TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division

2080 Chaitra

Exam.		Regular	
Level	BE	**Full Marks**	40
Programme	BCE,BEL,BEX BCT,BME,BAM BIE,BAG, BGE, BAS	**Pass Marks**	16
Year / Part	I / II	**Time**	3 hrs.

Subject: - Engineering Drawing II *(ME 451)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt **All** questions.
- ✓ The figures in the margin indicate **Full Marks**.
- ✓ **Necessary figures are attached herewith.**
- ✓ Assume suitable data if necessary.

1. Draw isometric drawing with dimension of the object shown in figure below by its orthographic views. [10]
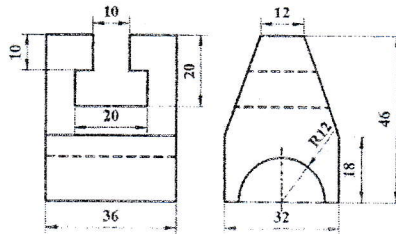

2. A model of steps has 3 steps of 15 mm tread and rise 10 mm. The steps measure 50 mm wide. The vertical edge of bottom steps, which is nearer to the picture plane, is 25 mm behind PP and the width of steps recede to the left at an angle of 300 to PP. The station point is 100 mm in front of PP and 60 mm above the ground plane and 30 mm to the right of the vertical edge, which is nearest to PP. Draw the perspective view of the model. [5]

3. Sketch the symbols of the followings: [5]
   a) NPN type Transistor   b) External thread
   c) Hill contour   d) Antenna
   e) Material removal prohibite   f) Bridge
   g) DC motor   h) Gate Valve
   i) Loudspeaker   j) Fillet weld

OR

Draw auxiliary sectional view of the object shown in figure below.
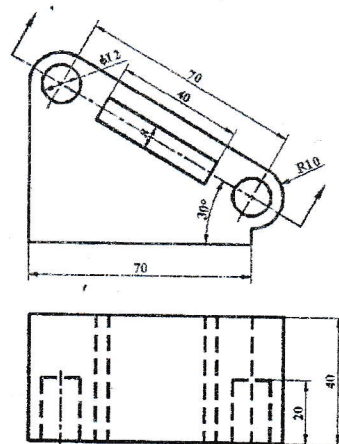
4. Carryout complete fit analysis (indicate the type of fit, the allowance, upper and lower limits with sketch) for the system designated by 45H8/f7. Fundamental deviation corresponding to H is 0 mm and f is 0.003 mm above and below the basic size line respectively. Tolerance corresponding to IT grades 8 and 7 are 0.039 and 0.025 mm respectively.
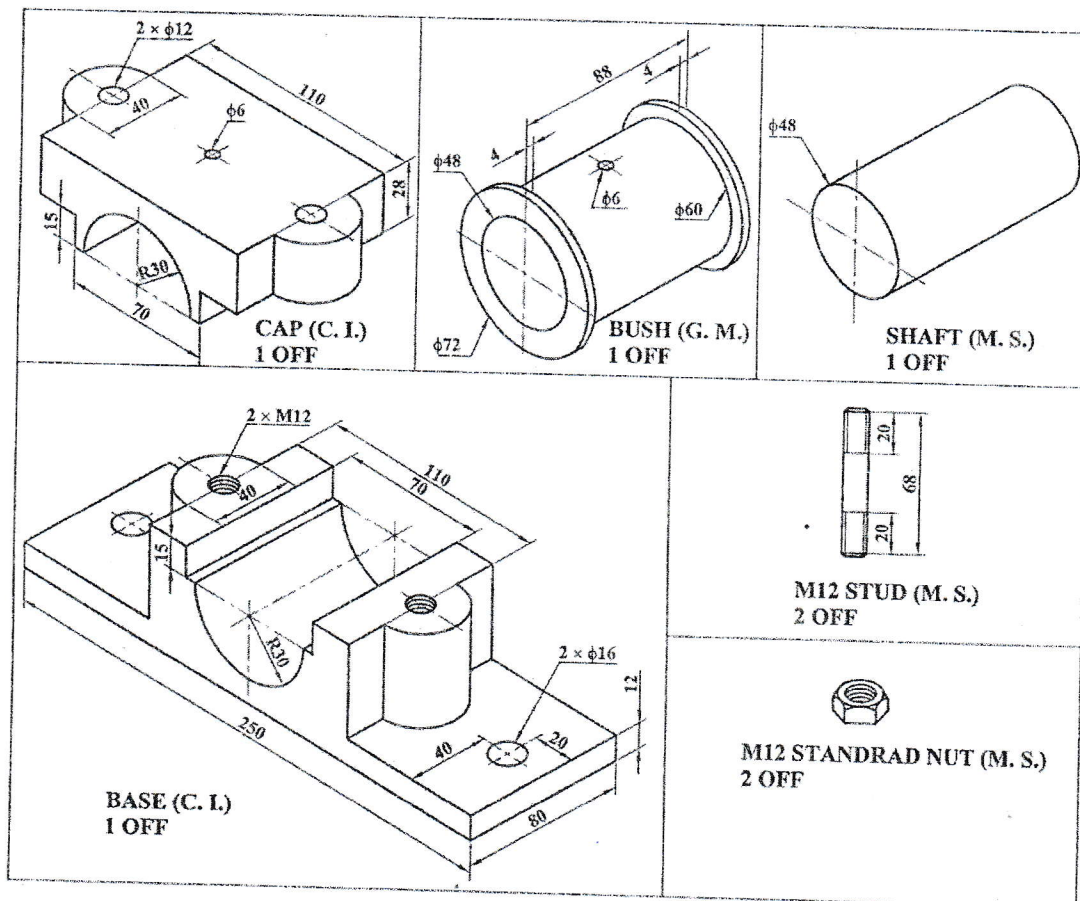
[5]

OR

Sketch top view and sectional front view of double riveted zig-zaglap Joint.

5. Draw assembled full sectional front view and top view of the split bearing shown in figure below.
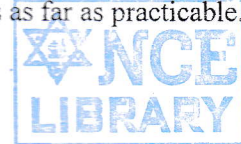
[15]

CAP (C. I.)
1 OFF

BUSH (G. M.)
1 OFF

SHAFT (M. S.)
1 OFF

BASE (C. I.)
1 OFF

M12 STUD (M. S.)
2 OFF

M12 STANDRAD NUT (M. S.)
2 OFF

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TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division

2079 Chaitra

Exam.		Regular	
Level	BE	Full Marks	40
Programme	BCE, BEL, BEX, BCT, BME, BAM, BIE, BAG, BGE, BAS	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II *(ME 451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
✓ Assume suitable data if necessary.

1. Draw an Isometric view from the given Orthographic views as shown in figure below and dimension it. [10]
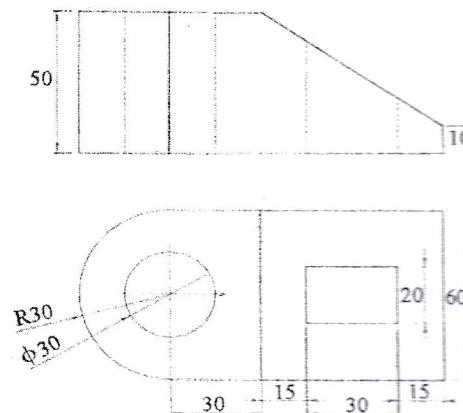
2. Square base pyramid of base length 30 mm and height 35 mm, whose two of the edges are equally inclined to the Picture Plane (PP) and nearest corner to PP is 15 mm behind the PP. Station Point (SP) is 50 mm from PP and 20 mm left to the axis of pyramid and SP is 50 mm above the Ground Plane (GP). Make the perspective drawing of pyramid. [5]

3. Make complete fit analysis (determine the limits, deviations, type of fit and type of system) designated by 130 H9/u8. The fundamental deviations for H and u are 0 mm and 0.17 mm respectively above the basic size line and international tolerance grades for 9 and 8 are 0.100 mm and 0.063 mm respectively. [5]

OR

Draw offset section for A-A in figure below.
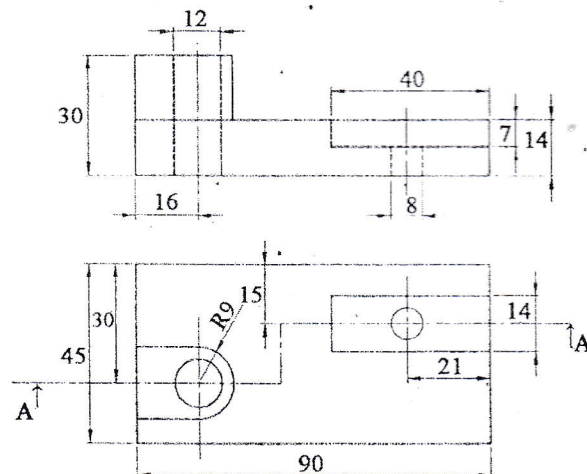
4. In free hand sketch, make top view and sectional front view of double row, zig-zag type, double strap, but riveted joint using rivet size of 8 mm for reference. [5]

OR

Sketch the symbols for the following:

a) Elbow 90°
b) Surface to be obtained by filing
c) Highway bridge
d) NPN type transistor
e) Internal thread
f) Fillet
g) Transformer
h) Hill contour
i) Single phase motor
j) Siren

5. Figure below shows the details of a wheel support. Draw the assembled full sectional front view and top view. Give major dimensions and prepare a BOQ. [7+5+1+2]
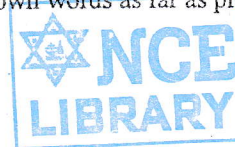

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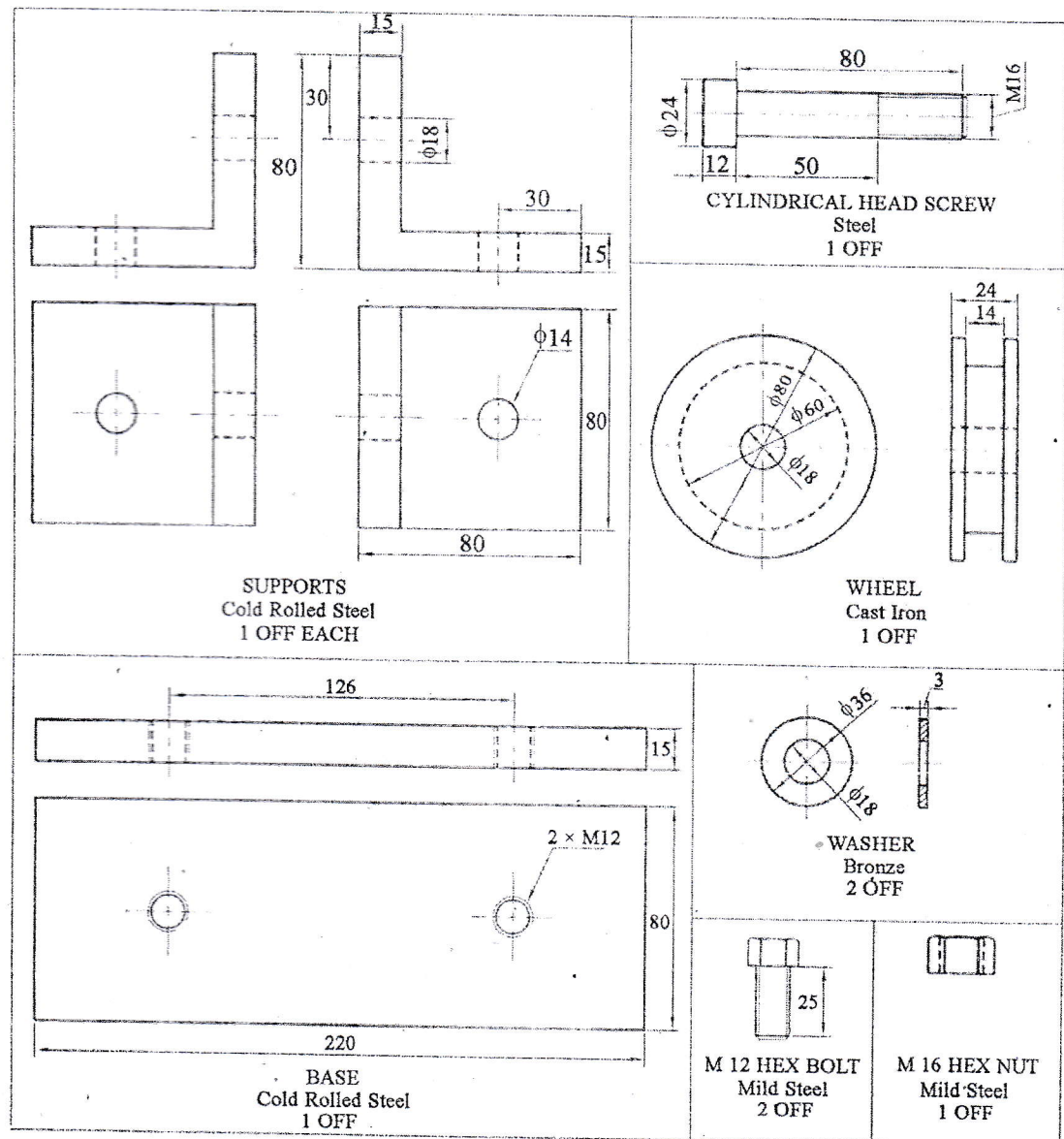
TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
**Examination Control Division**

2078 Chaitra

Exam.		Regular	
Level	BE	Full Marks	40
Programme	BCE, BEL, BEX, BCT, BME, BAM, BIE, BAG, BGE, BAS	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II *(ME 451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt *All* questions.
✓ The figures in the margin indicate *Full Marks*.
✓ *Necessary figures are attached herewith.*
✓ Assume suitable data if necessary.

1. Draw an isometric of a solid according the two plane projection of a solid shown in figure below. [10]

Front view   Side View
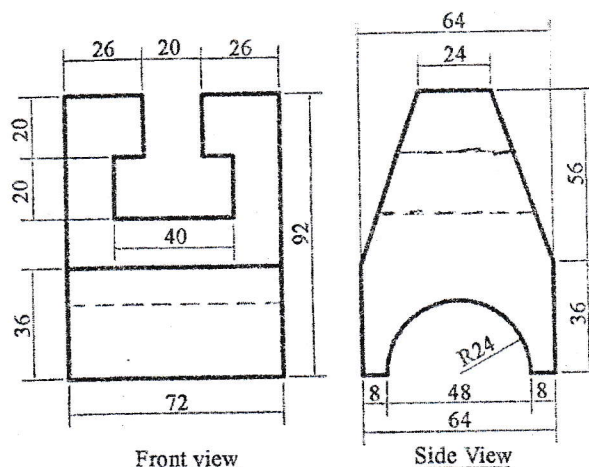
2. A hexagonal base prism of side length 25 mm and height 50 mm rests with its base on the ground with one of its faces inclined at 30° to the picture plane and the nearest vertical edge is 12 mm behind the PP. The station point is 45 mm in front of PP and 60 mm above the ground and 15 mm left to the nearest vertical edge to the PP. Draw the perspective projection of prism. [6]

3. Determine the limits of dimensions and type of fit designated by 80 D9/h8, assuming fundamental deviation for D and h respectively as 32μm and 0μm above the basic size line and international tolerance grades for 8 and 9 as 34μm and 42μm respectively. [5]

OR

Sketch the top view and sectional front view of double strap, double row zig-zag type riveted butt joint. Take thickness of sheet 9 mm.

