Total No. of Questions—8] [Total No. of Printed Pages—4

Seat No.	

[4757]-1013

S.E. (Mechanical & Automobile) (First Semester)

EXAMINATION, 2015

MANUFACTURING PROCESS—I

(2012 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. :— (*i*) All the *four* questions should be solved in one answer-book and attach extra supplements if required.

(*ii*) Figures to the right indicate full marks.

(*iii*) Neat diagrams must be drawn wherever necessary.

(*iv*) Use of non-programable electronic pocket calculator is allowed.

(*v*) Assume suitable data, if necessary.

(*vi*) Solve Q. No. **1** *or* Q. No. **2,** Q. No. **3** *or* Q. No. **4,** Q. No. **5** *or* Q. No. **6,** Q. No. **7** *or* Q. No. **8.**

1. (*a*) Explain commonly used materials for pattern making with advantages and limitations. [6]

P.T.O.

(*b*) A slab of size 300 × 300 × 50 mm^3 is requires to cast from a molten steel using a top riser of 170 mm diameter. If $(d/h) = 2$ for riser, calculate the freezing ratio. [6]

Or

2. (*a*) Explain friction and lubrication in metal forming. [6]

(*b*) Explain types of rolling mills. [6]

3. (*a*) Explain submerged arc welding process. State the advantages and limitations of the process. [6]

(*b*) Explain extrusion of film. [6]

Or

4. (*a*) Write short note on edge preparation in welding. [6]

(*b*) Compare between TIG and MIG welding process. [6]

5. (*a*) Calculate the amount of shear on the punch to cut a hole of 60 mm diameter in 2 mm thickness plate. The ultimate shearing strength of plate material is 400 MPa. If the punching force is to be reduced to half of the force using a punch without shear. Assume percentage penetration 68%. [7]

(*b*) Write a note on strip layout. [6]

Or

6. (*a*) Explain with sketch type of pilots used in sheet metal working. [6]

(*b*) Find center of pressure for a MS part as shown in Fig. 6(b) with 1 mm thickness. Take ultimate shear strength of MS as 200 N/mm^2. [7]

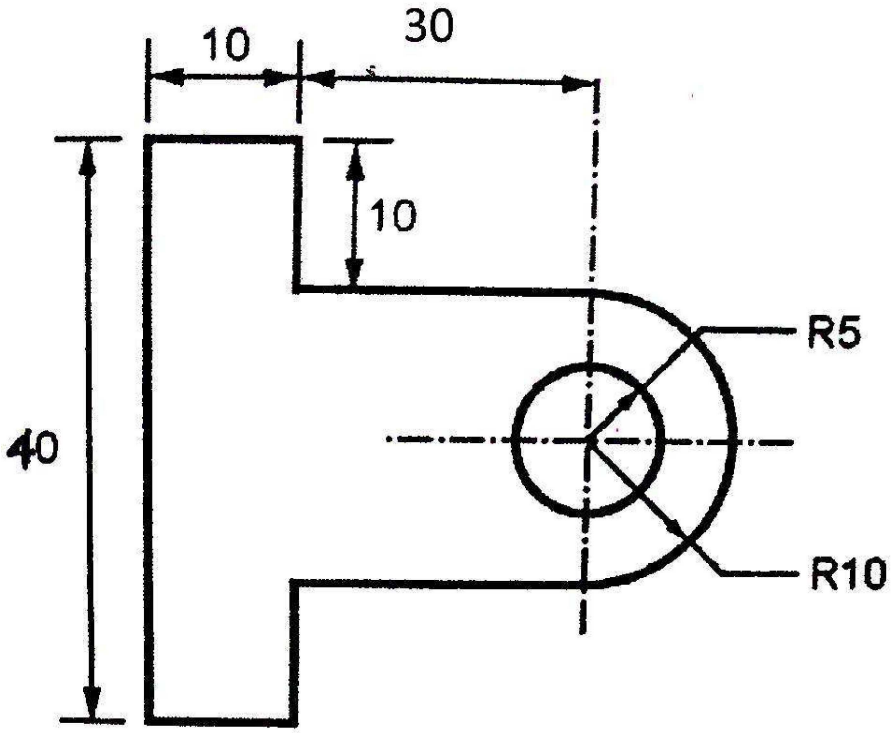

Fig. 6(b)

7. (*a*) With neat sketch explain back gear cone pulley type headstock. [7]

(*b*) Explain Half nut mechanism. [6]

Or

8. (*a*) Why lathe centres and mandrels are required while machining on lathe ? Also draw neat sketch of any two types of lathe centers and mandrels. [7]

(*b*) Calculate the angle by which compound rest will be swiveled when cutting a taper on a job with diameters 90 mm and 40 mm. Length of the job is 1.2 m. [6]