

Code No: RT31032

R13

SET - 1

III B. Tech I Semester Supplementary Examinations, May-2017

METAL CUTTING & MACHINE TOOLS

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

PART -A

- 1 a) Name various single point cutting tools materials available. [3M]
- b) Let large diameter of taper is 80 mm and small diameter of taper is 70 mm. The conicity is 1/20. Find the length of the taper. [4M]
- c) Write short notes on trepanning [3M]
- d) How is milling machine specified? [4M]
- e) Mention various feeds of centerless grinding. [4M]
- f) Define a jig and a fixture. [4M]

PART -B

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|---|----|--|------|
| 2 | a) | In an orthogonal cutting tool what are the important tool angles that are to be maintained? For each of the angle explain its influence on the machining performance | [8M] |
| | b) | In a normal turning operation the tool life is 30 minutes at a cutting speed of 25m/min and when cutting speed is 70m/min, tool life is 2 minutes. Estimate tool life for this cutting operation at a cutting speed of 60m/min | [8M] |
| 3 | a) | Discuss about the classification of lathes | [8M] |
| | b) | What is the importance of tool layouts in automats? Explain with an example for any one type with component sketch. | [8M] |
| 4 | a) | Show with the neat sketch the constructional features of twist drill and label important features. | [5M] |
| | b) | Differentiate between shaping and planing machines | [6M] |
| | c) | Draw a neat sketch of slotter and name its main parts | [5M] |
| 5 | a) | Classify milling machines used in industry giving a brief note on applications? | [8M] |
| | b) | Explain about various operations performed on milling machine. | [8M] |
| 6 | a) | Discuss the factors to be considered in the selection of a grinding wheel. | [8M] |
| | b) | Explain briefly about honing and lapping operations with their applications. | [8M] |
| 7 | a) | Classify NC machine tools. | [8M] |
| | b) | What are various location devices? Explain them with the help of neat sketch. | [8M] |
