

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ME) (2011 Onwards) (Sem.-4)

MANUFACTURING PROCESSES-II

Subject Code : BTME-405

Paper ID : [A1215]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION 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

Q1 Answer briefly :

- a) Give broad classification of Metal forming processes.
- b) Differentiate between piercing and blanking operations.
- c) What do you understand by Impression-die forging?
- d) Enumerate various defects encountered in extrusion process.
- e) Explain working principle of Smith forging.
- f) What do you understand by tool geometry?
- g) Differentiate between up milling and down milling operations.
- h) Enumerate various types of cutting fluids using in machining operations.
- i) How grinding machines are classified?
- j) Explain the working of quick return mechanism used in shapers.

SECTION-B

- Q2 How forging processes can be classified? Explain working and elements of drop forging giving a neat sketch.
- Q3 Briefly explain the working principle of drawing process. Explain tube drawing process with the help of a neat sketch.
- Q4 Explain the mechanics of chip formation process. Also explain various types of chips formed in machining processes giving neat sketches.
- Q5 Write short note on magnetic pulse forming giving a neat sketch.
- Q6 Explain the elements, working of surface grinding machine giving a neat sketch and applications, advantages and limitations.

SECTION-C

- Q7 a) Differentiate between hot and cold forming processes giving their salient features, applications, advantages and disadvantages.
- b) Explain various forging defects giving neat sketches, causes and remedies.
- Q8 a) Explain the steps involved in obtaining components through Powder Metallurgy process.
- b) Explain various elements of geometry of twist drill giving a neat sketch.
- Q9 a) Explain the elements, working of broaching machine giving neat sketch.
- b) A slab milling operation is being carried out on a 300 mm long, 100 mm wide annealed Mild Steel block at a feed (f) of 0.25 mm per tooth and a depth of cut (t) of 3.125 mm. The cutter is 50 mm in diameter and has 20 straight teeth and is rotating at 100 rpm. The cutter is wider than block to be machined. Calculate the metal removal rate, power and torque required for this operation. Also calculate the machining time if specific power for annealed Mild steel is 3 W.s/mm^3 .