

QP Code : 3987

(Old course)
(3 Hours)

[Total Marks: 100]

- N.B.:** (1) Question No.1 is **compulsory**.
 (2) Attempt any **Four** from remaining **Six** questions.
 (3) **All** questions carry **equal** marks.
 (4) **Missing data** can be **suitably** assumed.

1. Attempt any **Four**. 20
 - (a) Write advantages limitations of forging.
 - (b) Write note on gear forming.
 - (c) Write note on extrusion of metals.
 - (d) Explain with figure any two types of rolling mills.
 - (e) What is meant by built up-edge (BUE)?
 - (f) What are the main differences between a jig and a fixture?
2. (a) What is meant by 'fool proofing' as applied to jigs and fixtures? How it can be achieved? 10
 (b) What is meant by 'angular' location? Explain it for locating connecting rod for machining. 10
3. (a) How is metal removed in metal cutting? Explain the process by giving any simple model to explain the metal removal process. 12
 (b) Write stapes of designing single point cutting tool? 8
4. (a) Sketch the various methods to apply shear to the punch and die. 10
 (b) What are the various types of strippers? Explain their function with the help of suitable sketches. 10
5. (a) Explain the principals used in designing a metal cutting dynamometer. 6
 (b) What are the desirable properties of cutting tool material? Explain in detail. 7
 (c) What are the advantages of HSS as a tool material? 7
6. (a) In orthogonal cutting of C-35 steel with HSS tool, the following conditions are noted: 10
 Width of cut = 1.2 mm rake of angle = 15°
 Cutting force = 800 N thrust force = 400 N
 Calculate shear angle and other force components.
 (b) Write steps of designing form tool by graphical method. Design and draw a circular form tool having 10
 Maximum diameter = 80 mm,
 Minimum diameter = 50 mm
 Rake and relief angle as 12° and 6° respectively.
7. Attempt any four: 20
 - (a) Name different types of dynamometer. Explain any one of them with figure.
 - (b) What are the main applications of the cutting fluids?
 - (c) How the pitch of teethes of a broach selected?
 - (d) Sketch an internal round broach and name the important points on it.
 - (e) Write a note on chip breakers used in turning operation?