

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (ME-2011 Batch) (Sem.-4th)  
**MANUFACTURING PROCESSES-II**  
Subject Code : BTME-405  
Paper ID : [A1215]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

**1. Answer briefly :**

- (a) List five rolling defects and give their causes of generation.
- (b) Differentiate between Direct and Indirect Extrusion.
- (c) Describe the operative of deep drawing.
- (d) Differentiate between combination and compound die.
- (e) Give the simple relation between rake angle and shear angle.
- (f) Define machinability and machinability index.
- (g) Give the signature/classification detail for the grinding wheels.
- (h) What is the significance of Taylor's equation?
- (i) What is meant by dressing of grinding wheel?
- (j) What is the instrument used for measuring the cutting forces in machining operation? Explain its application mechanism.

**SECTION-B**

2. What are the common forging defects ? Giving their reasons explain how these can be reduced.

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3. Explain the process of electro-hydraulic forming. Discuss the chief applications of this process. Also give its limitations.
4. Giving the geometry of a single point cutting tool, discuss the functions and utility of various angles.
5. What is meant by kinematic scheme of Lathe machine ? What are the different schemes used for lathe gear box and lathe feed mechanism ?
6. How do you specify a milling machine ? Based on various types of milling machines, discuss the specific features they have.

### SECTION-C

7. During machining of C-25 steel with 0-10-6-6-8-90-(ORS) shaped carbide tool, the following observations are made.

Depth of cut = 2 mm; Feed = 0.2 mm/rev.

Speed = 200 m/min; tangential cutting force = 1600 N

Feed thrust force = 850 N; Chip Thickness = 0.39 mm

Calculate

- (i) Shearforce
  - (ii) Normal force at shear plane
  - (iii) Friction force
  - (iv) Specific cutting energy.
8. A slot of 25 mm depth is to be cut through a work piece 200 mm long with the help of HSS side and force cutter having a diameter of 150 mm and 10 teeth. The cutting speed is 50 m/min and feed is 0.25 mm/tooth. Determine.
    - (i) Table feed in mm/min
    - (ii) Total Cutter Travel
    - (iii) Time required to machine the slot.
  9. Derive an expression for calculating rolling load in rolling process, starting from first principles taking various process parameters into account.