4. Draw the standard symbols of following different engineering field: [5]

   a) Mosque
   b) River stream
   c) Cotton field
   d) Railway track
   e) Relief valve
   f) Rheostat
   g) Ammeter
   h) Single V-butt joint
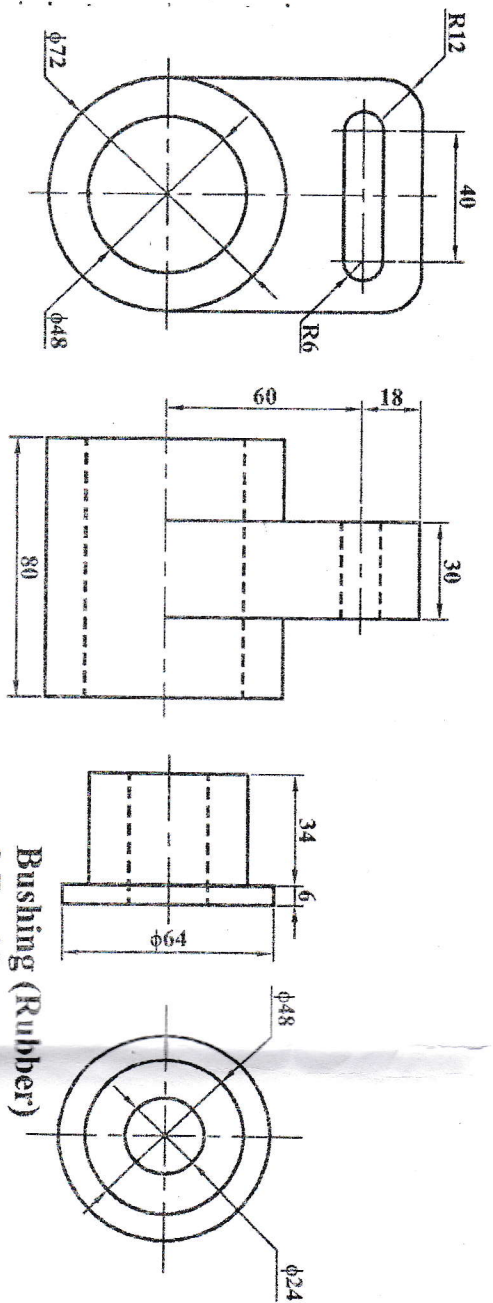   i) C-channel
   j) Surface roughness

OR

Draw auxiliary sectional view of the object shown in below figure.
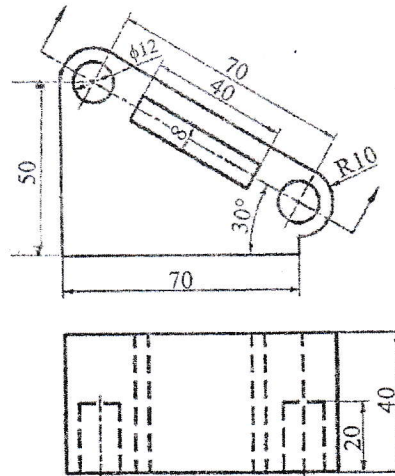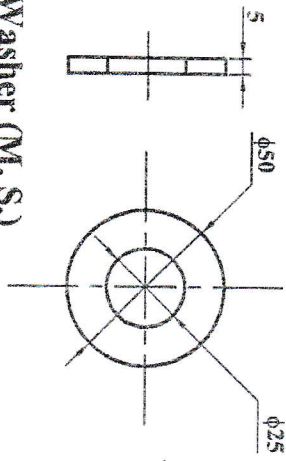

5. Draw the assembled Full Sectional Front View and Side View from the detailed drawings shown in figure below. [14]
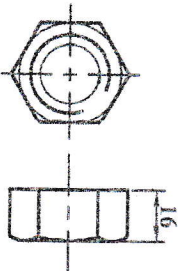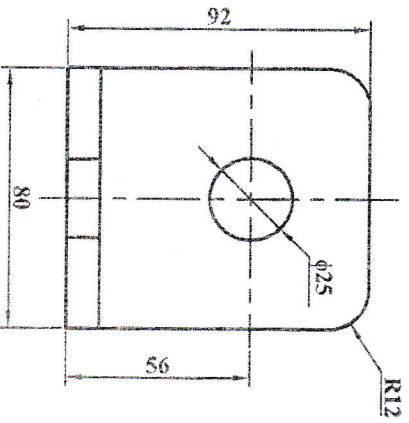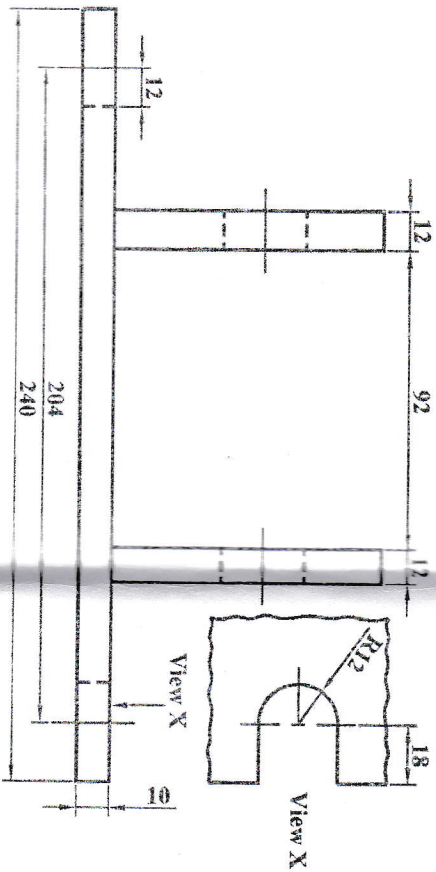
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Pivot Arm, (M.S.)

R12
40
R6
φ72
φ48

60
18
80
30

34
6
φ64

Bushing (Rubber)
2 Req'd

φ48
φ24

Washer (M. S.)
2 Req'd

5
φ50
φ25
R12

φ25
92
80
56
R12

Hex M24 × 3 (M.S.)

16
150
30

Hex M24 × 3 Nut (M.S.)

16

Base for Pivot Arm (M. S.)

12
12
92
12
18
204
240
10

View X

R12
View X

| Exam.		Regular		
Level	BE		Full Marks	40
Programme	BCE, BEL, BEX, BCT, BME, BAM, BIE, BAG, BGE, BAS		Pass Marks	16
Year / Part	I / II		Time	3 hrs.

Subject: - Engineering Drawing II *(ME451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
✓ Assume suitable data if necessary.

1. Draw an isometric view from the orthographic views as shown in figure below. Show dimensions as well. [10]
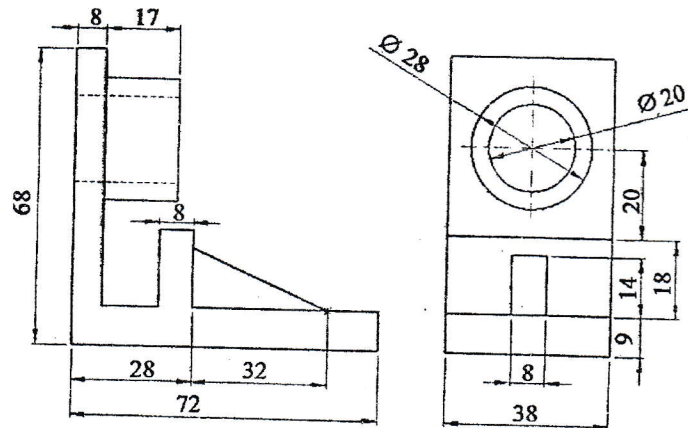
2. A hexagonal prism, side of base 25 mm and height 50 mm with its base on the ground plane such that one of its rectangular faces is inclined at 30° to the picture plane and the vertical edge nearer to PP is 15 mm behind it. The station point is 45 mm in front of the picture plane, 70 mm above the ground plane and lies in a central plane, which is 15 mm left to the vertical edge nearer to the picture plane. Draw the perspective projection of the prism. [5]

3. Orthographic projections of the object are shown in figure below. Draw the full sectional top view of the object. [5]
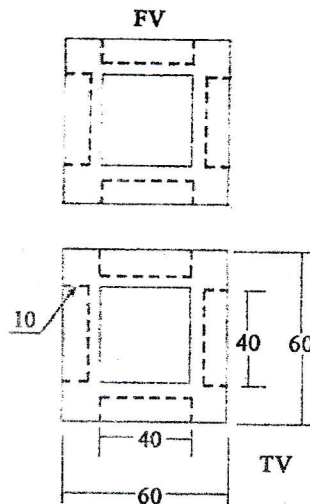
OR

OR

Draw the standard symbols for the following.

a) Spot Weld
c) Thermocouple
e) Circuit Breaker
g) Church
i) Buzzer

b) Globe valve
d) Surface produced by lapping
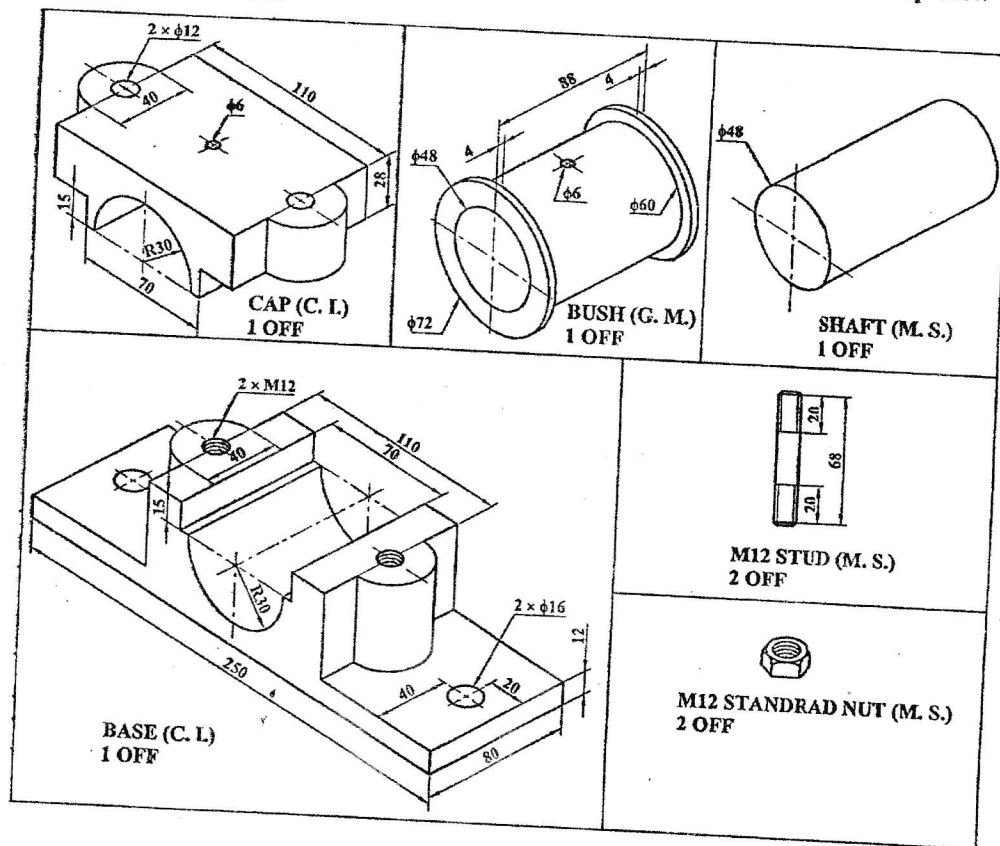f) Solid shaft
h) Meadow
j) Telephone- Telegraph line

4. Sketch the top view and sectional front view for double row zig-zag type lap riveted joint.   [5]

OR

Make complete fit analysis of the following symbols 100H7/s6. F.D. for H and s are 0.000 mm and 0.071 mm respectively. ITG for 7 and 6 are 0.035 mm and 0.022 mm respectively. Indicate type of fit, allowance and type of system.

5. Figure below shows the detail drawing of a Split Bearing. Draw its assembled top view and sectional front view.
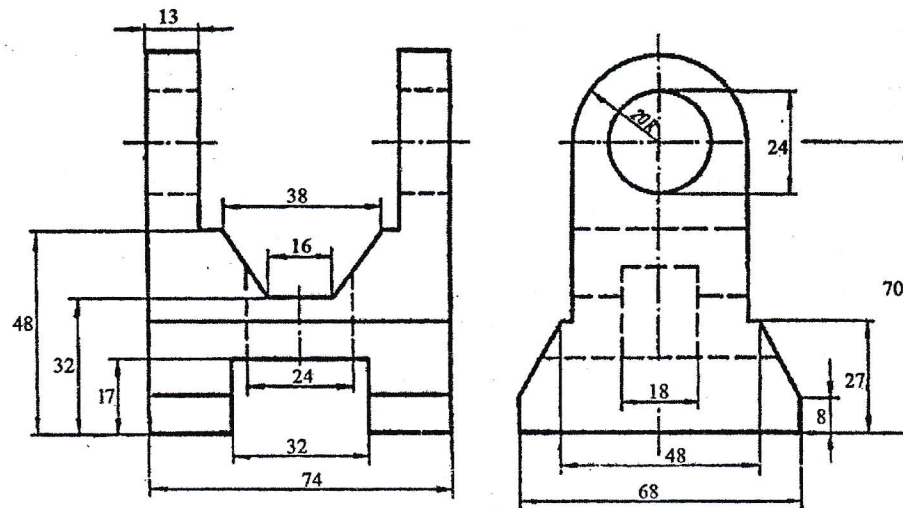
[15]

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Exam.		Back	
Level	BE	Full Marks	40
Programme	All (Except BAR)	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II *(ME 451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt __All__ questions.
✓ The figures in the margin indicate __Full Marks__.
✓ Assume suitable data if necessary.

1. Draw an isometric drawing of an object with the orthographic views shown in figure below. [10]

2. A right pentagonal base pyramid of 25 mm base side and axial height 65 mm resting on by its base, one side of base is inclined to picture plane at 30° to right side, one nearest corner of base is 20 mm behind the picture plane. The station point is 50mm in front of picture plane and 75 mm above ground plane and center plane lies 15 mm left to the nearest corner. Draw the perspective view of the Pyramid. [5]

3. Sketch and make the complete fit analysis [Indicate type of fit, allowance and shaft basis or hole basis system] of 45 S6/h12. (FD. For S = -0.034, h = 0.000, value for ITG no. 6 and 12 are 0.016 and 0.160 respectively) [5]
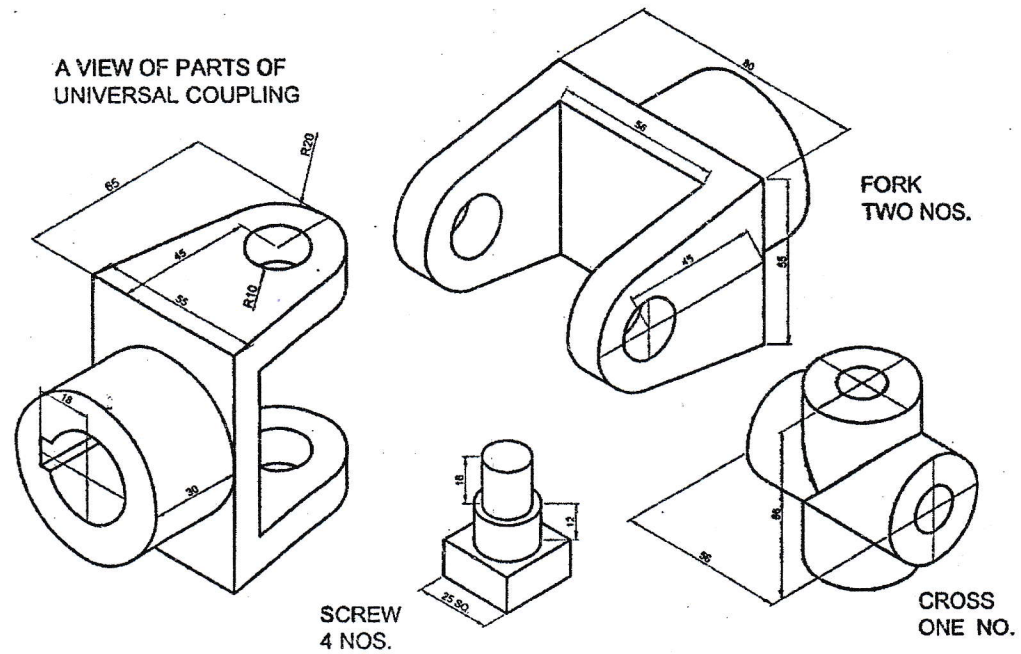
OR

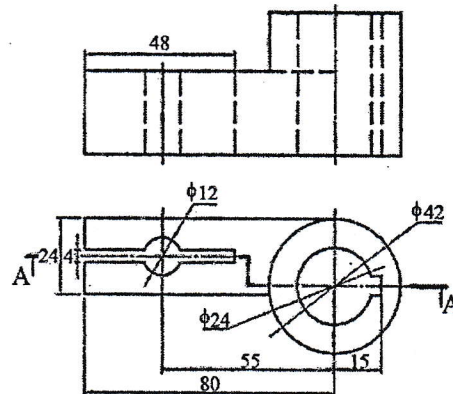Sketch the Sectional Front view and Top view of the double riveted, double strap, zig-zag type butt joint. [5]

4. Draw the assembled full sectional front view of a universal coupling shown in figure below. [15]

A VIEW OF PARTS OF
UNIVERSAL COUPLING

FORK
TWO NOS.

SCREW
4 NOS.

CROSS
ONE NO.

5. Draw the sectional front view of the given orthographic views. [5]

48

φ12

φ42

φ24

55

15

80

A

A

OR

Sketch symbol of the followings:

a. Depression Contour	b. School
c. Surface to be coated	d. Check Valve
e. Depression Contour	f. School
g. Surface to be coated	h. Check Valve
i. Depression Contour	j. School

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TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2076 Bhadra

Exam.		Regular / Back	
Level	BE	Full Marks	40
Programme	ALL except BEI & BAR	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II *(ME 451)*

1. Draw an isometric view from the given orthographic views as shown in figure P.1.   [10]
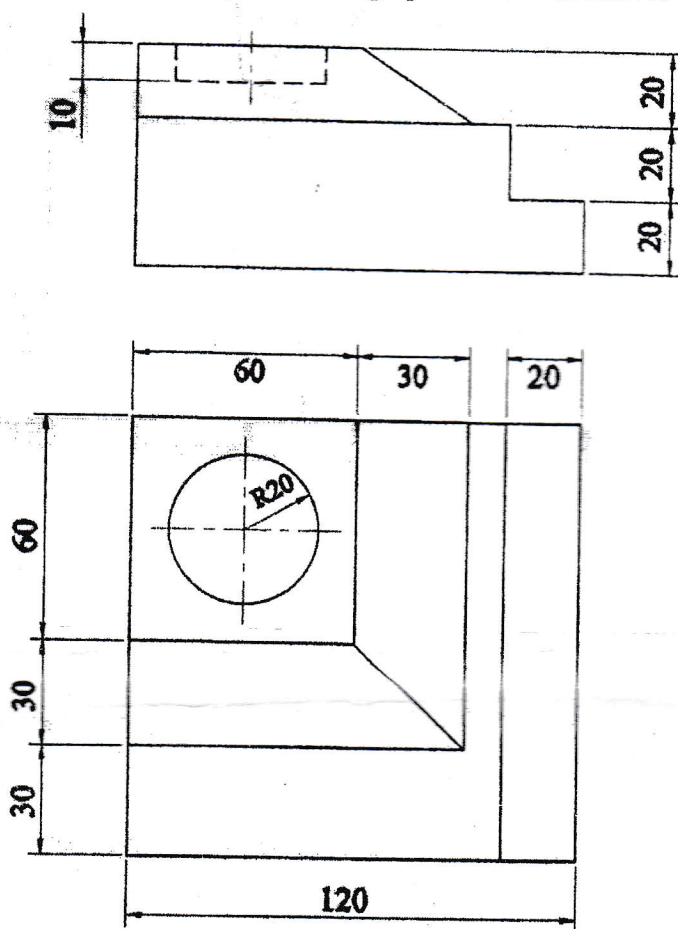

Figure P.1

2. A model of steps has 3 steps of 15 mm trend and rise 10 mm. The steps measure 50 mm wide. The vertical edge of bottom steps, which is nearer to the picture plane, is 20 mm behind PP and the width of steps recede to the left at an angle of 30° to PP. The station point is 90m, in front of PP and 60 mm above the ground plane and 30 mm to the right of the vertical edge, which is nearest to PP. Draw the perspective view of the model.   [5]

3. Sketch top view and sectional front view for double riveted chain type lap joint. Determine the limit, tolerance, allowances and types of fit for 50 H7/P6. The value of fundamental deviation given by H is zero and P is above the basic line and value is 0.032 mm and internal tolerance given by 7 is 0.025 and 6 is 0.016 mm respectively.   [5]

Or

Sketch and make the complete fit analysis [Indicate type of fit, shaft basis or hole basis system, upper and lower limits and allowance] of 100H11/p7. Fundamental deviations for H and p are 0.00mm and 0.037 mm respectively. ITG for 11 and 7 are 0.22 mm and 0.035 mm respectively.

