

B.TECH SEM – V (2007 COURSE) (PRODUCTION ENGG.) :
SUMMER - 2018

SUBJECT: TECHNOLOGY OF METAL CUTTING

Day : **Friday**
Date : **25/05/2018**

S-2018-2688

Time : **10.00 AM TO 01.00 PM**
Max. Marks: 80

N. B.:

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.** Out of remaining attempt **ANY TWO** questions from each sections.
- 2) Answer to both the sections should be written in **SEPARATE** answer book.
- 3) Figures to the right indicate **FULL** marks.
- 4) Assume suitable data, if necessary.

SECTION-I

- Q.1**
- a) Explain different types of chips with suitable sketch. **(05)**
 - b) What is tool signature? Describe tools signature in detail. **(05)**
 - c) Discuss heat treatment of cutting tools. **(04)**
- Q.2**
- a) Prove that shear strain $r = \frac{\cos \alpha}{\cos(\phi - \alpha) \sin \phi}$ **(07)**
Where ϕ = shear angle
 α = rake angle
 - b) Explain different tool materials in brief. **(06)**
- Q.3**
- a) Describe single point cutting tool geometry in detail. **(07)**
 - b) What is dynamometer? Explain mechanical dynamometer in detail. **(06)**
- Q.4**
- a) Describe the classification and applications of coolants. **(07)**
 - b) Which criteria determine Machinability? Explain the term Machinability Index. **(06)**

SECTION-II

- Q.5**
- a) How drills are classified? Discuss suitable materials for drills. **(05)**
 - b) Discuss holding devices for circular form tools. **(05)**
 - c) Explain the significance of economics of tooling. **(04)**
- Q.6**
- a) Discuss the concept of cutting speed for maximum production rate. **(07)**
 - b) Derive an equation for finding total cost per piece (unit cost). **(06)**
- Q.7**
- a) What are the classifications of milling cutter? Explain elements of plain milling cutter with suitable sketch. **(07)**
 - b) What do you understand by terms speed, feed and depth of cut in drilling operation? **(06)**
- Q.8**
- a) Explain the graphical method for determining profile of circular form tool. **(07)**
 - b) Describe combination tools in detail. **(06)**

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