

00385

**DIPLOMA IN
MECHANICAL ENGINEERING**

Term-End Examination

June, 2012

BME-051 : MANUFACTURING PROCESSES – I

Time : 3 Hours

Maximum Marks : 70

Note : Answer any five questions. All questions carry equal marks.

1. (a) Describe the functions of following 8
components of a lathe machine.

- (i) Carriage
- (ii) Tailstock
- (iii) Lead screw

(b) What is the difference between rough 6
turning and finish turning. The feed and
speed for rough and finish turning of a job
of 50 mm diameter and 100 mm length are
given below :

	Rough	Finish
Feed	0.4 mm/rev	0.1 mm/rev
Spindle r.p.m	50	250

Find time for rough and finish turning.

2. (a) What is a Standard Taper ? Which standard is followed in India ? Name the parts that are provided standard taper. 5
- (b) Name taper turning methods in lathe. Describe the survellling compound rest method. What are limitations of this method ? 6
- (c) If the diameter of taper reduces from 70 mm to 50 mm over a length of 90 mm. Find angle of taper and conicity. 3
3. (a) Describe following operations in a drilling machine. 9
- (i) Reaming
- (ii) Counter boring
- (iii) Counter sinking
- (b) Sketch twist drill and straight fluted drill and describe applications. 5
4. (a) Describe cutting tools used in shaper. 8
- (b) A plate of length 100 mm and width 25 mm is to be finished on a shaper with a feed of 0.25 mm/double stroke. The return time to cutting time is 3/5. The length of the job is held along the stroke and length of stroke exceeds length of job by 20%. Find average cutting speed. 6

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| 5. | (a) | Describe the tools with geometry for roughing and finishing in Planer. | 7 |
| | (b) | Compare shaper with planer in respect of relative motion, job size, tool, power, number of tools, job setting, cutting speed, size. | 7 |
| 6. | (a) | Describe face milling and straddle milling operations in milling machine. What is end milling ? | 6 |
| | (b) | Describe process of cam milling. | 5 |
| | (c) | Distinguish between upmilling and down milling. | 3 |
| 7. | (a) | What allowances are provided in pattern ? Explain. | 5 |
| | (b) | Why are cores used in moulding ? What are core prints ? Describe types of core prints. | 5 |
| | (c) | What are different types of moulding sand ? | 4 |
| 8. | (a) | Describe moulding processes according to method and according to mould materials. | 7 |
| | (b) | Why is a riser provided in a mould ? | 4 |
| | (c) | What are padding, chills and exothermic materials ? What purpose is served by their use in mould ? | 3 |