[5]

4. Orthographic projection of the object is shown in figure P.4. Draw the sectional view at section A-A.
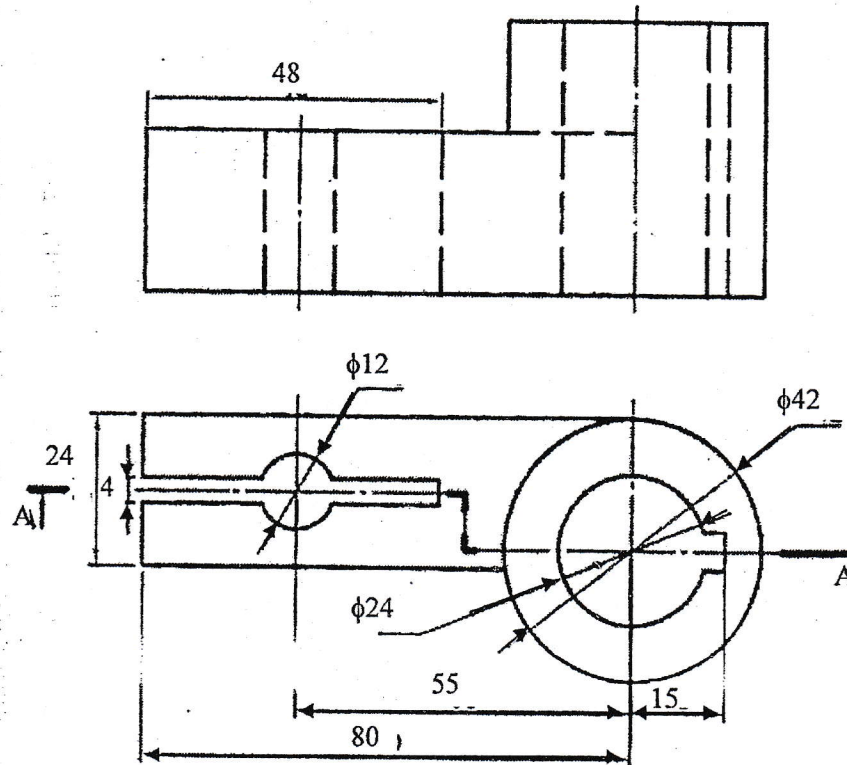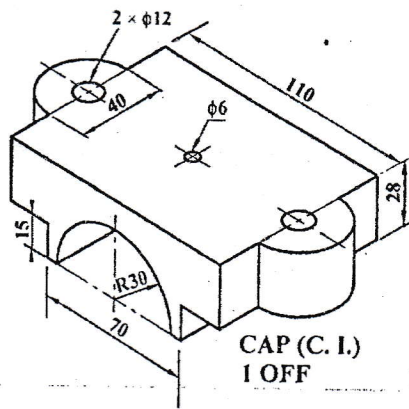
[5]

Figure P.4

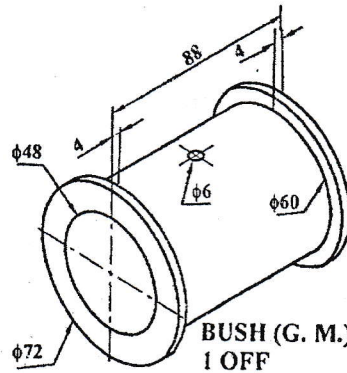Or

Draw the standard symbols for the following.

[5]

a) Internal Thread
b) Third angle projection
c) Fillet
d) Cross
e) Material removal by milling
f) Maximum material conditon
g) School
h) Hill contours
i) Circuit breaker
j) AC motor single phase

5. Figure P.5 shows the details of a split bearing. Draw the assembled front view with section.
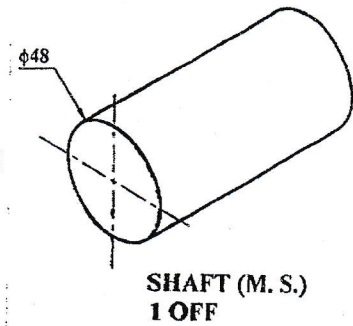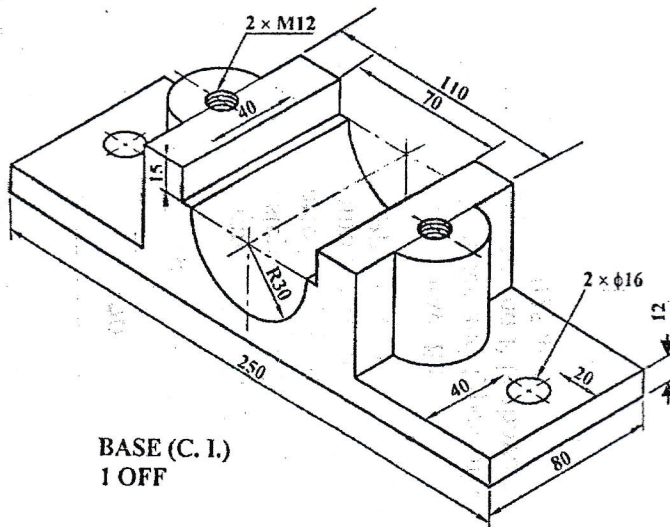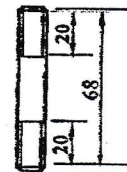
[15]

2 × φ12
110
40
φ6
28
15
R30
70

CAP (C. I.)
1 OFF

88
4
φ48
4
φ6
φ60
φ72

BUSH (G. M.)
1 OFF

φ48

SHAFT (M. S.)
1 OFF

20
68
20

M12 STUD (M. S.)
2 OFF

M12 STANDRAD NUT (M. S.)
2 OFF

2 × M12
40
110
70
15
R30
2 × φ16
12
250
40
20
80

BASE (C. I.)
1 OFF

Figure P.5
***

Exam.		Regular	
		Full Marks	40
Level	BE		
Programme	All (Except B.Arch.)	**Pass Marks**	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II *(ME451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
✓ Assume suitable data if necessary.

1. Draw an Isometric view of a solid, referring the front and side view shown in figure below.   [10]


Side view   Front view
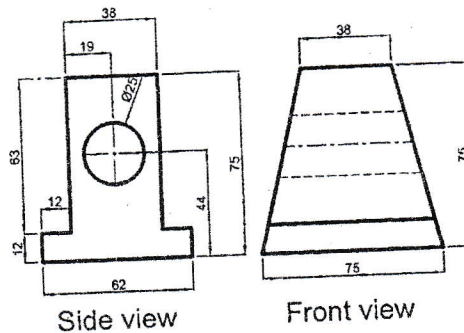
2. A square base prism of base 40 × 40 mm and height 60 mm is lying in the ground. One of its side of base make angle 30 degree with PP and nearest corner is 15 mm behind the PP. The station point is 60 mm in front of PP and 80 mm above the ground plane and opposite to the nearest vertical edge. Draw its perspective view.   [5]

3. Determine the type of fit and maximum metal condition designated by H8/f7 for the basic size of 30mm. Fundamental deviation for f is 0.003 mm below the basic size (zero line) respectively. International Tolerence grade for 8 and 7 are 0.039 mm and 0.025 mm respectively.   [5]
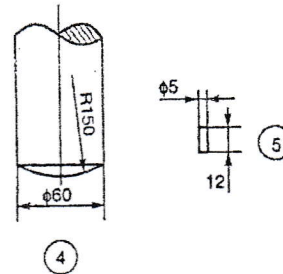
OR

Draw the sketch the top view and sectional front view for double row double strap riveted joint for 10 mm thick iron plate finding the diameter of rivet.

4. Draw assembled Top view and Sectional Front of the given Detail drawing the Footstep Bearing in figure below. [15]
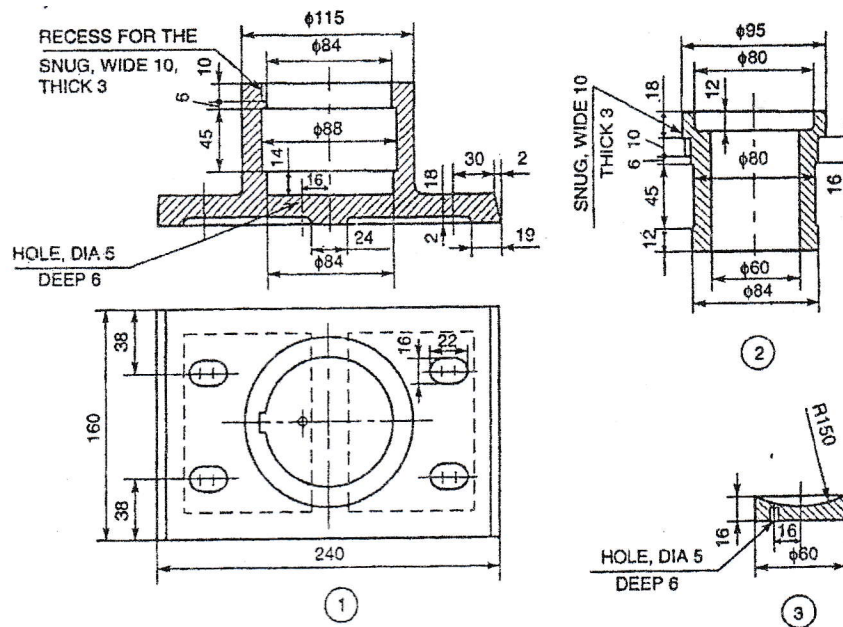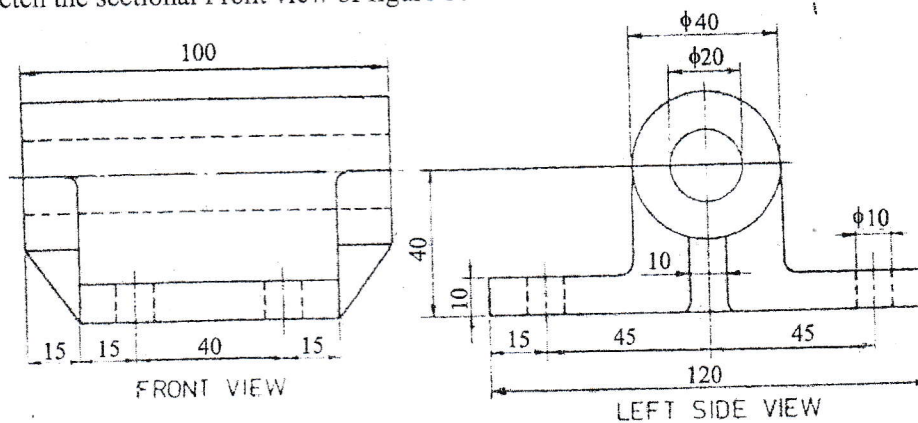

Parts list

Sl. No.	Name	Matl.	Qty.
1	Body	Cast iron	1
2	Bush	Brass	1
3	Disc	P Bronze	1
4	Shaft	Mild steel	1
5	Pin	Mild steel	1

5. Sketch the sectional Front view of figure below. [5]

FRONT VIEW

LEFT SIDE VIEW

OR

Sketch the graphical symbol for following item.

a) NPN Transistor
c) Hill Contour
e) Siren
g) Elbow 90°
i) Surface to be obtained by filing

b) Transformer
d) Single phase motor
f) Internal Thread
h) Fillet
k) Highway bridge

***

| Exam.		Back	
Level	BE	Full Marks	40
Programme	All (Except B. Arch)	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II *(ME451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
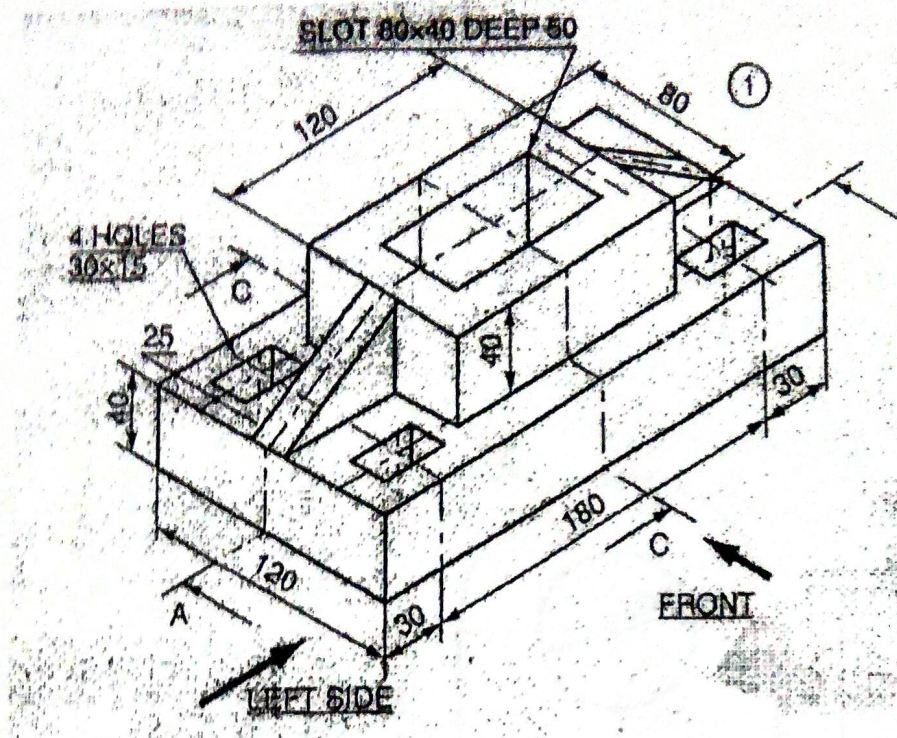✓ Assume suitable data if necessary.

1. Draw an isometric view from the given orthographic views as shown in figure below: [10]
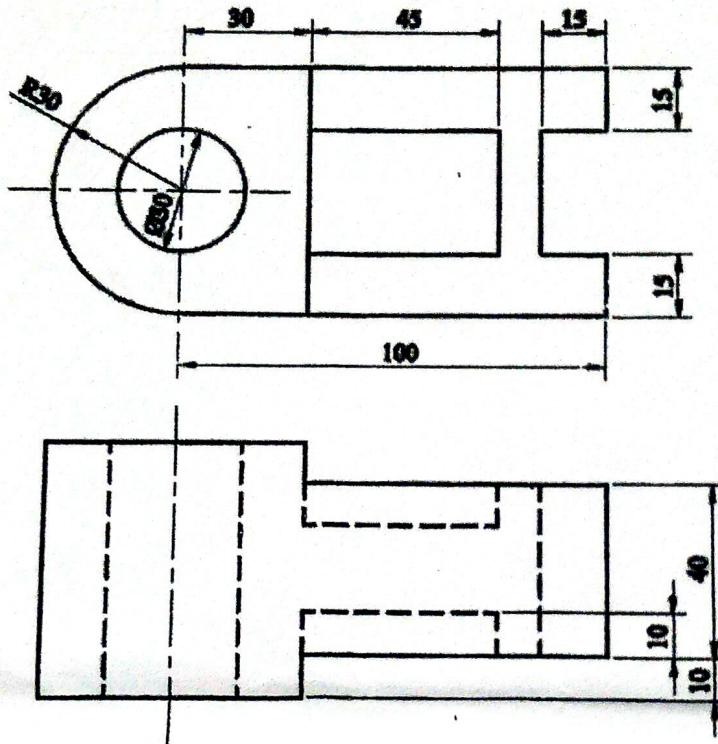
2. Draw the angular perspective view of figure below: [5]
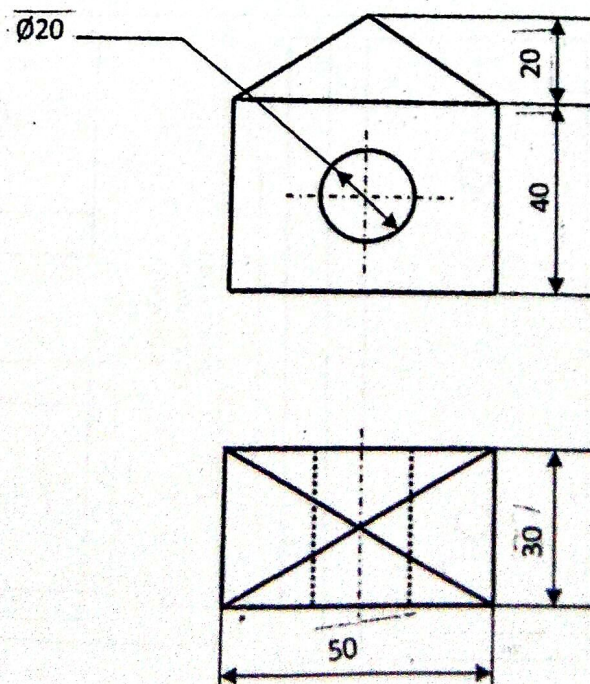
3. Orthographic projection of the object is shown in figure below. Draw the sectional view
   at section A-A. [5]
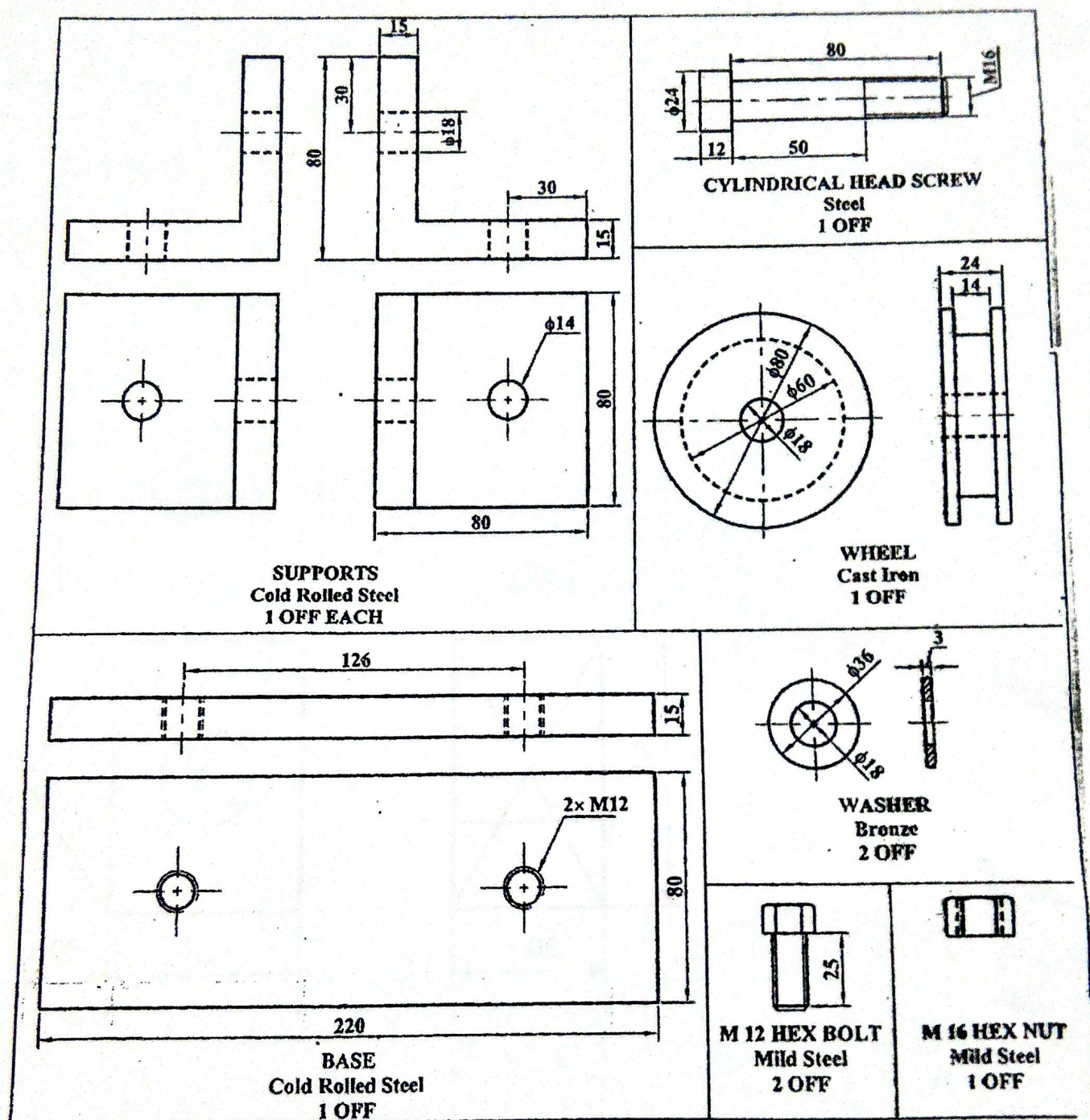

