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Roll No

ME-6004 (CBGS)**B.E. VI Semester**

Examination, May 2018

Choice Based Grading System (CBGS)**Metal Cutting and Machine Tools***Time : Three Hours**Maximum Marks : 70*

- Note:** i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) How machine tools can be defined? Classify it? 7
b) List down the various types of lathe and differentiate between the capstan and turret lathe. 7
2. a) Explain the tool signature of a SPCT? 7
b) Estimate the total time required to turn a 10cm long and 2.5cm diameter MS Rod to a diameter of 2.3cm in a single cut. Assume cutting speed be 25 m/min, feed to be 0.1 mm/revolution and mounting time in self centering 3 jaw chuck to be 40 second. Neglect time taken for setting up tool. 7
3. a) Discuss the specification of grinding wheel. 7
b) Describe the dressing and balancing requirement in grinding. 7

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4. a) How is grinding different from other machining operations? Explain its applications in view of its capabilities. 7
b) What is centreless grinding? Write down its advantages and limitations. 7
5. a) What are the various types milling cutters that are used in milling? 7
b) Draw a schematic diagram of broach and discuss various element mentioned on it. 7
6. a) Explain the quick return mechanism used in shaper machine. 7
b) What do you understand by CLA value? Discuss the causes of surface irregularities? 7
7. a) What are the types of cutting tool wear patterns observed in SPCT? How do they affect the metal cutting performance? 7
b) In Taylors tool life constants for a given operation are specified as $n = 0.5$ and $c = 400$. What is the percentage increase in tool life? When the cutting speed is reduced by half? 7
8. Write down short notes on any four of the following: 4×3.5=14
a) Machinability
b) Generating process of gear cutting
c) Radial drilling machine
d) Work piece holding device in lathe
e) Tool wear
