

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

No. of Printed Pages : 4

Roll No.

221845

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

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 rotary 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.