OR

Draw the standard symbols for the following:

a) External Thread
b) First angle projection
c) Projection welding
d) Nipple
e) Material removed by milling
f) Maximum material condition
g) Thermistor
h) Three phase motor
i) Channel
j) Church

4. Sketch the top view and sectional front view for double riveted double strap chain butt
   joint. [5]

OR

Make complete fit analysis of the following symbols 100H11/p7; fundamental deviations
for H and p are 0.00 mm and 0.037 mm respectively. ITG for 11 and 7 are 0.22 mm and
0.035 mm respectively. Indicate type of fit, allowance and type of system.

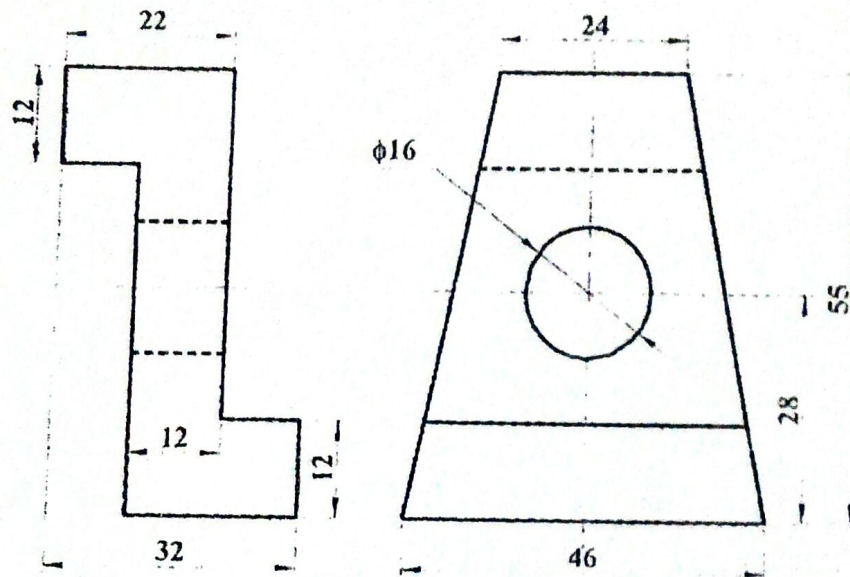5. Draw the assembled sectional front view from the following detail drawings shown in figure below. [15]

15

30

φ18

80

30

15

φ14

80

80

SUPPORTS
Cold Rolled Steel
1 OFF EACH

126

15

2× M12

80

220

BASE
Cold Rolled Steel
1 OFF

80

φ24

12   50

M16

CYLINDRICAL HEAD SCREW
Steel
1 OFF

24

14

φ80

φ60

φ18

WHEEL
Cast Iron
1 OFF

3

φ36

φ18

WASHER
Bronze
2 OFF

25

M 12 HEX BOLT
Mild Steel
2 OFF

M 16 HEX NUT
Mild Steel
1 OFF

***

Subject: - Engineering Drawing II *(ME451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
✓ **Necessary figures are attached herewith.**
✓ Assume suitable data if necessary.

1. Orthographic views of an object are shown in figure below, Draw its isometric view.   [10]

2. A solid square prism of side base 30 mm and height 40 mm rests with its base on the ground and one of the rectangular faces inclined at 30 degree to the PP. the nearest vertical edges touches the pp. the Station point is 80 mm in front of the pp, 80 mm above the ground and opposite to the nearest vertical edge that touches the pp. Draw the perspective view and indicate main dimensions.   [5]

3. Draw sectional front view from the component as shown in figure below.   [5]
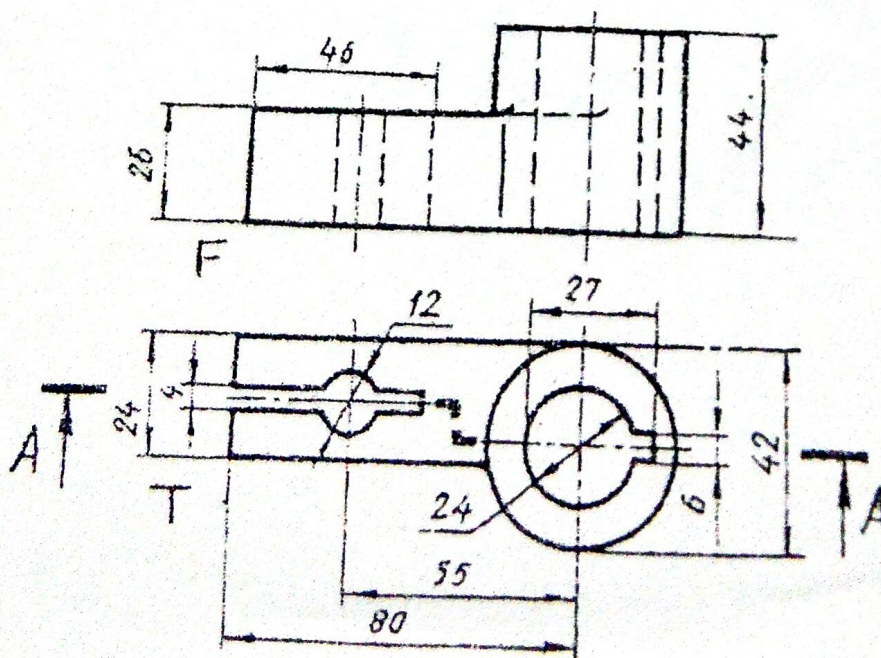
4. Draw the front view and full sectional top view of double riveted double strap chain type butt joint.

[5]

OR

Determine the limits of dimensions and types of fit designed by 50H8/d9. Assume fundamental deviation for H and d as 0 micrometers above the size and 0.080 mm below the basic size line respectively and international tolerance grade for 8 and 9 as 0.039 mm and 0.062 mm respectively.

5. Draw the assembled sectional front view from the detail drawing in figure 5 (attach with Question)
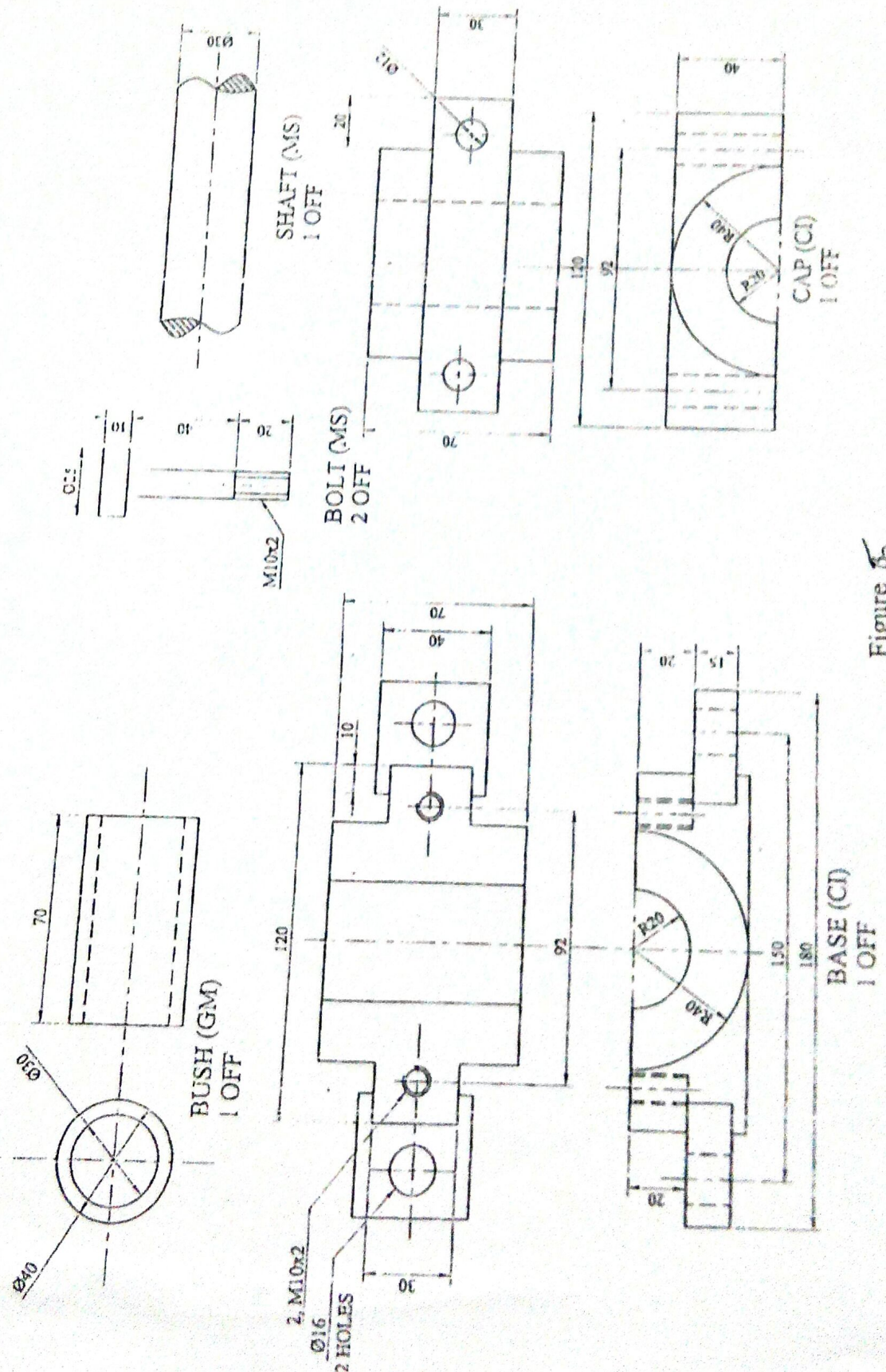
[15]

Figure 5

Exam.		Regular		
Level	BE	Full Marks	40	
Programme	All (Except B.Arch.)	Pass Marks	16	
Year / Part	I / II	Time	3 hrs.	

Subject: - Engineering Drawing II *(ME451)*
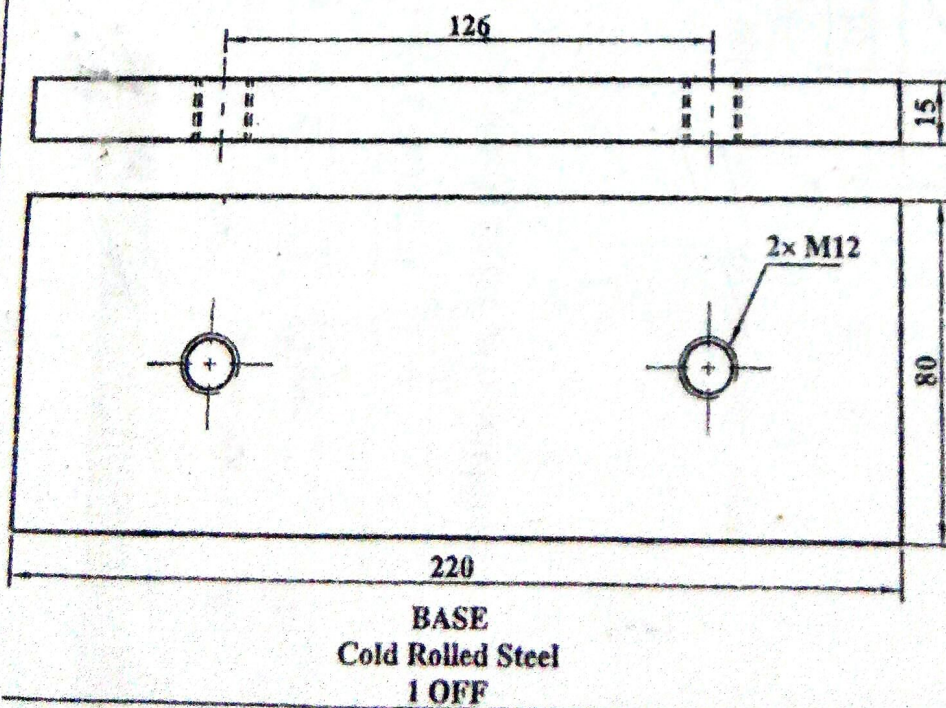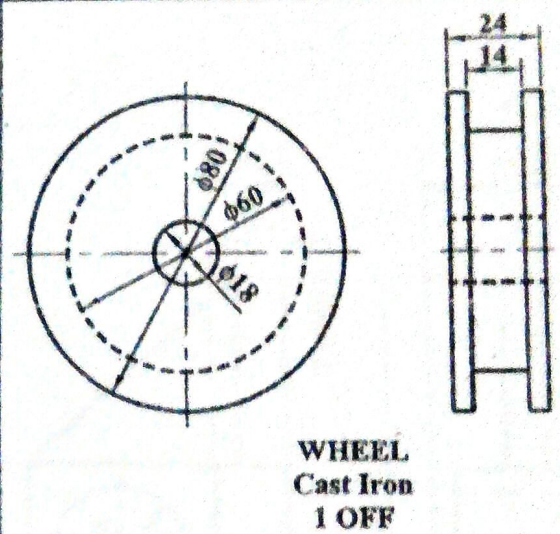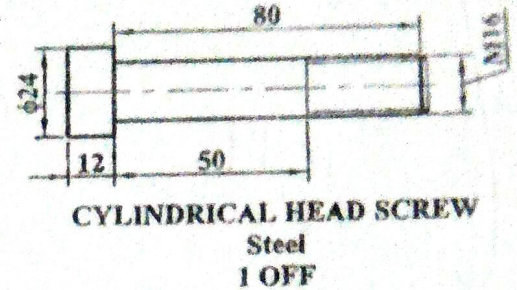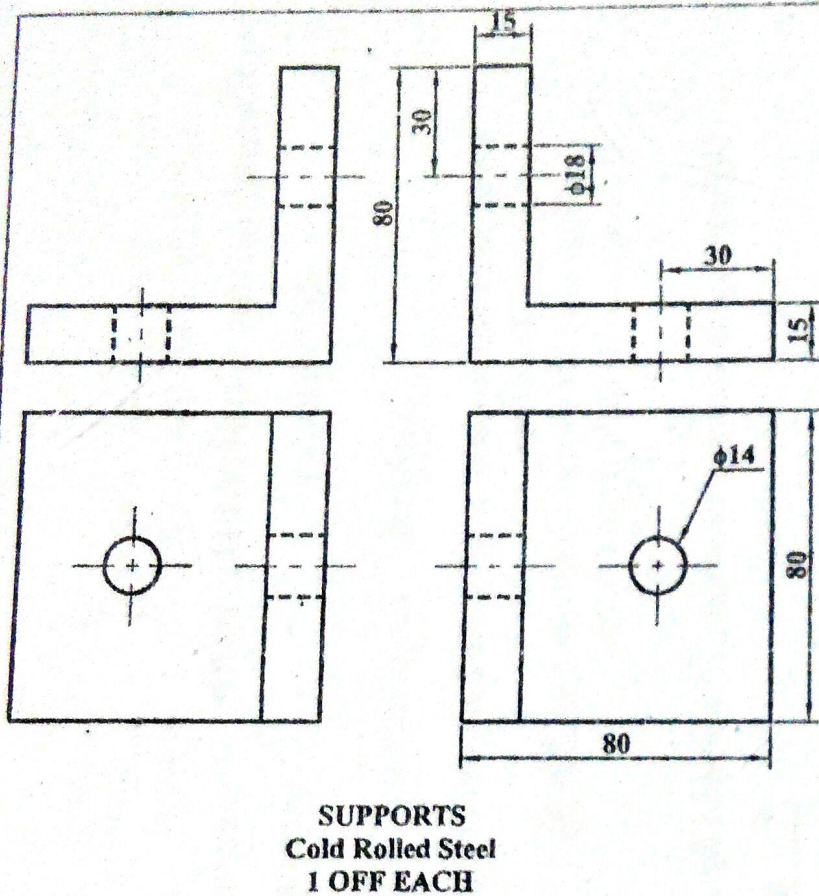
✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt __All__ questions.
✓ The figures in the margin indicate __Full Marks__.
✓ Assume suitable data if necessary.

