Dec-22-0126

## ME-304 (Machine Drawing)
(ME, AE)

### B.Tech-3rd (CBCS)

Time : 3 Hours                                    Max. Marks : 60

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note:** Attempt Five questions in all, selecting one question from each section A, B, C and D. Q.No. 9 is compulsory.

### SECTION A

1. Draw two views of following machine parts and mention suitable tolerances/fits at appropriate mating surfaces:

   (i)    Cotter-joint for 40 mm diameter rods

   OR

   (ii)   Pin-joint for 30 mm diameter rods.                (10)

2. Describe the types of geometrical tolerances, and define the terminology for geometrical deviations.                (10)

### SECTION B

3. A pair of gear wheels in mesh have 20 teeth and 60 teeth respectively and the C.P. is 50 mm. The pressure angle is 15° and teeth are involute. Draw one tooth of the pinion and two of the wheel and dimension them. State the base-circle diameter for each gear. Scale, one-half full size.                (10)

4. Draw three views of a hexagonal nut for a 24 mm diameter bolt, according to approximately standard dimensions.                (10)

### SECTION C

5. Describe the ways in which a riveted joint may fail. What steps are taken to prevent failures? Illustrate your answer with necessary sketches.                (10)

6. Show by means of sketches, the difference between a key and a cotter. State the purpose for which each is used.        (10)

### SECTION D

7. The details of a gear detacher are shown in Fig. 1. Assemble all the parts and draw the following views of the assembly. Fig. 1 Details of gear detacher :(i) Elevation, (ii) End view and (iii) Plan                (10)
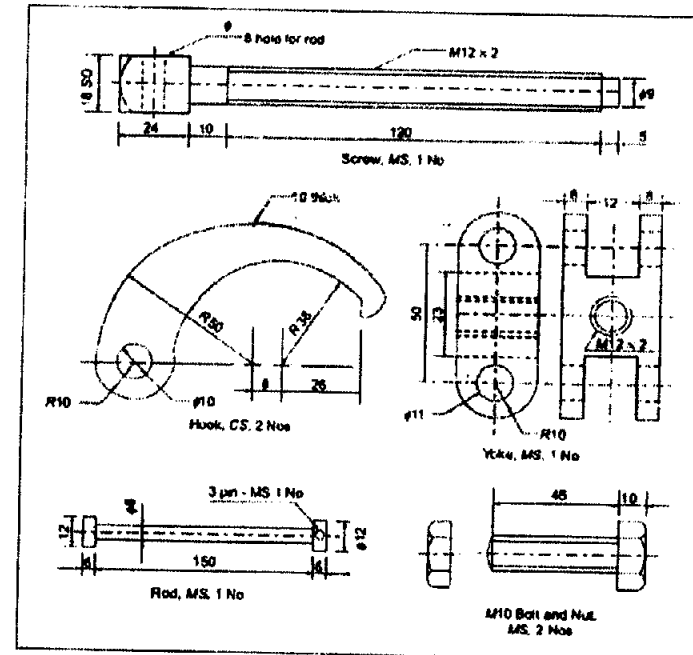


Fig. 1

[P.T.O.]

8. Sketch nearly, two views of a double-riveted lap joint using in zigzag arrangement. State why this arrangement is used. Thickness of plates = 10 mm. diameter of rivets = 20 mm. Give all other dimensions.      (10)

## SECTION E
### (Compulsory Questions)

9. Answer the following questions:

   (i)    Write the use of cone keys.

   (ii)    What dimensions of an object are given by plan or top view?

   (iii)    What is the difference between isometric projection and oblique projection?

   (iv)    Give the types of nuts for special purpose.

   (v)    What is the convention of representing third-angle projection method?

   (vi)    Give any three methods of fixing a pulley on a shaft.

   (vii)    What are the types of welding process?

   (viii)    Why welding is more popular then riveted joints?

   (ix)    What is double all-round fillet weld?

   (x)    What are the types of coupling?      (2×10=20)