

### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Design and draw a drilling jig for drilling 8 holes of 12 mm diameter on PCD of 80 mm dia . the circular MS plate consists of 160 mm dia & 20 mm thickness.
- Q.24 Design a suitable milling fixture for cutting 4 splines on a shaft of 200 mm length x 40 mm dia
- Q.25 Write the procedure steps for designing a plug gauge with go and not go side. Assuming suitable dimensions draw the same

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### 4th Sem / Mechanical ( Tools & Die Design)

#### Subject : Jigs, Fixtures and Gauges - Design and Drawing

Time : 3 Hrs.

M.M. : 60

### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 Jigs and Fixtures are used for :
- a) Mass Production
  - b) Identical parts production
  - c) Facilitates deployment of less labour
  - d) All of the above
- Q.2 In which of the following operation jigs are preferred over fixture ?
- a) Drilling
  - b) Turning
  - c) Milling
  - d) Grinding
- Q.3 Number of degree of freedom of a workpiece in space is equal to
- a) 10
  - b) 12
  - c) 14
  - d) 16

(60)

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- Q.4 Which fixtures are used for machining parts which must have machined details evenly spaced?
- a) Profile fixtures      b) Duplex fixtures  
c) Indexing fixtures    d) None of the above
- Q.5 Which among the following locators is best suitable for location of a round shaped job?
- a) Pin type locator      b) Wedge type locator  
c) Vee type locator     d) Adjustable locator
- Q.6 A plug gauge which has "GO" and "NOT GO " sizes on the same end is known as
- a) Single ended plug gauge  
b) Double ended plug gauge  
c) Progressive gauge  
d) Continuous plug gauge.

### SECTION-B

**Note:** Objective/ Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 Gauges are made up of \_\_\_\_\_
- Q.8 Why drill jig bushes are hardened ?
- Q.9 The fixtures are \_\_\_\_\_ tools (machining/ Precision)
- Q.10 "GO" side of the plug gauge has diameter equal to \_\_\_\_\_ size of the job.

- Q.11 Fixture locates and guides the cutting tool. (True/False)
- Q.12 Jigs are generally \_\_\_\_\_ than the fixtures. (lighter / heavier)

### SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 Explain interchangeability in mass production . How jigs and fixtures help in achieving it ?
- Q.14 Explain the role of limit gauges in mass production with examples.
- Q.15 Draw and explain swing leaf jig and angular plate jig.
- Q.16 Draw and explain a gang milling fixture.
- Q.17 Explain rotory indexing with sketch .
- Q.18 Write the function and material for bushes.
- Q.19 Enlist types of drilling jigs
- Q.20 Differentiate between ring and snap gauge in detail.
- Q.21 Explain the Taylor's principle of maximum and minimum material condition.
- Q.22 Explain 3-2-1 principle of location with a neat sketch.