1. Orthoghraphic views of an object is shown in figure below. Draw its isometric view. [10]
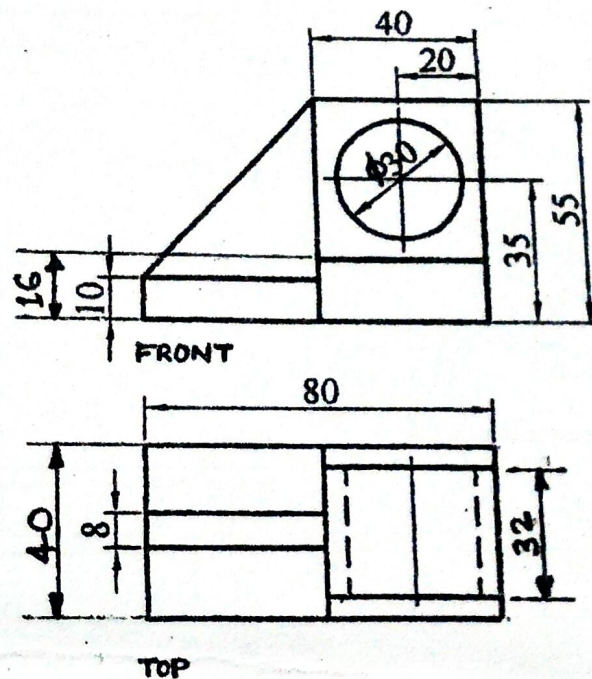
2. A right regular square pyramid, base edge 30 mm and altitude 40 mm rests with its base on the ground and the base edges are equally inclined to the picture plane. The nearest front corner of the base is 10 mm behind the PP. The station point is 45 mm in front of the PP, 60 mm above the ground and lies in the central plane which passes through the vertex of the pyramid. Draw the perspective view of the pyramid. [6

3. Draw the assembled sectional front view from the following detail drawings shown in figure below.

[14]

15
30
φ18
80
30
15

SUPPORTS
Cold Rolled Steel
1 OFF EACH

φ14
80
80

80

CYLINDRICAL HEAD SCREW
Steel
1 OFF

φ24
80
M16
12
50

WHEEL
Cast Iron
1 OFF

φ80
φ60
φ18
24
14

126
15

2× M12
80

220

BASE
Cold Rolled Steel
1 OFF

WASHER
Bronze
2 OFF

φ36
φ18
3

M 12 HEX BOLT
Mild Steel
2 OFF

25

M 16 HEX NUT
Mild Steel
1 OFF
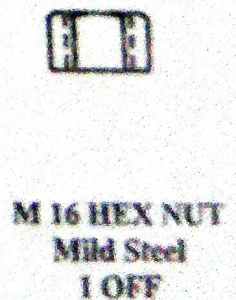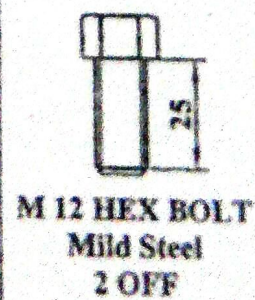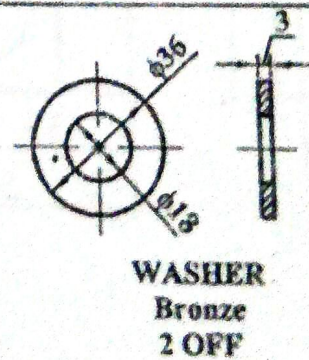
4. Sketch top view and sectional front view of single riveted double strap butt joint. [5]

OR

Determine the limits of dimensions and types of fit designed by 100 H7/s6. Assume fundamental deviation for H and s as 0 micrometers and 0.080 mm above the basic size line respectively and International tolerance grade for 7 and 6 as 0.035 mm and 0.022 mm respectively. [5]

5. Orthographic projection of the object is shown in figure below. Draw the sectional view at section A-A. [5]

OR
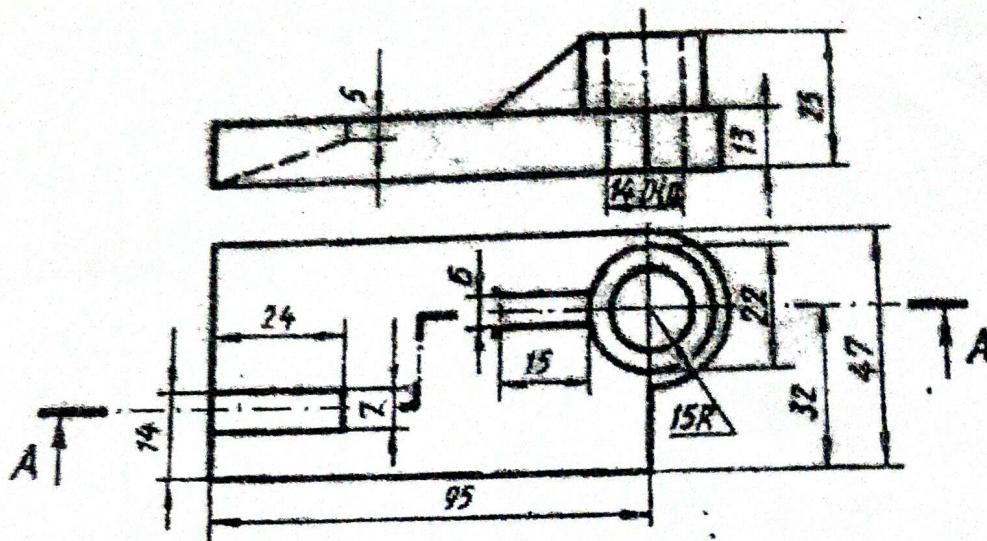
Draw the standard symbols for the following.

a) Internal Thread   b) Third angle projection
c) Spot weld   d) Expansion joint
e) Surface to be obtained by fine turning   f) Least material condition
g) Rectifier   h) Loud speaker
i) I - beam   j) School

***

Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	40
Programme	All (Except B. Arch)	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II *(ME451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
✓ Assume suitable data if necessary.

1. Draw an isometric view from the given orthographic views as shown in figure 1.   [10]
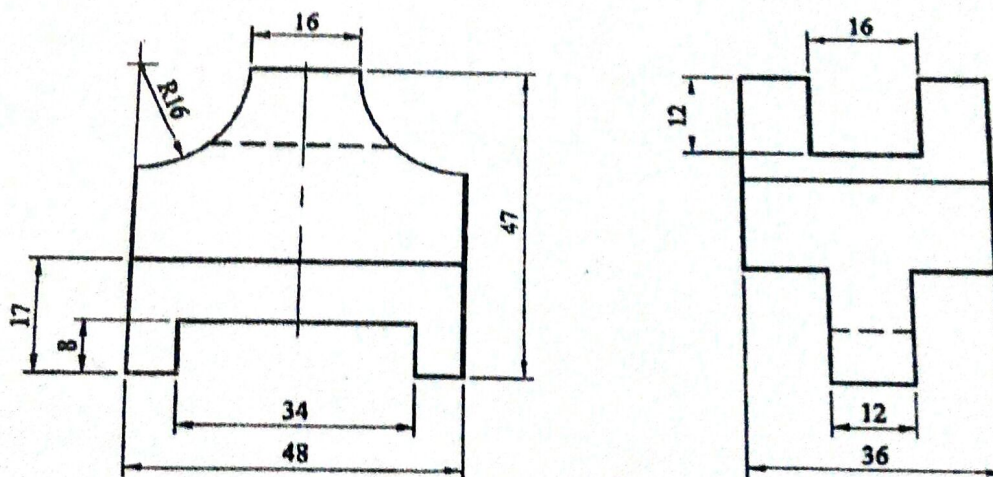

Figure 1

2. A model of steps has 3 steps of 15mm tread and rise 10mm. The steps measure 60mm wide. The vertical edge of bottom step, which is nearer to the picture plane, is 25mm behind PP and the width of steps recede to the left at an angle of 30° to PP. The station point is 100 mm in front of PP and 60 mm above the ground plane and 30 mm to the right of the vertical edge, which is nearest to PP. Draw the perspective view of the model.   [6]

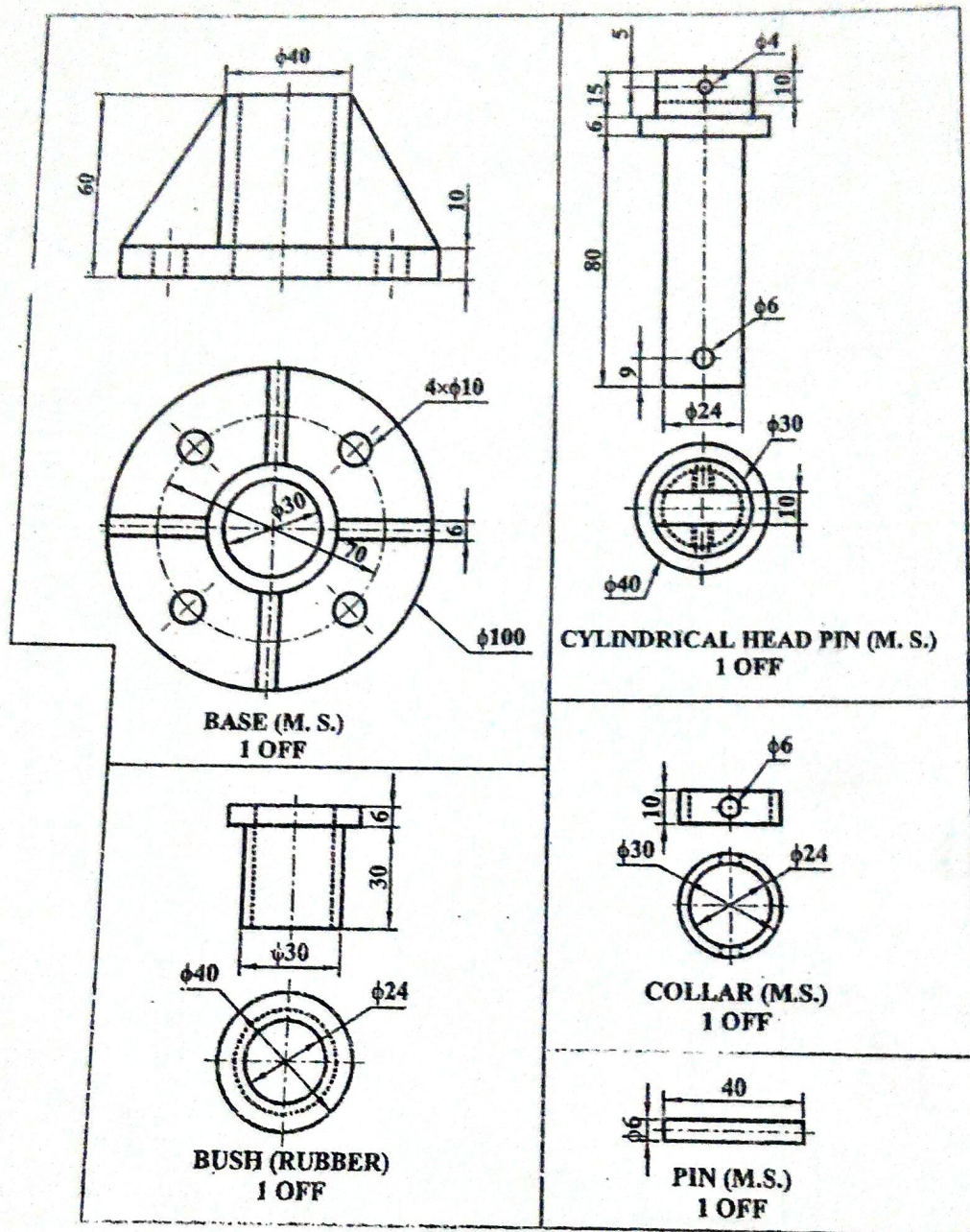3: Draw assembly drawing from the machine components from figure 3.

[14]

BASE (M. S.)
1 OFF

CYLINDRICAL HEAD PIN (M. S.)
1 OFF

BUSH (RUBBER)
1 OFF

COLLAR (M.S.)
1 OFF

PIN (M.S.)
1 OFF

Figure 3

4. Sketch the top view and sectional front view for double row, single strap, chain type butt riveted joint.

[5]

OR

Make complete fit analysis of the following symbols 60S6/h12.F.D. for S and h are 0.042 mm and 0.00 mm respectively. ITG for 6 and 12 are 0.019 mm and 0.30 mm respectively. Indicate type of fit, allowance and type of system.

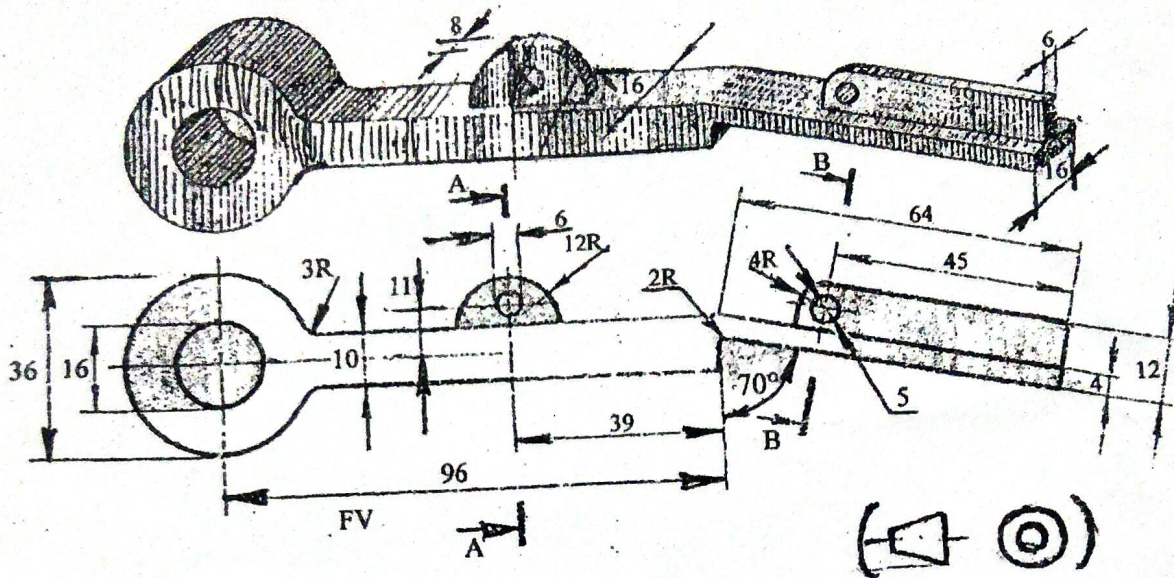5. Draw removed or rotated section at A-A and B-B from the components as shown in figure 5. [5]

Figure 5

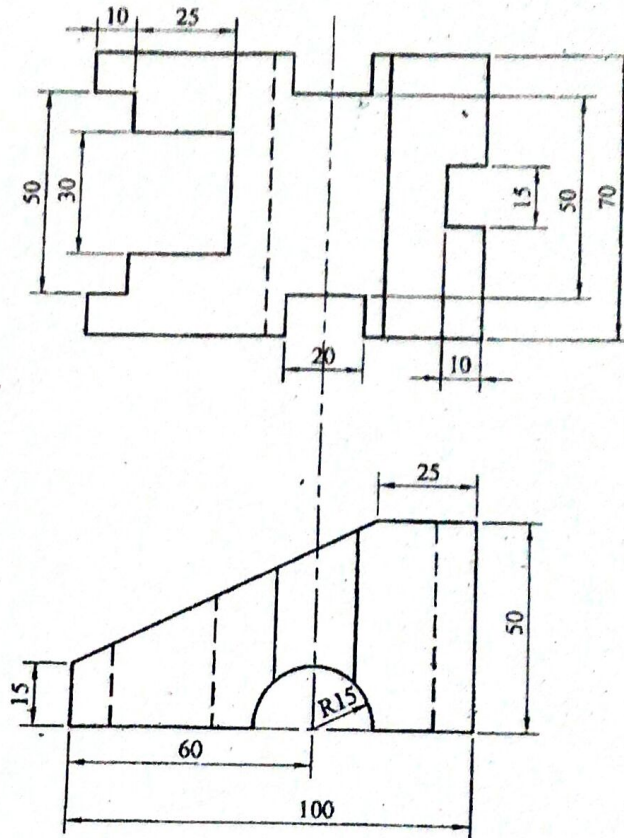**OR**

Sketch the symbol of following Items

a) Material removed by milling
b) 90° Elbow
c) Maximum Material Condition
d) Gumba
e) River

(f) Transistor
(g) Capacitor
(h) Stud
(i) External Thread
(j) Lap Weld

***

Subject: - Engineering Drawing II *(ME451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
✓ Assume suitable data if necessary.

