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

Seat No.	

[4857]-1011

S.E. (Mechanical/Automobile) (I Sem.) EXAMINATION, 2015

MANUFACTURING PROCESS—I

(2012 PATTERN)

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

N.B. **:—** (*i*) The questions are to be solved in one answer-book.

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

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

(*iv*) 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** and Q. No. **7** *or* Q. No. **8**.

1. (*a*) Explain Lost-Wax casting process in detail. [6]

(*b*) A casting of 50 cm × 40 cm × 10 cm size solidifies in 20 min. Find the solidification time for 40 cm × 30 cm × 5 cm casting under similar condition. [6]

Or

2. (*a*) Explain wire drawing process with neat sketch. [6]

(*b*) Compare Hot working and Cold working process. [6]

P.T.O.

3. (*a*) Explain blow moulding with suitable sketch. [6]

(*b*) Write a short note on extrusion process in making film and cable. [6]

Or

4. (*a*) Describe oxyacetylene welding with neat sketch. [6]

(*b*) Why is coating essential on arc welding electrode ? [6]

5. (*a*) Compare blanking and piercing operation. [6]

(*b*) Determine the material utilisation factor for producing 40 mm dia. circular blank from sheet of 3 mm thickness by considering allowances $a = t + 0.015 * d$ and $b = t$. Sequence of blanks show in Fig. 1. Number of blanks = 5. [7]

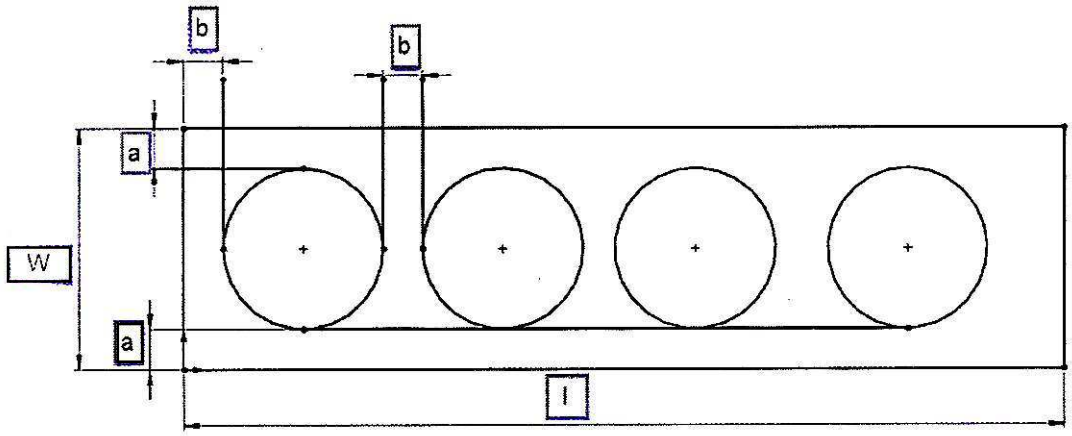

Fig. 1

Or

6. (*a*) Find the centre of pressure for the following Fig. 2 : [7]

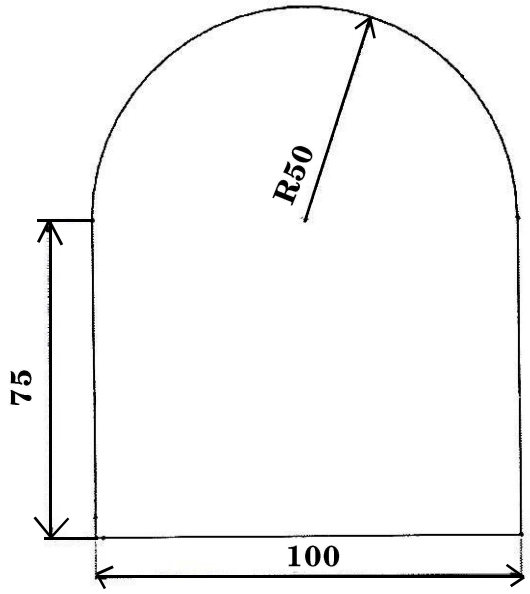

Fig. 2

(*b*) Write a short note on progressive, compound and combination dies. [6]

7. (*a*) Draw single point cutting tool, also write down significance of different angles involved in the geometry. [6]

(*b*) A steel shaft of 75 mm diameter and 250 mm long turned on a lathe. Speed of spindle = 2 m/s, feed = 0.25 mm/rev. Find time required for 50 jobs by assuming 2 minutes for handling of each job. [7]

Or

8. (*a*) Explain different operations performed on lathe machine with suitable sketches. [5]

(*b*) Calculate the machining time required to reduce 60 mm diam. shaft to 50 mm diam. for a length of 1500 mm and with depth of cut 2.5 mm for rough cut and 1 mm for finish cut.

Given : Cutting speed = 30 m/min. Feed = 0.5 mm/rev. Appraoch length = 5 mm, overall length = 5 mm. Number of passes = 3 (2 rough cut + 1 finish cut). [8]