



**B. Tech Degree IV Semester (Supplementary) Examination
in Marine Engineering, July 2008**

MRE 402 PRODUCTION TECHNOLOGY

Time : 3 Hours

Maximum Marks : 100

- I. (a) Sketch and describe the use of a surface plate and a V – block. (5)
(b) Draw the sketches of mortise gauge and marking gauge. Label their parts. Give the application of each. (5)
(c) Explain the functions of different angles on a single point cutting tool. (10)
- OR**
- II. (a) Identify the forces involved in a cutting operation. Which force contributes to the power required? Explain. (8)
(b) A 150 mm long, 12 mm diameter, 304 Stainless Steel rod is being reduced in diameter to 11.4 mm by turning on a lathe. The spindle rotates at $N = 400$ rpm and the tool is traveling at an axial speed of 200 mm/min. Calculate the cutting speed and cutting time. (12)
- III. (a) How is drill life determined? (6)
(b) Describe the differences between a steady rest and a follower rest. Give an application of each. (8)
(c) List the types of machining operations that can be performed on a lathe. (6)
- OR**
- IV. (a) Explain what is meant by a grinding wheel acting soft or acting hard. (6)
(b) What is honing? What are its similarities to grinding? (8)
(c) Distinguish between punching and blanking operations. (6)
- V. (a) Explain what is meant by “standards for measurements”. (4)
(b) Explain the difference between direct-reading and indirect-reading linear measurements. Name the instruments used in each category. (8)
(c) Describe the principle of a Vernier. (8)
- OR**
- VI. (a) Distinguish between precision and accuracy. (6)
(b) What is the difference between a plug gauge and a ring gauge? (6)
(c) Describe the principle of an optical comparator. (8)
- VII. (a) Explain what is meant by the terms ‘hazard’ and ‘risk’. Give several examples of each from your own experience. (6)
(b) Discuss :
(i) Bedding of bearings (7)
(ii) Fittings of keys and cotter. (7)
- OR**
- VIII. (a) Explain the design considerations and construction details of a butterfly valve. (12)

(Turn Over)

- (b) Discuss the following types of packaging materials :
- (i) Plastic
 - (ii) Metal
 - (iii) Brick carton, and
 - (iv) Card board
- (4 x 2 = 8)
- IX. (a) Explain the features of neutral, reducing and oxidizing flames. Why is reducing flame so called? (8)
- (b) Explain the principle underlying brazing. (6)
- (c) What is the essential difference between brazing and braze welding? (6)
- OR**
- X. (a) Describe the functions and characteristics of electrodes. What function do coatings have? How are electrodes classified? (8)
- (b) Describe the types of fluxes used in soldering and their applications. (6)
- (c) Are fluxes necessary in brazing? If so why? (6)