1. Orthographic views of an object is shown in figure below. Draw its Isometric view. [10]

2. Draw oblique view of an object from given orthographic views in figure below. [6]
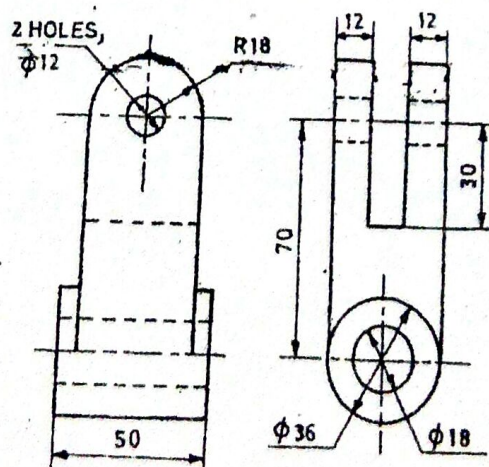
3. Draw the top view and sectional front view of double riveted chain type lap joint for basic diameter of hole is 24 mm. [5]

OR

Determine the maximum and minimum material conditions, allowance and type of fit for hole and shaft designated by H7/s6 for the basic size of 50 mm. Assuming fundamental deviation for H and s are 0 mm and 0.040 mm respectively and values of international tolerance grades for 7 and 6 are 0.025 mm and 0.016 mm respectively.

4. Draw sectional front view (section at A-A) from the components as shown in figure below. [5]
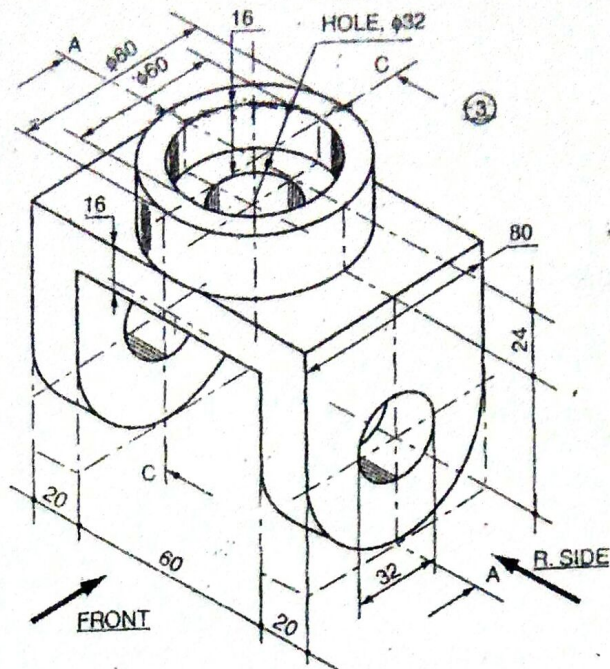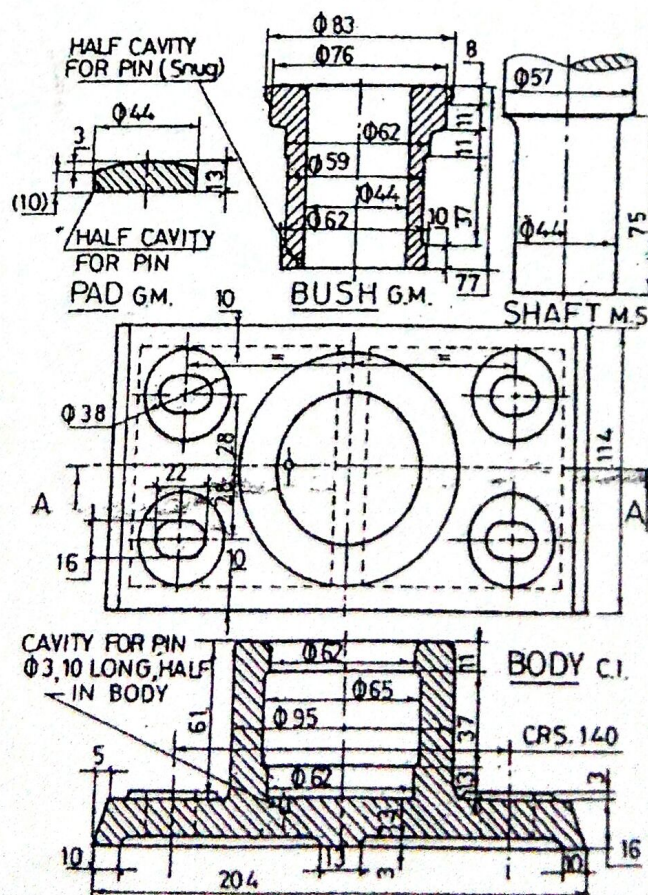

OR

Sketch the symbols for the following

a) Spot weld	f) Circuit breaker
b) Crossover	g) Public addressing system
c) Three phase motor	h) Surface finish with X roughness
d) Embankment	i) Amplifier
e) Nipple	j) Hill contour

5. Assemble the parts shown in figure below of foot-step bearing and draw half-section front view of assembled product. Dimension as the requirement. [14]


***

Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	40
Programme	All (Except B.Arch)	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II *(ME451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
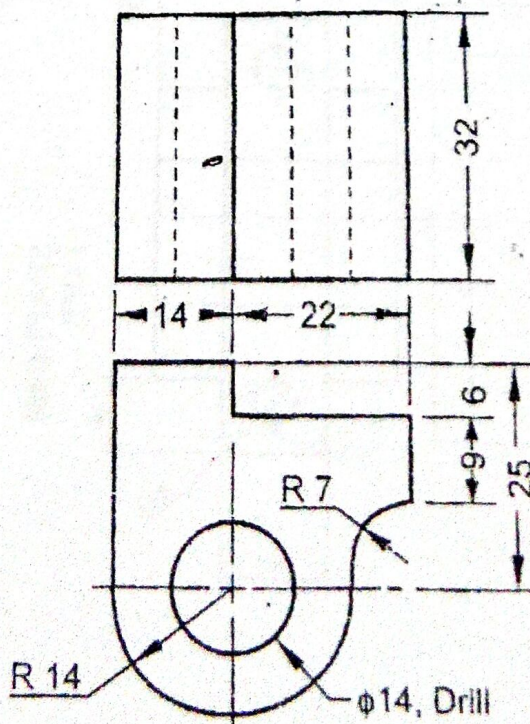✓ Assume suitable data if necessary.

1. Draw isometric view of an object given by orthographic views given in figure below: [10]
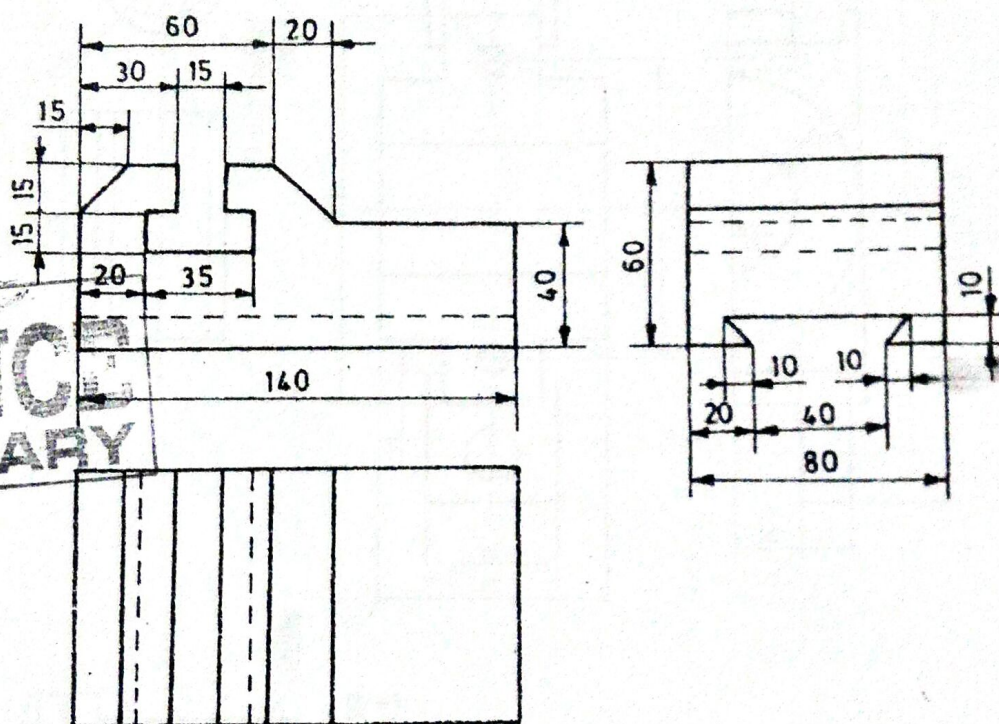
2. Draw oblique drawing from the given orthographic view as shown in figure below. [6]

3. Sketch the single strap, double riveted, zigzag type butt joint for 8 mm thick plate. [5]

OR

Determine the limits and types of fit designed by 100H7/s6. Assume fundamental deviation of H and s as 0 micrometers and 0.08 mm above the basic size line respectively and International tolerance grade for 7 and 6 as 0.035 mm and 0.022 mm respectively.

4. Orthographic projection of the object is shown in figure below. Draw its rotated / aligned sectional front view at section A-A. [5]
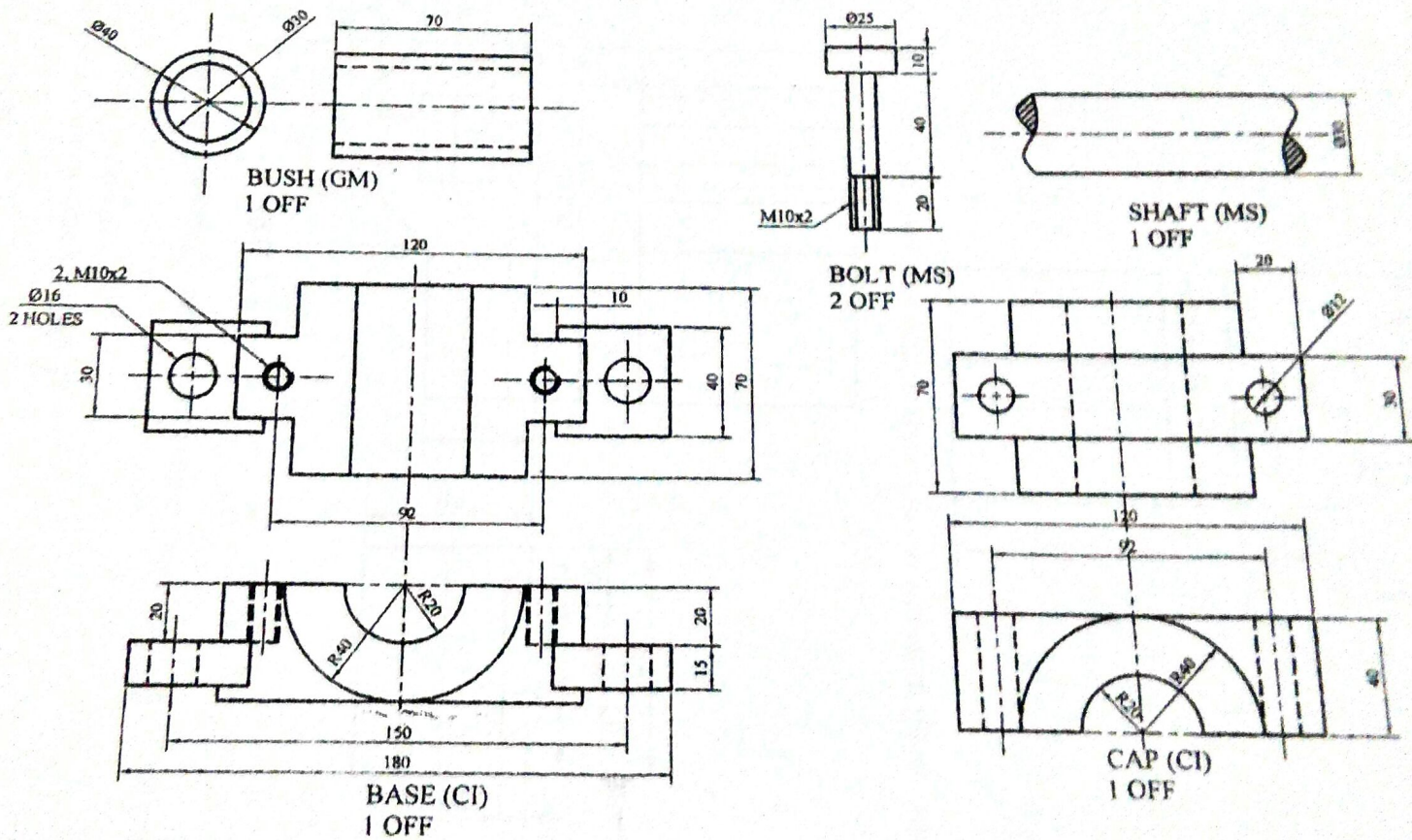

OR
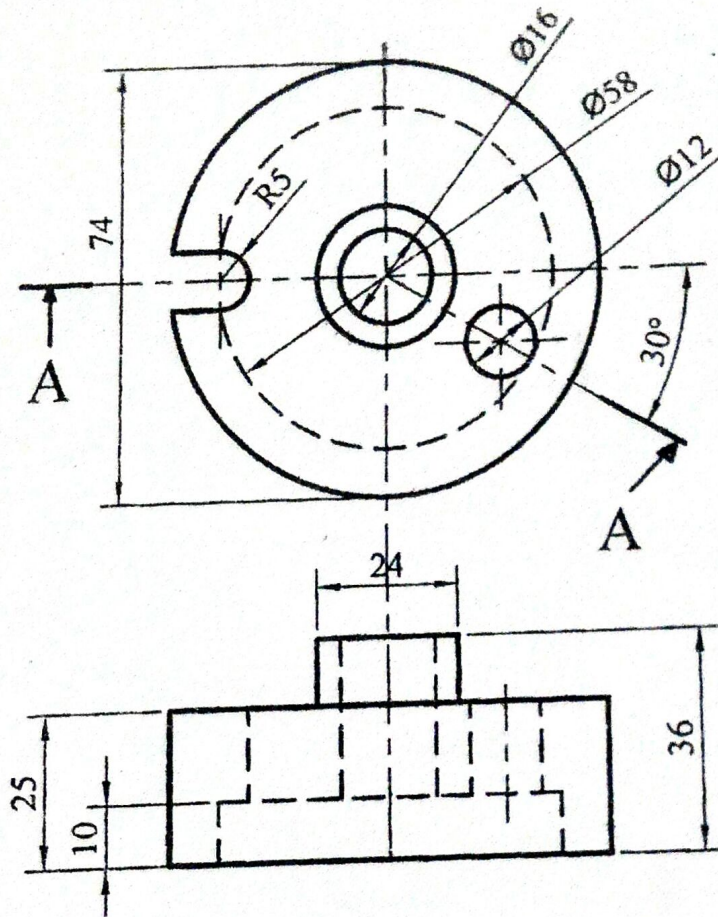
Sketch the symbols for following:

i) Lake
ii) Nipple
iii) Reducer
iv) Surface obtained without removal of material
v) Fuse
vi) River
vii) Fillet weld
viii) Capacitor
ix) Single V-butt weld
x) 45°elbow
xi) fan

5. Draw the assembled sectional front view from the detail drawings shown in figure below.   [14]

BUSH (GM)
1 OFF

Ø40   Ø30
70

Ø25
10
40
M10x2   20

BOLT (MS)
2 OFF

SHAFT (MS)
1 OFF

2, M10x2
Ø16
2 HOLES
120
10
30   40   70
92

R20
R40
20   15
150
180

BASE (CI)
1 OFF

20
Ø12
70
120
92

R40
R20
40

CAP (CI)
1 OFF

***

Subject: - Engineering Drawing II *(ME451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
✓ Assume suitable data if necessary.

