Part-A (Answer all the questions)

1. Define jig and fixture.
2. Describe 3-2-1 principle for location
3. What is multi purpose tooling.
4. Explain profile locators
5. What is fool proofing ?
6. Classify types of presses.
7. What is dowel and screws ?
8. What is drop forging.
9. Sketch and explain trimming.
10. Sketch holes and cavities in forging.

(10 × 2 = 20 marks)

Part-B (Answer any one question from each module)

Module-I

11. a. Describe various types of drilling jigs.
    
    b. Write shorts notes on (i) equalizing jacks (ii) recess locators (iii)wedge clamp(iv) nut mandrel.

   OR

12. a. Sketch and explain Pneumatics & Hydraulics for jigs & fixtures..
    
    b. Describe Swarf disposal methods.

Module- II

13. a. Explain types of milling fixtures?
    
    b. Sketch and explain work holding devices for various surfaces.
14. a. A hole is to be drilled in a 80mm diameter rod which has a tolerance of ±0.25mm. V- block fixture is to be used. Determine the possible variations from the centre line of the drill bushing when 90° V-block is used.
b. Explain types of fixtures used in CNC machines.

Module- III

15. a. State and explain press work tools.
b. Sketch and explain briefly the terms (i) fine blanking (ii) embossing (iii) coining

OR

16. a. Explain stripper plate and Pilots.
b. Design and explain compound and progressive dies

Module- IV

17. a. Explain flexible manufacturing system.
b. Discuss about group technology and state its merits and demerits.

OR

18. a. Explain design of forging dies.
b. Write short notes on computer applications used in short metal press work

(4 × 20 = 80 marks)