
Que. – 3		List different types of riveted joints with neat sketch.	12

Section - II

Que. – 4	a)	Define machine design and enlist the different types of design and explain anyone in detail.	6
	b)	Define factor of safety and state the important factors affecting the factor of safety.	6

OR

Que. – 4		Design a cast iron protective type flange coupling to transmit 15 kW at 900 r.p.m. from an electric motor to a compressor. The following permissible stresses may be used: Shear stress for shaft, bolt and key material = 40 MPa, Crushing stress for bolt and key = 80 MPa, Shear stress for cast iron = 8 MPa. Take number of bolts are 3.	12
Que. – 5	a)	What is stress concentration? Explain methods to relieve stress concentration?	6
	b)	Explain different types of keys with neat sketch.	5

OR

Que. – 5		What is difference between riveted and welded joints?	11
Que. – 6		Find the diameter of a solid steel shaft to transmit 20 KW at 200 r.p.m. The ultimate shear stress for the steel may be taken as 360MPa and a factor of safety as 8. 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