

**DIPLOMA IN MECHANICAL ENGINEERING
(DME)**

Term-End Examination

00348

June, 2017

BME-051 : MANUFACTURING PROCESSES - I

Time : 2 hours

Maximum Marks : 70

Note : Answer any **five** questions. All questions carry equal marks. Assume missing data, if any. Use of scientific calculator is permitted.

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1. (a) Describe the functions of the following parts of a Lathe machine : 8
- (i) Head Stock
 - (ii) Compound Rest
 - (iii) Lead Screw
 - (iv) Tail Stock
- (b) A shaft 10-inches long has a taper of $\frac{3}{4}$ inch per foot for a distance of 4 inches. The maximum diameter of the shaft is $2\frac{7}{8}$ inches. How much should the dead centre be set out ? Also find small diameter of work. 6

2. (a) What are the different operations performed on a Drilling Machine ? Explain 'Counter Boring' with a neat diagram. 6
- (b) What are the materials used for cutting tools used in a lathe ? Write the applications of High Carbon Steel. 3
- (c) What are the different lathe accessories ? Explain at least one of them in detail. 5
3. (a) Describe 'Vertical Turret Lathe' with a neat diagram. 8
- (b) What do you understand by the following : 6
- (i) Cutting speed of shaper
- (ii) Feed and depth of cut of shaper
4. (a) Explain different tools used in a Planer with suitable diagrams. 10
- (b) How are the 'Planer and Shaper' specified ? 2
- (c) What is the principle of operation of a Planer ? 2
5. (a) Draw the Column and Knee Type Milling Machine, showing its principal parts. 8
- (b) Explain three types of milling operations with suitable diagram. 6

6. (a) Explain the milling process of making Keyways, Grooves and Slots, with neat diagrams. 9
- (b) Write the different materials used in pattern making. 5
7. (a) Discuss different pattern making allowances. 5
- (b) Explain the different properties of moulding sand. 5
- (c) What are Permeability Number and Fineness Number? 4
8. (a) Explain Pit Type 'Crucible Furnace' with a neat diagram. 7
- (b) Write the different types of 'Cores' with suitable diagrams. 7
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