270

Code : 9ME33

Register Number | | | | | | | |

III Semester Diploma Examination, Nov./Dec. 2013

MANUFACTURING TECHNOLOGY – I

: 3 Hours] [Max. Marks : 100

(i) Section – I is *compulsory*.

(ii) Answer any **two** full questions from Sections – II, III & IV.

SECTION – I

5 × 1 = 5

(a) Fill in the blanks :

(i) _____ is done to remove the irregularities in the surface.

(ii) _____ is a welding process in which workpieces are welded due to a combination of a pressure.

(iii) _____ casting is employed in the manufacture of hollow cylindrical products.

(iv) _____ is the distance the tool advances for each revolution of the workpiece.

(v) _____ is used for drilling heavy and large workpieces.

(b) Explain iron carbon equilibrium diagram. 5

SECTION – II

(a) What are the purposes of heat treatment? 5

(b) State the general properties and applications of polymers. 5

(c) List the different pattern making allowances and explain shrinkage allowance. 5

(a) Define pattern and explain skeleton pattern. 5

(b) List the different types of foundry sand and explain dry sand. 5

(c) Explain with neat sketch the centrifugal casting process. 5

[Turn over

4. (a) Explain the importance of forging.
   (b) Explain drawing down operation.
   (c) List the forging defects and its remedies.

SECTION – III

5. (a) List the different types of presses and hammers in forging.
   (b) List the cold working processes and explain cold rolling.
   (c) What are the differences between cold working and hot working ?

6. (a) Explain with neat sketch the two-high mill.
   (b) Explain shielded metal arc welding.
   (c) Explain plasma arc welding.

7. (a) Explain with neat sketch the TIG welding.
   (b) List the welding defects and remedies.
   (c) Explain with a neat sketch the power press.

SECTION – IV

8. (a) List the different types of press operations and explain drawing operation.
   (b) With a neat sketch explain compound die.
   (c) List the lathe accessories and attachments and explain four jaw chuck.

9. (a) List the different lathe operations and explain turning operation.
   (b) Give the comparison of Engine lathe and Capstan/Turret lathe.
   (c) A shaft 1000 mm long has to be taper turned for a length of 500 mm. Taper is 1 : 200 maximum diameter of shaft 36 mm. Determine the minimum diameter of the shaft and the amount of tail stock set-over.

10. (a) Explain with neat sketch the Radial drilling machine.
    (b) List the different operations performed on drilling machine and explain counter boring.
    (c) At what speed a 15 mm dia will run to drill a hole through a brass plate 20 mm thick in order to cut the material at a surface speed of 60 m/min, also calculate the feed used per rev.