1. From the given front and side view of a solid draw the isometric view.   [10]

Front View   Side View
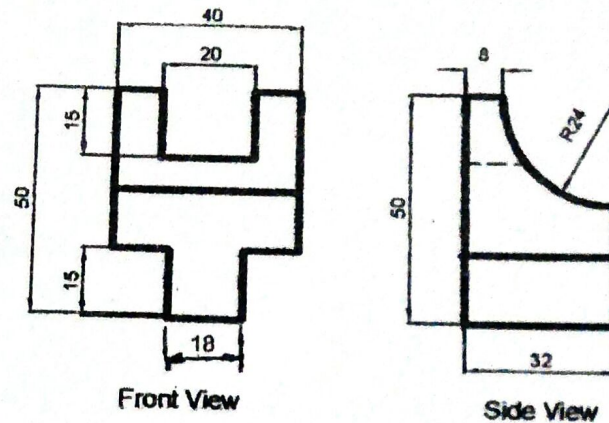
2. Draw oblique drawing from the given orthographic views as shown in figure below.   [5]
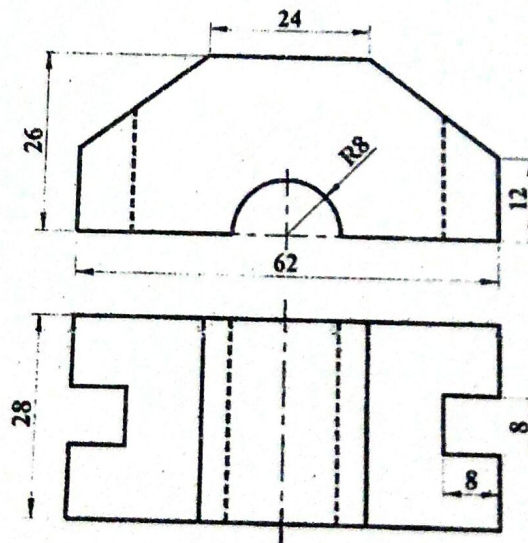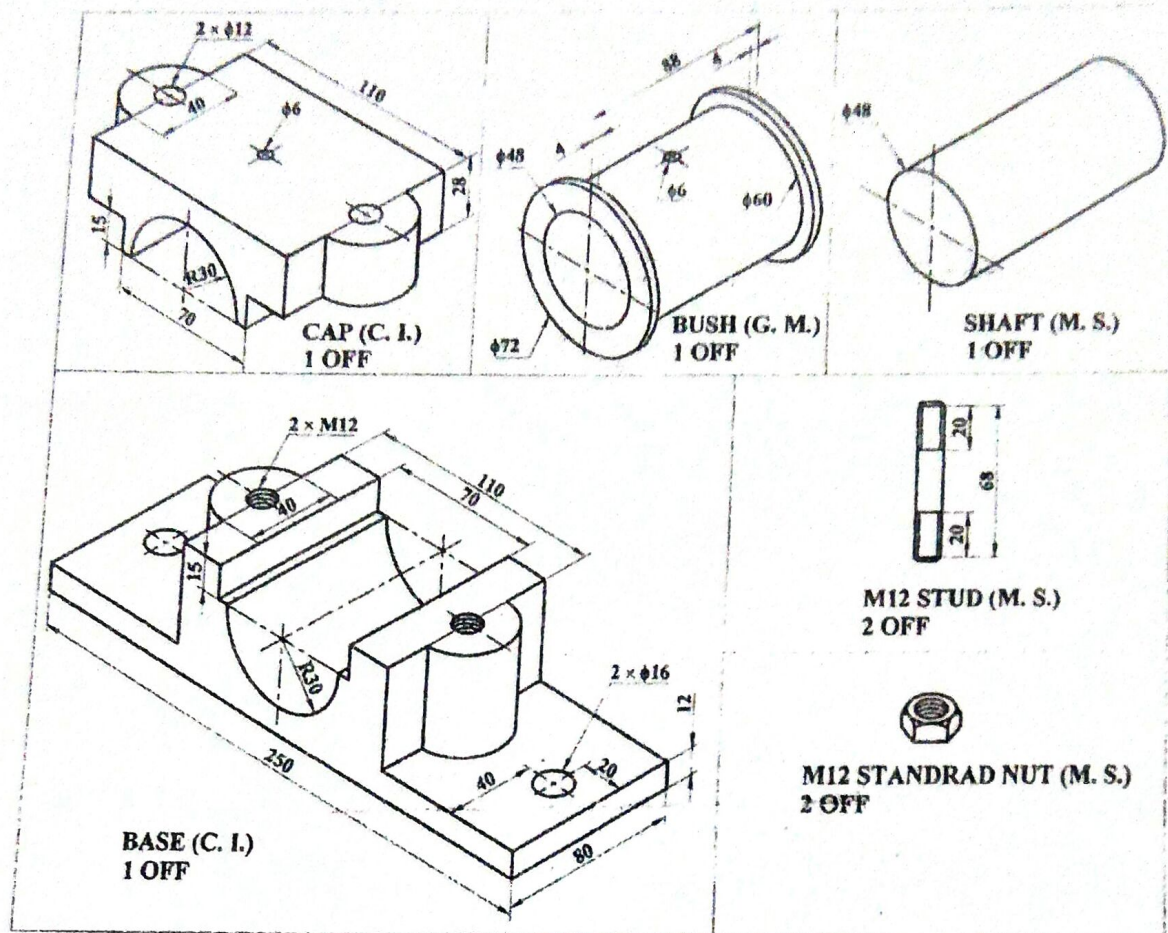

3. Determine the limit, tolerance, allowances and type of fit for 50 H7/p6. The value of fundamental deviation given by H is zero and p is above the basic line and value is 0.032 mm, and international tolerance given by 7 is 0.025 and 6 is 0.016 mm respectively.   [4]

OR

Draw the top view and sectional front view of double row zig zag type riveted single strap butt joint for 8 mm thick plate.

4. Figure below shows the details of a split bearing. Draw the assembled front view with section. Take any length for the shaft. [16]
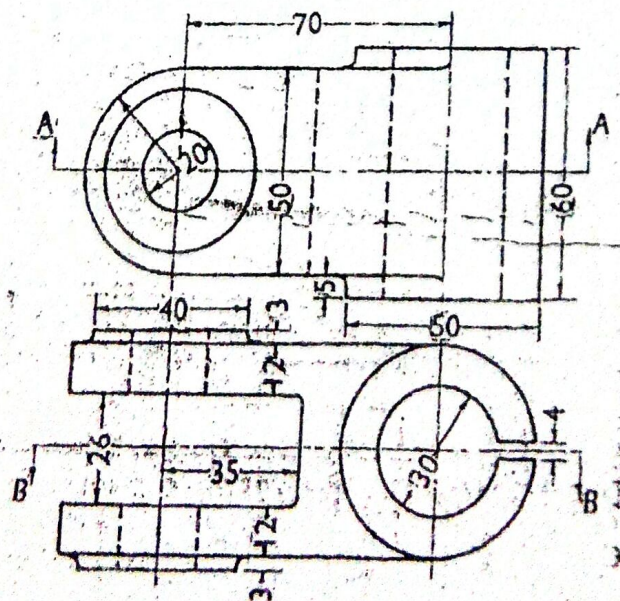

CAP (C. I.)
1 OFF

BUSH (G. M.)
1 OFF

SHAFT (M. S.)
1 OFF

BASE (C. I.)
1 OFF

M12 STUD (M. S.)
2 OFF

M12 STANDRAD NUT (M. S.)
2 OFF

5. Draw the standard symbols for the following: [5]

a) Surface to be obtained by fine turning
b) Gate valve   c) Tee   d) Reducer
e) Thermocouple   f) DC Motor   g) Transformer
h) Circular tube   i) Fuse   j) Speaker

OR

Orthographic views of a forked end of a machine part are shown in figure below. Draw its sectional front view (Section B-B).

***

Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	40
Programme	All (Except B.Arch.)	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II (ME451)

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt *All* questions.
✓ The figures in the margin indicate *Full Marks*.
✓ *Necessary figures are attached herewith.*
✓ Assume suitable data if necessary.

1. Orthographic views of an object are shown in Figure P.1. Draw its isometric view. [9]

2. A cylinder having 70 mm diameter and 40 mm height is surmounted by a square pyramid having side 35 mm and height 50 mm. Draw the angular perspective projection when one of the side of pyramid is 30° inclined and its nearest corner is 30 mm behind the projection plane. Take station point 35 mm in front of projection plane, 25 mm left of nearest corner and 110 mm above the ground level. [6]

3. Sketch the top view and sectional front view of double row, single cover zig zag Butt joint. [5]

OR

Sketch the symbols for the following [5]

a) Spot weld
b) Internal thread
c) Fan regulator
d) 3-phase transformer
e) Circuit breaker
f) Hand set
g) Temple
h) Material removed by turning
i) Rapids
j) Perpendicular lay

4. The assembly drawing of Hand Vice is shown in Figure P.4. Draw detail drawing of each component. Assume suitable thickness if necessary. Part list is given below. [15]

Part List

SN	Part Name	Part No.	Quantity
1	Body	1	1
2	Screw	2	1
3	Screw Base	3	1
4	Handle	4	1
5	Handle end	5	2
6	Pin		2

5. Determine limits, tolerance, allowance and types of fit designated by 80 D9/h8. The fundamental deviation of hole is 0.032 mm more than fundamental deviation of shaft. International tolerance grades for 8 and 9 are 0.034 mm and 0.042 mm respectively. [5]
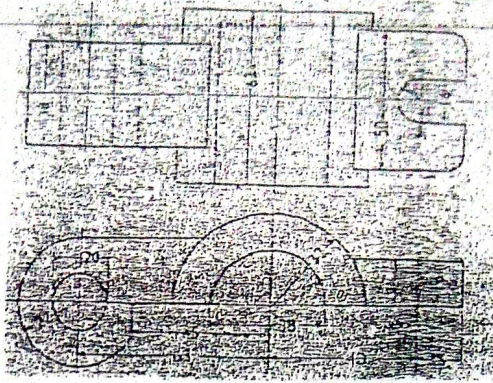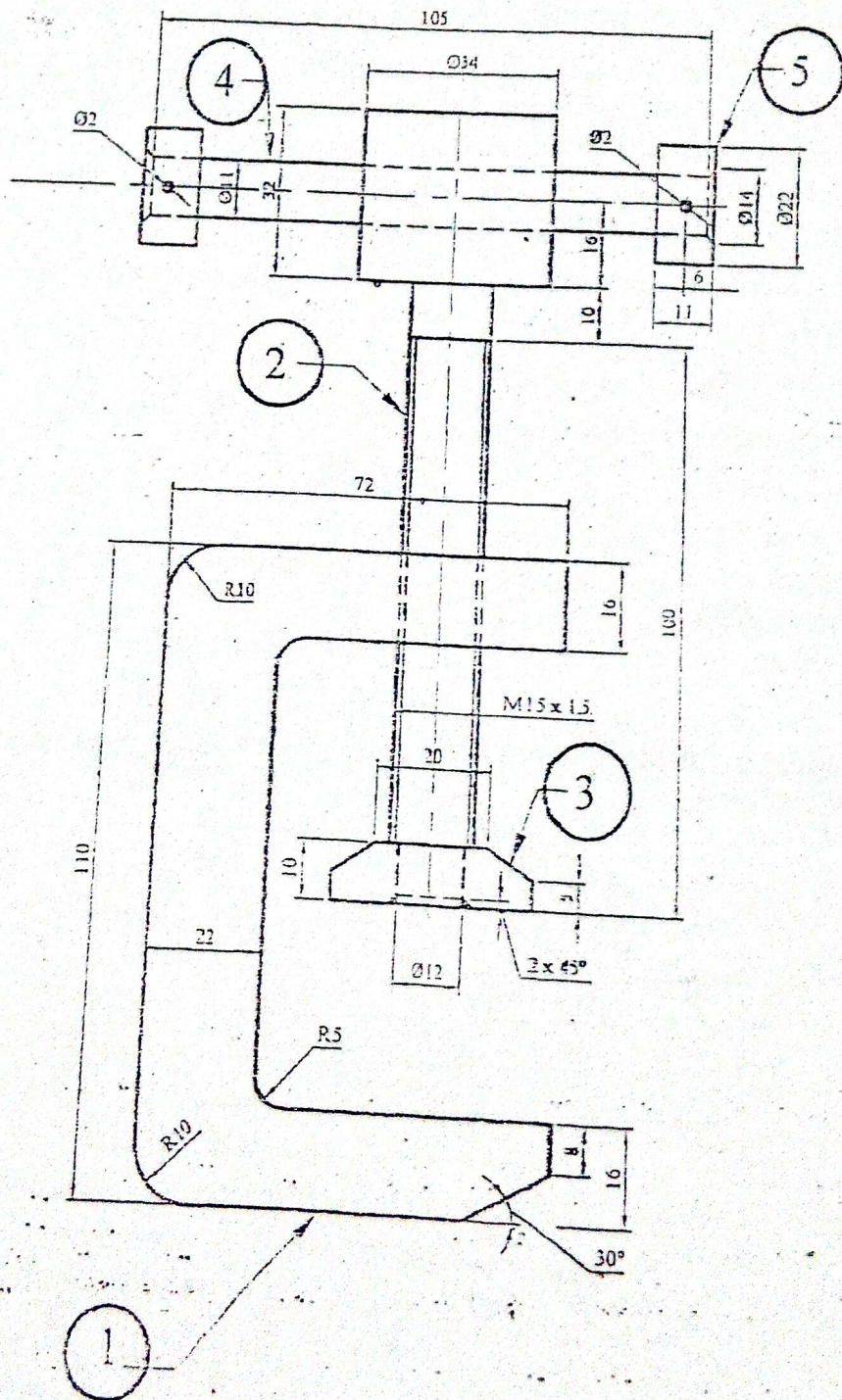
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Figure P.1

Figure P.4

Exam.		Regular	
Level	BE	Full Marks	40
Programme	All (Except B.Arch.)	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II *(ME451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
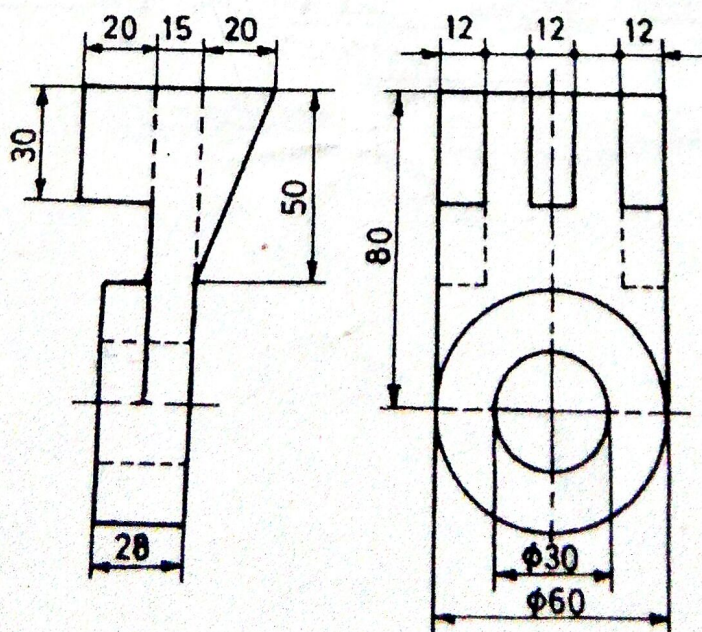✓ Assume suitable data if necessary.

1. Orthographic views of an object are shown in figure. Draw its isometric view. [10]
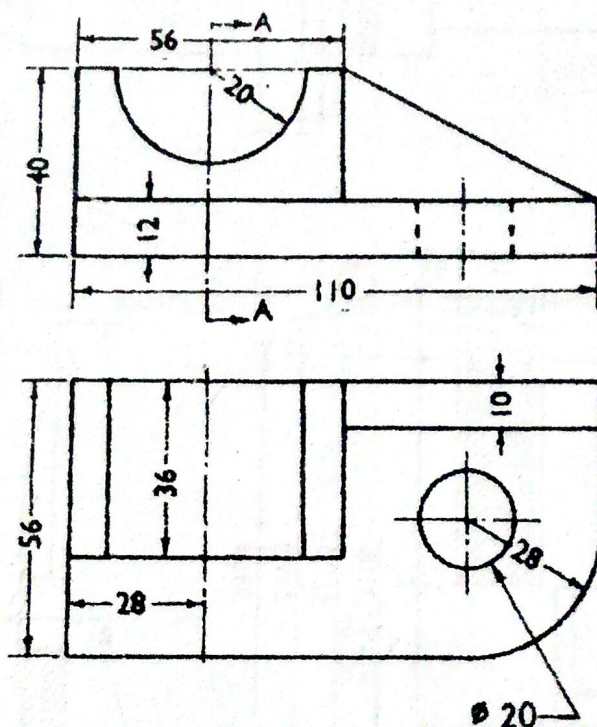
2. Draw oblique drawing of the object shown in figure. [6]

3. Sketch the top view and sectional front view of double row, zig-zag type lap riveted joint. Take diameter of the rivet as 12 mm. [5]

OR

Determine the limits of dimensions and type of fit designated by H7/s6 for the basic size of 100 mm. Take fundamental deviation for H and s respectively as 0.000 and 0.071 mm and international tolerance grades for 7 and 6 as 0.035 and 0.022 mm respectively. [5]

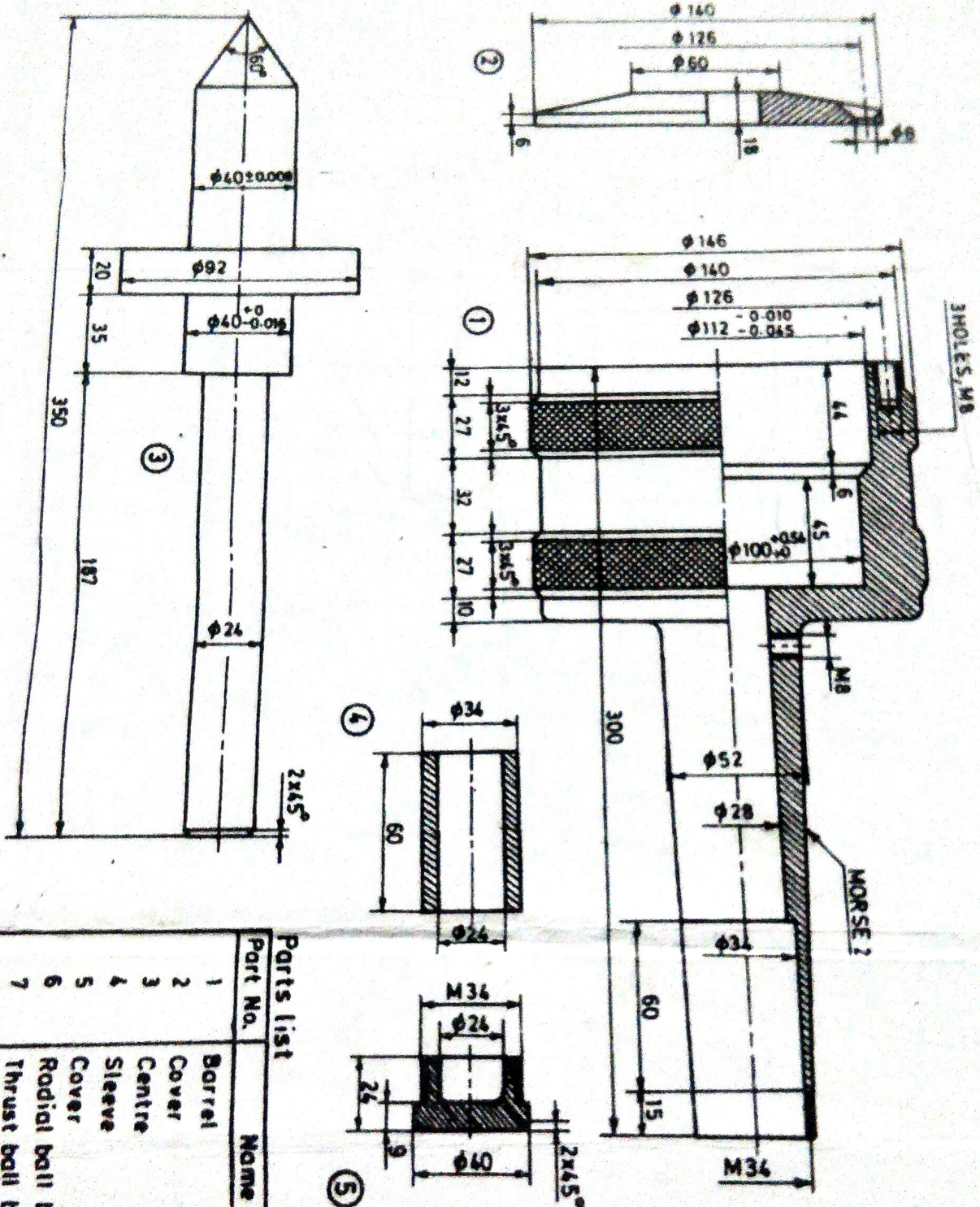4. Sketch freehand graphical symbol of [5]

   a) Battery   b) Plug   c) Switch   d) DC Generator
   e) Reducer   f) Bridge   g) Spot Weld   h) Cross
   i) External Thread   j) Check Valve

