

**SUBJECT CODE NO:- P-335**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**T.E.(Mech) Examination MAY/JUNE-2016**  
**Tool Engineering**  
**(Revised-I)**

[Time: Four Hours]

[Max Marks:80]

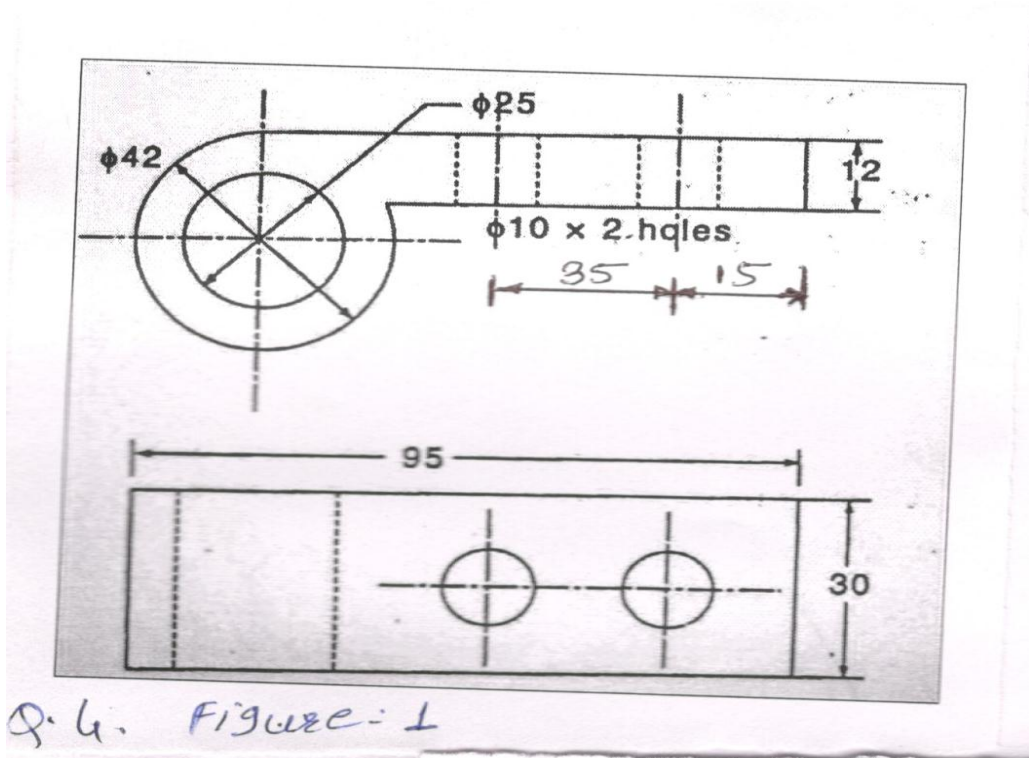
“Please check whether you have got the right question paper.”

N.B

- 1) Attempt any three questions from each section.
- 2) Assume suitable data if required.
- 3) All dimensions given in figure are in mm.
- 4) Use drawing sheets to draw.

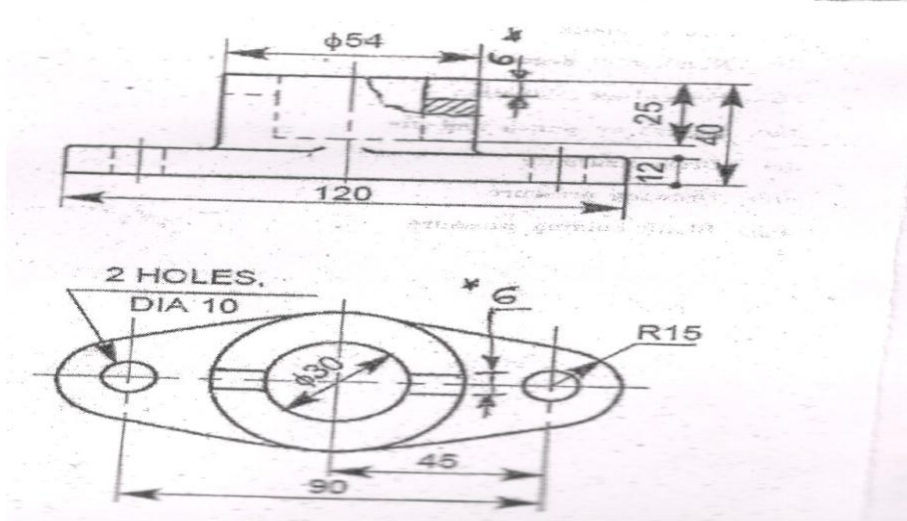
**Section A**

- |     |  |   |    |
|-----|--|---|----|
| Q.1 | a)   | Explain merchant circle used for force analysis in orthogonal cutting.                  | 07 |
|     | b)   | Explain tool designation under ASA system.  | 06 |
| Q.2 | a)   | Explain functions, properties and types of cutting fluids.                              | 07 |
|     | b)   | Draw neat sketch of twist drill and give its nomenclature                               | 06 |
| Q.3 | a)   | Explain 3-2-1 principle of location.  | 07 |
|     | b)   | What is meant by “fool proofing” as applied to jig and fixture? How it can be achieved? | 06 |
| Q.4 | Design, draw and dimension a drill jig to drill two holes of $\phi$ 10mm in component shown in figure 1. |   | 14 |



Q.5 Design, draw and dimensions a milling fixture to mill slot of size 6mm wide and 6mm deep in the component shown in figure 2.

13



**Section B**

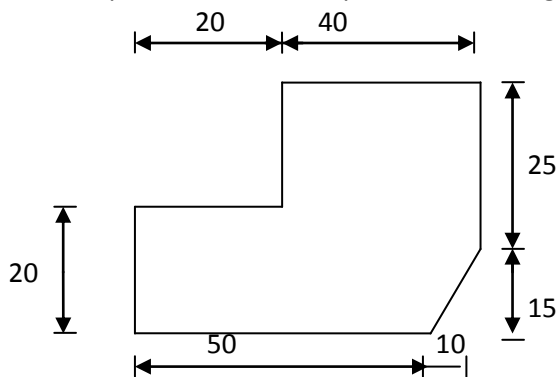
Q.6 a) What is the shear on punch or die? How it is applied to punch and die for blanking and piercing operation?  
 b) What is "stock stop" and pilot?

07

06

Q.7 a) Find out Centre of pressure to blank a piece shown in figure .3.

07



06

b) What is clearance? Explain its importance.

Q.8 A hole of 60mm diameter is to be produced in steel plate 2.5mm thick. The ultimate shear strength of the plate material is 450N/mm<sup>2</sup>. If punching force is to be reduced to half of the force using punch without shear, estimate the amount of shear on the punch. Take percentage penetration as 40%.

14

Q.9 a) Write short note on method of punch holding.  
 b) What is shut height?  
 c) Differentiate between blanking dies and piercing dies.

04

04

05

Q.10 a) Describe with neat sketches embossing dies and bending dies.  
 b) Give advantages of multi impression dies.

07

06