

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Sem-II Examination July 2010****Subject code: 320015****Subject Name: Mechanical Structure & Piping Drafting****Date: 10 / 07 /2010****Time: 03:00pm - 06:00pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1

In FIG. NO. 1 Isometric view of an object is shown. Draw its following views using first angle projection method.

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|-----|---------------------------------|-----------|
| (a) | Sectional Front view, Sec. M-N. | 06 |
| (b) | Top view | 04 |
| (c) | Right Hand Side view. | 04 |

Q.2

- | | | |
|-----|---|-----------|
| (a) | Two orthographic views of an object are shown in FIG. NO. 2. Draw its following views in the same method of projection. | 07 |
|-----|---|-----------|

(I) Sectional Front view (Sec. A-A) and

(II) Sectional side view (Sec. B-B)

- | | | |
|-----|---|-----------|
| (b) | In FIG. NO. 3. Two orthographic views of an object using third angle projection method are shown. Draw its following views using first angle projection method. | 07 |
|-----|---|-----------|

(I) Sectional Front view Sec. Y-Y and

(II) Top view (III) Sectional Side view

or

- | | | |
|-----|---|-----------|
| (b) | In FIG. NO. 4. Two orthographic views of an object are shown. Draw its following views using same method of projection. | 07 |
|-----|---|-----------|

(I) Sectional Front view Sec. X-X (II) Top view and

(II) Right Hand Side view.

Q.3

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|-----|---|-----------|
| (a) | In FIG. NO.5. Front view of a cut out cylinder is shown. Draw the development of lateral surface 'P' of the cylinder. | 07 |
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|-----|--|-----------|
| (b) | Construct a N or Z type Nomograph for power in an electrical circuit $P = I^2R$. Where P= power in kw , R= Resistance of circuit varying from 0 to 200 ohms., I = current varying form 0 to 10 Amps. Using above nomograph find the value of power P when I =8 Amps and resistance R = 100 ohms | 07 |
|-----|--|-----------|

or

- | | | | |
|------------|-----|---|-----------|
| Q.3 | (a) | A vertical cylinder of 50 mm. Diameter and 70 mm. Height is resting on H.P. on its base .It is penetrated by a horizontal cylinder of 40 mm. Diameter and 80 mm, height their axes bisect each other at right angles. Draw their orthographic projection showing on them curves of intersection assuming the axis of perpendicular cylinder is parallel to V.P. | 07 |
|------------|-----|---|-----------|

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|-----|---|-----------|
| (b) | In FIG. NO. 6. two orthographic views are shown. Draw the isometric drawing from the views. | 07 |
|-----|---|-----------|

- Q.4** Sectional Elevation , Side view and Top view of ‘Knuckle Joint ‘ are shown in FIG. NO.7. Draw its necessary two orthographic views of the following dismantled parts.
- (a) Fork End . **05**
 (b) Eye End **05**
 (c) Pin. **04**
- or**
- Q. 4**
- (a) A Front view of a ‘Two Piece Elbow ‘ is shown in FIG.NO.8. Draw the development of lateral surface of the part ‘A’ and part ‘B’. **07**
 (b) State the advantages of Computer Aided Drafting (CAD) over manual drafting and explain with suitable sketches at least five AutoCAD commands **07**
- Q.5**
- (a) Give the symbols and cross sections of the following welded joints. **05**
 (I) FILLET (II) SINGLE ‘V’ BUTT (III) SQUARE BUTT
 (IV) SINGLE ‘U’ BUTT (V) DOUBLE BEVEL BUTT
 (VI) STUD WELD (VII) SPOT WELD (VIII) SEAM WELD
 (IX) PROJECTION WELD (X) FLASH BUTT WELD.
- (b) Give the symbols for the following flanged type pipe fittings. **05**
 (i) Elbow 45⁰ (ii) Elbow 90⁰ (iii) Reducer (iv) Coupling (v) Tee
 (vi) Plug (vii) Safety valve (viii) Gate valve (ix) Glob valve
 (x) check valve
- © Give the symbols for the following Direction of Lays **04**
 (i) Parallel (ii) Perpendicular (iii) Cross (iv) Multi Directional
 (v) Circular (vi) radial
- or**
- Q.5**
- (a) Give the symbols and dimensioning of the following commercial profile section of material as per BIS. **07**
 (i) Round (ii) Rectangle (iii) Tube (iv) Hexagon (v) Angle (vi) Channel (vii) I-section
- (b) Draw neat sketch of location of elements of welding symbol and explain each elements of it. **04**
- (c) Give the symbols of the followings **03**
 (i) Sproket (ii) Bearing (iii) Splined Shaft (iv) Holes on circular Pitch (v) Holes on rectangular Pitch (vi) Chain wheel

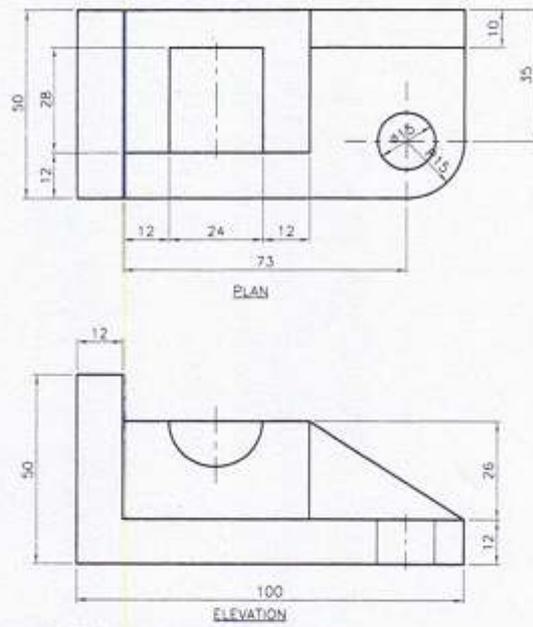


FIG.NO.6
QUE NO.3(a)

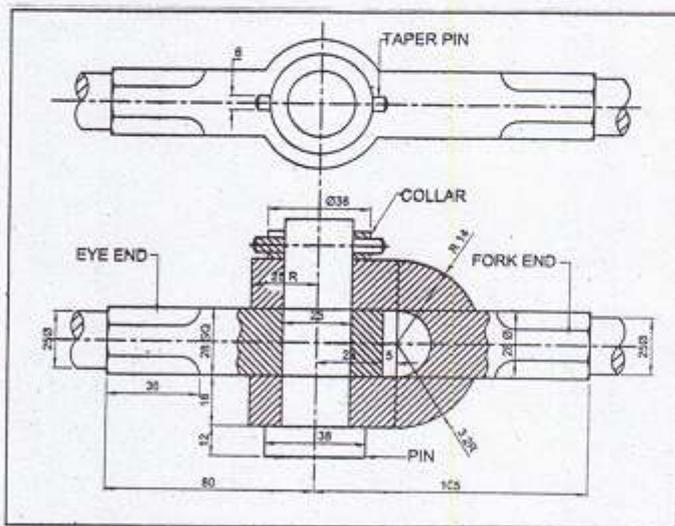


FIG.NO.7
QUE NO.4

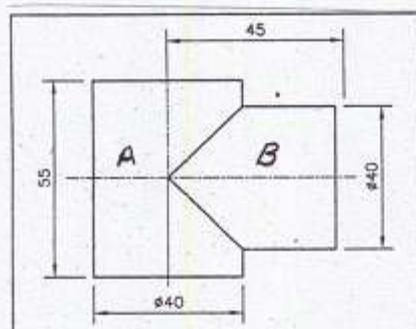


FIG.NO.8
QUE NO.4(a)