

00624

**DIPLOMA IN  
MECHANICAL ENGINEERING**

**Term-End Examination**

**June, 2011**

**BME-051 : MANUFACTURING PROCESSES – I**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Attempt *any seven* questions.

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1. (a) What is the 'Facing' operation ? Sketch and explain the main parts of the lathe. 7
- (b) What are the different cutting tool materials used in lathe ? Describe their main features. 3
2. (a) Sketch and explain the following taper turning methods. 7
  - (i) Taper turning by swivelling the compound rest.
  - (ii) Taper turning by a taper turning attachment.
- (b) Find out the amount of set-over of tailstock for turning a taper on a job for  $\frac{2}{3}$  of its length from one end. Larger diameter is 100 mm and smaller diameter is 80 mm . Total length of job is 300 mm. 3

3. (a) Explain with the help of a neat sketch the following drilling operations : 8  
 (i) Boring (ii) Countersinking  
 (iii) Tapping (iv) Trepanning
- (b) What is the purpose of flute in a drill ? 2
4. (a) Describe with the help of a neat sketch the salient features of a vertical boring machine. 5
- (b) How may a boring machine generate a horizontal flat surface and perform cutting-off operation ? 5
5. (a) Differentiate between shaping, planing and slotting. 6
- (b) How are shaper tools different from a lathe tool ? 4
6. (a) Describe the main parts of a slotting machine. 5
- (b) In machining a job on a shaper, the length of the stroke is 240 mm, number of double strokes per minute is 40 and the ratio of return time to cutting time is 2 : 3. Calculate the cutting speed. 3
- (c) What do you understand by Quick return mechanism ? 2
7. (a) Describe the principle and working of a planer. 4
- (b) What are the common operations performed in a planer ? With the help of a neat sketch, briefly describe any two of them. 6

8. (a) Explain with sketches the following milling operations : 6  
(i) Angular milling  
(ii) Gang milling  
(iii) Form milling  
(b) What is straddle milling ? Enlist the steps required in milling of a hexagonal bolt head by straddle milling. 4
9. (a) What are the common allowances provided on pattern and why ? 5  
(b) Discuss the various materials used for pattern making. 5
10. (a) Explain the various properties of moulding sand. 5  
(b) What are the functions of an ideal gating system ? 3  
(c) What is a core ? Name the different types of Cores. 2
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