

No. of Printed Pages : 03

Roll No.

535

B. Tech. EXAMINATION, Dec. 2017

(Fifth Semester)

(Old Scheme) (Re-appear Only)

(ME)

ME-309

MANUFACTURING SCIENCE

Time : 3 Hours]

[Maximum Marks : 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions.

1. (a) Discuss the mechanism of metal cutting types of chips. **8**

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- (b) Using neat sketch, derive the metal cutting force of velocity relationship in case of orthogonal cutting using shear angle and back rack angle and other usual terms. **12**
2. (a) Give nomenclature of single point cutting tool. Classify various tools materials with their characteristics. **10**
- (b) What do you understand by the term cutting fluid ? Give its basic action and selection criterion. **10**
3. (a) Define tool life. What are various types of tool wears upon what factors tool life depends ? **10**
- (b) Define machinability. Give the materials in order of their machinability and discuss briefly. **10**
4. How will you manufacture gears. What are various methods of manufacturing ? Differentiate among the methods based upon basic principle, process parameters figures, procedure steps, advantages disadvantages and applications. **20**

5. Differentiate among Abrasive jet machining, ultrasonic machining and electro-chemical machining based upon. **20**
6. (a) Define Jigs and fixtures. Differentiate between them. **8**
- (b) How will you design a drill jig for a sheet metal part having four holes at different position ? **12**
7. (a) Make neat sketch of product cycle in manufacturing. Discuss in briefly. **10**
- (b) Define accuracy of manufacturing. How will you achieve in manufacturing with support of devices. **10**
8. Write short notes on the following : **7,7,6**
- (a) Metrological measurements
- (b) Machine tool testing
- (c) Go and No-Go-Gauges.