

B.Tech III Year II Semester (R13) Supplementary Examinations December 2016

MACHINE TOOLS

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- What are chip breakers? Explain the role in machining.
 - Write Taylor's tool life equation.
 - How can you specify a lathe?
 - State the working principle of a drilling machine.
 - What is boring? Sketch a boring tool.
 - Differentiate between shaper and planer.
 - Differentiate between up milling and down milling.
 - What is indexing? Describe direct indexing with an example.
 - What is truing and dressing?
 - State the working principle of jig and fixture.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Explain mechanism of chip formation in ductile and brittle material with neat sketches.
- OR**
- 3 With the help of neat sketch, derive the expressions for cutting forces using Merchant's circle diagram.

UNIT – II

- 4 Name different methods of taper turning. Describe with suitable sketch, the procedure for turning a taper using setting over the tailstock.

OR

- 5 Lists the accessories of a lathe? Explain any two of them with neat sketches.

UNIT – III

- 6 Explain the principle of quick return motion mechanism of a shaper. What is the need of this mechanism?

OR

- 7 With the help of neat sketch write short notes on following:

- Drilling.
- Boring.
- Reaming.
- Tapping.
- Counter boring.

UNIT – IV

- 8 State the working principle of milling machine. Using neat sketch, describe the principal parts of the milling machine by neat sketches.

OR

- 9 With the help of neat sketch write short notes on following:

- Lapping.
- Honing.
- Broaching.

UNIT – V

- 10 Write short note on location and clamping. Draw a neat sketch of types of clamping devices.

OR

- 11 Explain with the help of neat sketch 3-2-1 principle of location.
