

- Q.29 Explain the role of limit gauges in mass production.  
 Q.30 Explain principle of GO and NO GO limit for plug gauges.

### SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x20=40)  
 Q.31 Design and draw a drilling jig for drilling 6 holes of 10mm diameter on PCD of 60 mm dia. The circular MS plate consists of 120 mm diameter & 30 mm thickness.  
 Q.37 Design a suitable milling fixture to cut a keyway of size 4x3 mm on a solid shaft of 40 mm diameter and 100 mm length  
 Q.38 Design and draw a plug or snap gauge for a specimen with complete design procedure. Assume suitable dimensions.

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**4th Sem / Branch : T&D ,CNC,CAD/CAM**  
**Subject:- Jigs Fixtures & Gauges Design & Drawing**

Time : 3Hrs.

M.M. : 100

### SECTION-A

- Note:** Multiple choice questions. All questions are compulsory (10x1=10)  
 Q.1 The following is not true for Jigs and Fixtures:  
 a) Rapid Production  
 b) Automatic Location  
 c) Lesser manufacturing cost  
 d) Lower quality of product  
 Q.2 A diamond pin is used in conjunction with a round locator for radial location in a jig because:  
 a) Diamond is a harder material and hence has long life  
 b) Reduces jamming possibility if two round locators are used  
 c) Diamond pin is less expensive to make  
 d) None of these  
 Q.3 3-2-1 method of location in a jig or fixture would collectively restrict the work piece in "n" degrees of freedom where the value of "n" is  
 a) 6  
 b) 8  
 c) 9  
 d) 1  
 Q.4 Which of the following types of jigs is used for machining in more than one plane by single setting?

- a) Box type jig                      b) Open type jig  
c) Plate type jig                    d) Template type jig
- Q.5 Bushes are generally provided in jig to  
a) Locate the job                    b) Guide the tool  
c) Hold the job                      d) All of the above
- Q.6 Fixtures are used  
a) For holding and guiding the tool in drilling, reaming or tapping operations  
b) For holding the work in milling, grinding, planning or turning operations  
c) To check the accuracy of the work-piece  
d) None of the above
- Q.7 The following holds the work-piece securely in a jig or fixtures against the cutting forces  
a) Locating device                  b) Guiding device  
c) Clamping device                d) Indexing device
- Q.8 The following jig can be used for several different work pieces and operations  
a) Template jig                      b) Multi-station jig  
c) Index jig                          d) Universal jig
- Q.9 Which principle is related to Gauge design?  
a) Taylor's principle                b) Position principle  
c) Rankin principle                d) Carnot principle
- Q.10 Which of the following is not correct about plain gauges?  
a) Used to check threaded portions  
b) There is no scale in the plain gauges  
c) Indicates actual value of the inspected dimension  
d) Can be used to check dimension of manufactured part

## SECTION-B

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 Jigs and Fixtures  
Q.12 Interchangeability  
Q.13 Any two requirements of clamping devices  
Q.14 Jack pin locator  
Q.15 Sandwich jig  
Q.16 Indexing device  
Q.17 Function of mandrels in turning fixture  
Q.18 Boring fixtures  
Q.19 Limit gauge  
Q.20 Maximum material condition

## SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x5=40)

- Q.21 Explain the importance of Jig and Fixture.  
Q.22 What are the advantages of interchangeability.  
Q.23 What is meant by clamping? Explain the principle involved in the design of clamp?  
Q.24 Explain briefly with neat sketch cylindrical locators.  
Q.25 What are boring fixtures? How do you classify them?  
Q.26 What are factors to be considered while designing milling fixture?  
Q.27 Explain drilling jig. Describe box type jig in detail.  
Q.28 Explain linear brush and slip renewable bush with neat sketches.