

SECTION-D

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

- Q.23 Design and draw a drilling jig for drilling 5 equispaced holes of 10mm diameter on a Circular MS plate of 200mm diameter. The PCD of holes being 100mm.
- Q.24 Design and draw a suitable milling fixture for cutting a keyway of 50x10x10mm on a shaft of 50mm dia and 200 mm length.
- Q.25 Explain the stepwise procedure for designing a ring gauge with go and not go side. Draw the same, assuming suitable dimensions.

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Roll No.

4th Sem.

Branch : Mechanical (Tool & Die Design)

Sub. : Jigs. Fixtures & Gauges – Design & Drawing

Time : 3 Hrs.

M.M. : 60

SECTION-A

Note: Multiple type Questions. All Questions are compulsory. (6x1=6)

- Q.1 Which fixtures are used for machining parts having equally spaced machined features?
- a) Profile fixtures b) Duplex fixtures
c) Indexing fixtures d) None of the above
- Q.2 In which of the following operation jigs are preferred over fixture?
- a) Drilling b) Tapping
c) Milling d) Only A & B
- Q.3 With the use of Jigs and Fixture
- a) Labour cost decreases b) Labour cost increases
c) Material cost increases d) Both A & C

- Q.4 Jigs are generally _____ than fixtures.
- Lighter
 - Heavier
 - Depends on the application
 - Depends on the size of job
- Q.5 Conical locator is best for locating the job, if the diameter of a hole may _____.
a) Vary b) Not vary
c) Be rectangular d) Be circular
- Q.6 Number of degree of freedom of a work piece in space is equal to
a) 3 b) 6
c) 9 d) 12

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. $(6 \times 1 = 6)$

- Q.7 The best quick acting clamping element in a fixture is _____.
Q.8 Give one characteristic of progressive plug gauge.
Q.9 For uneven shaped jobs ____ locator is best used.
Q.10 Jigs and Fixtures are used for ____ production.
(Job/Batch/Mass)

- Q.11 Which jig can drill in many directions?
Q.12 Define interchangeability.
- SECTION-C**
- Note:** Short answer type Questions. Attempt any eight questions out of ten Questions. $(8 \times 4 = 32)$
- Q.13 Explain 3-2-1 principle of location.
Q.14 Describe the function and materials of bushes in jigs. Why those materials?
Q.15 Classify drilling jigs. Explain any one with diagram.
Q.16 Explain Taylor's principle of maximum material condition.
Q.17 Explain gang milling fixture.
Q.18 Draw any one Indexing fixture.
Q.19 Explain the factors to be considered for selection of gauges for inspection.
Q.20 Draw and explain channel jig.
Q.21 Explain boring fixture.
Q.22 Explain how fixtures help in interchangeability in mass production?