Code No. 6344 / M

FACULTY OF ENGINEERING

B.E. 3/4 (Mech.) II - Semester (Main) Examination, June 2014

Subject: Metal Cutting and Machine Tool Engineering

Time: 3 Hours **Max. Marks: 75**

Note: Answer any all questions from Part-A & any Five question from Part-B.

PART – A (25 Marks)

1 What are the various types of chips? (2)
2 Explain the difference between positive rake and negative rake angles in cutting tools. (3)
3 How do you measure chip-tool interface temperature by thermo-couple method? (3)
4 What do you understand by tool life? How do you measure it? (3)
5 Sketch a drill and indicate various parts on it. (2)
6 How do you specify a lathe? (2)
7 Explain Burnishing. (2)
8 Explain gear grinding. (3)
9 Distinguish between Jig and Fixture. (2)
10 Explain the working principle of ECM. (3)

PART – B (50 Marks)

11 (a) Derive an equation developed by Lee and Shafer and indicate the assumptions made. (6)
(b) Name various cutting tools and high light the composition, their importance and applications. (4)
12 (a) Explain the Taylors tool life equation, what are the variables affecting tool life? (6)
(b) Name the important properties that cutting fluid should posses and state various cutting fluids. (4)
13 (a) Explain with the help of sketches various operations can be performed on a drilling machine.
(b) Differentiate between shaper and planner.
14 (a) Name various indexing methods and explain clearly a method to generator 63 teeth spar gear on a given blank.
(b) Explain with schematic diagram the working of Jig boring machine. Mention its advantages and limitations.
15 (a) Explain the working of a gear hobbing process.
(b) How do you select a grinding wheel? Explain each factor.
16 (a) Explain with neat sketch the working principle of USM. Discuss advantages and disadvantages.
(b) Describe with neat sketches the working mechanism of box Jig and indexing Jig.
17 Write short notes on :
(a) Bonds in grinding wheel (b) Economics of machining
(c) Influence of rake angle on Tool life and surface finish

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