OR

Draw full sectional front view of object shown in figure. [5]
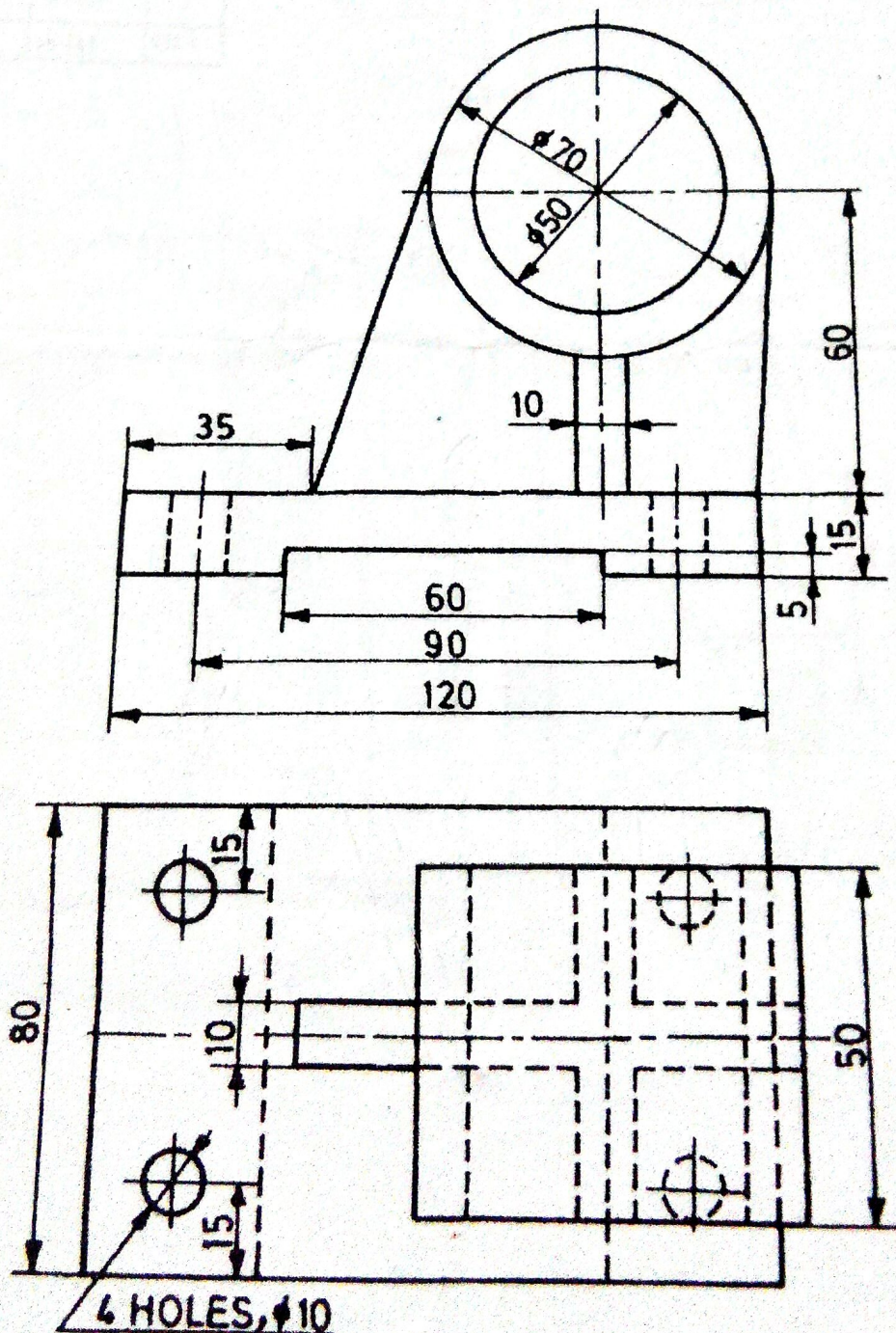
5. Assemble the parts of the revolving centre, shown in figure and draw a half sectional view from the front. [14]

Parts list

Part No.	Name	Matl	Qty
1	Barrel	MS	1
2	Cover	MS	1
3	Centre	Alloy steel	1
4	Sleeve	MS	1
5	Cover	MS	1
6	Radial ball bearing	208	1
7	Thrust ball bearing	308	1
8	Screw M8×21	MS	3

Subject: - Engineering Drawing II (ME451)

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt All questions.
✓ The figures in the margin indicate Full Marks.
✓ Assume suitable data if necessary.

1. Draw Isometric drawing of the object shown by figure below. [10]
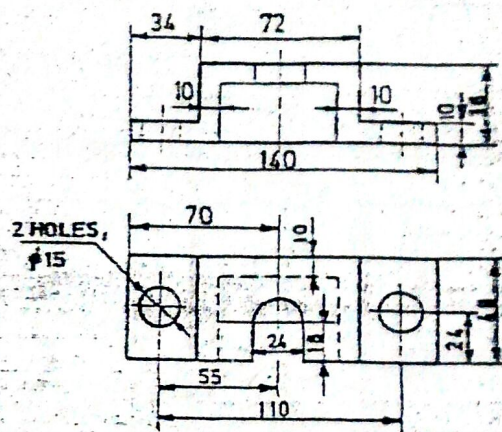
2. A square prism of base 30 mm×30 mm base and height 50 mm is lying in the ground. One of its sides of the base makes angle 30° with the PP and nearest corner is 10 mm behind the PP. The station point is 40 mm in front of PP and 70 mm above from GP and containing by central plane. Draw the perspective view. [6]

3. Sketch top view and sectional front view for a double riveted, double strap zig-zag butt joint, where d=12 mm. [5]

OR

In the free hand sketch make complete fit analysis of the following symbols. 60S6/h12 given: F.D. for 'h' and 'S' are 0.00 and -0/42 respectively; ITG for 6 and 12 are 0.019 and 0.30 respectively. [Indicate type of fit, allowance, upper and lower deviation and shaft basis or hole basis system]
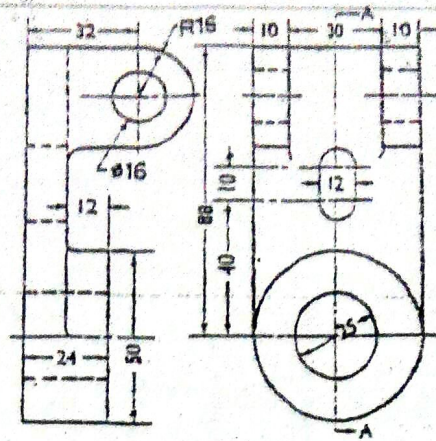
4. Sketch symbols of followings:

   i) Pond
   ii) School
   iii) Amplifier
   iv) Nipple
   v) 90° elbow

   vi) Surface to be obtained without removal of material
   vii) Surface to be coated
   viii) Fluorescent bulb
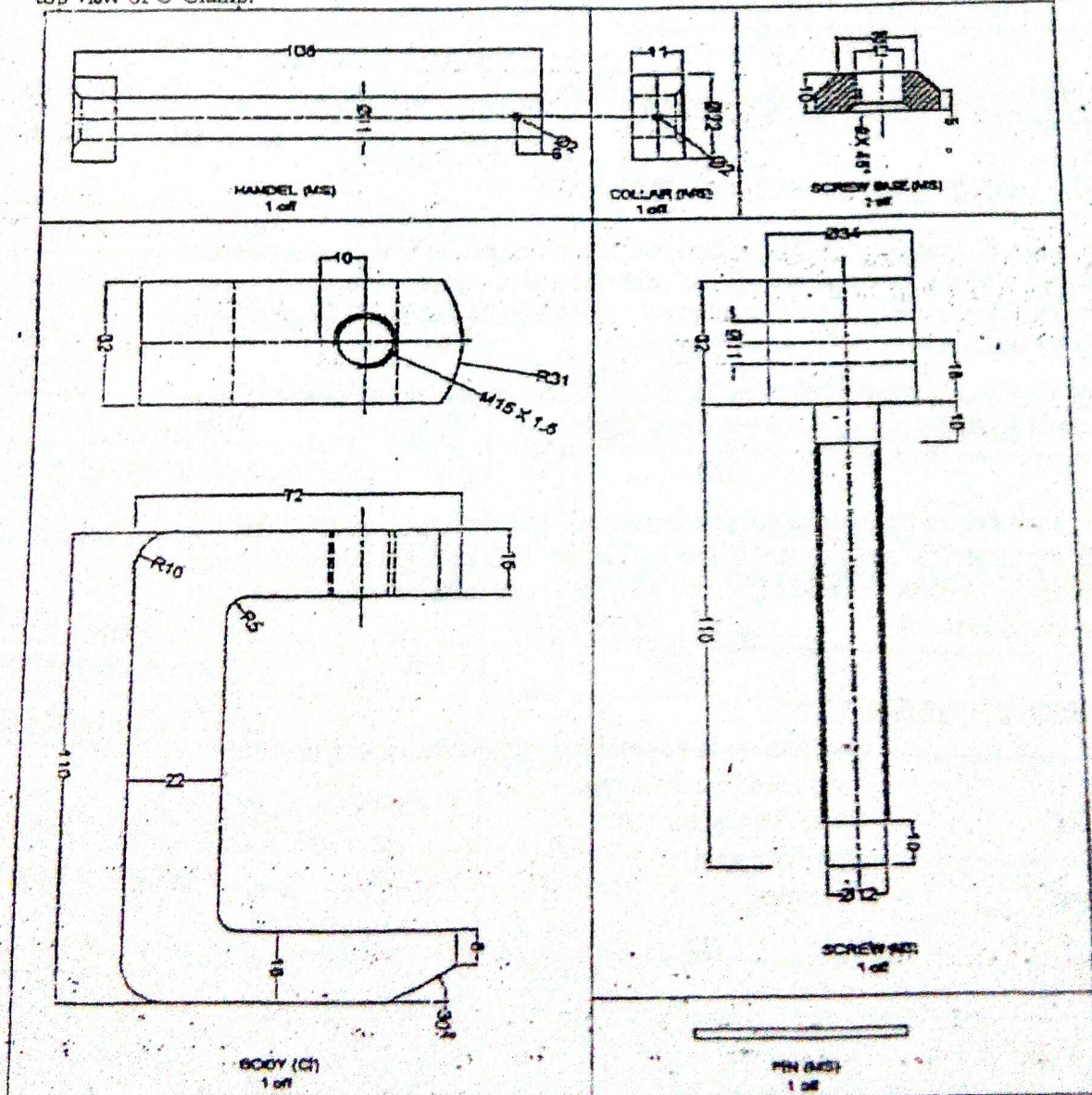   ix) Fillet weld
   x) Cross

OR

Orthographic projection of an object in third angle projection is shown in figure below. Draw is sectional side view, section A-A.   [5]

5. Assemble the following detail drawing shown in figure below and draw front view and top view of C-Clamp.   [14]


HANDEL (MS)
1 off

COLLAR (MS)
1 off

SCREW BASE (MS)
1 off

R31
M15 X 1.5

R10
R5
72
22
110

BODY (CI)
1 off

Ø34
110
Ø12

SCREW
1 off

PIN (MS)
1 off

***

06   TRIBHUVAN UNIVERSITY

INSTITUTE OF ENGINEERING

Examination Control Division.

2069 Bhadra

Exam:	**Regular (2066 & Later Batch)**	
Level	BE	Full Marks	40
Programme	All (except B. Arch)	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II (ME451)

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
✓ Assume suitable data if necessary.

1. Figure below shows the orthographic projections of a guide bracket for a horizontal spindle. Draw its isometric view. [10]
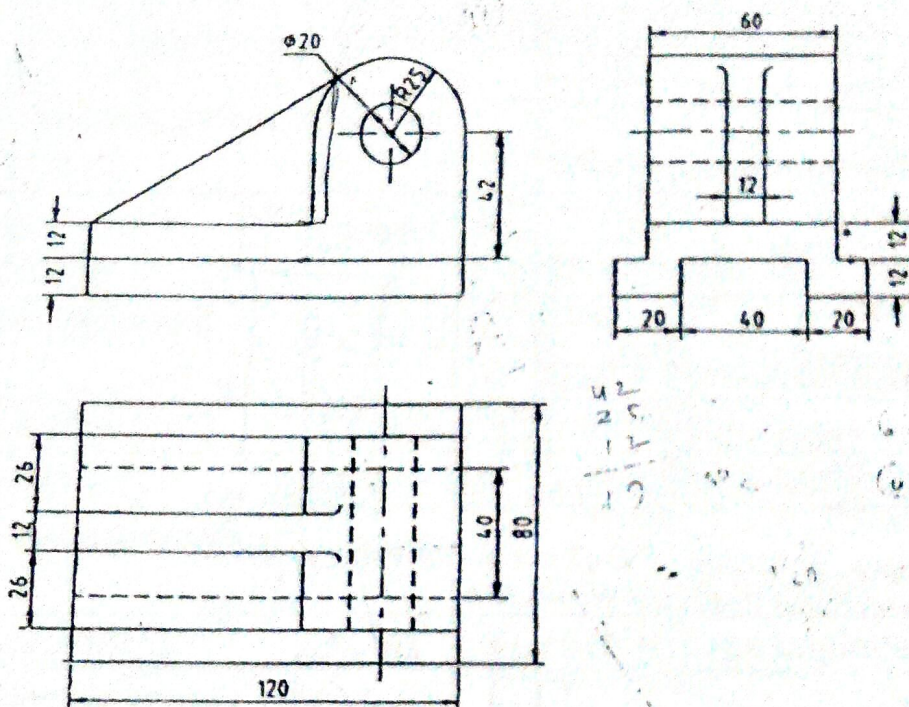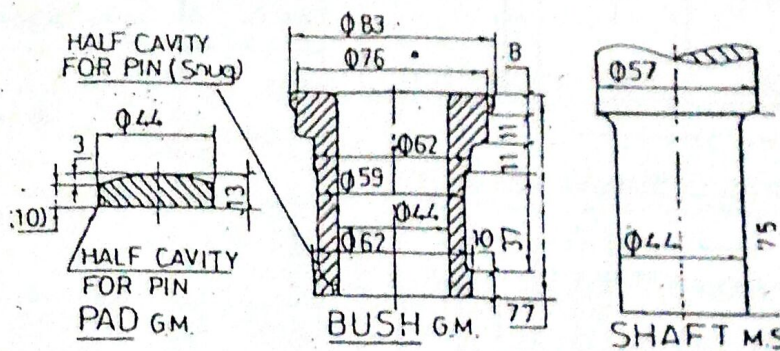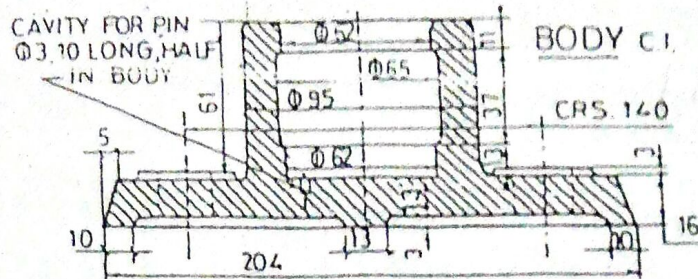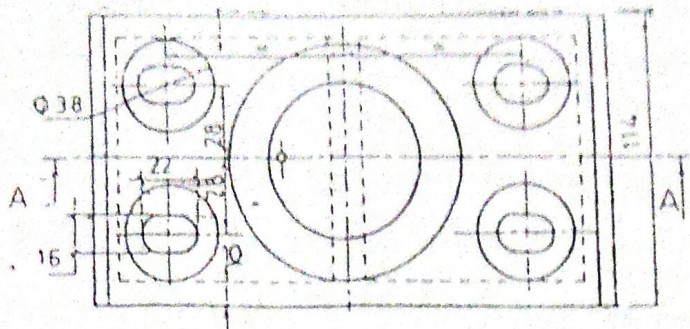

2. A solid square prism of 30mm side and height 60mm is resting with its base on the ground plane such that its rectangular faces are inclined at 45 degree to the picture plane and the vertical edge nearer to the PP is 15mm behind it. The station point is 60mm in front of PP, 100mm above ground plane and lies in the central plane, which passes from the center of prism. Draw perspective view of the prism. [5]

3. Determine the limits of dimensions for the H6/s7, type of fit and fundamental deviations for the basic size of 50mm, assuming fundamental deviation for "H" and "s" respectively as 0mm above the basic size line and 0.034mm above the basic size line and international tolerance grades for "6" and "7" as 0.016mm and 0.025mm respectively. [5]

OR

Sketch sectional front view and top view of double row, zig-zag type, double strap butt riveted joint. [5]

4. Draw an assembled sectional front view and top view from the following detail drawings shown in figure below. [15]

CAVITY FOR PIN
Φ3.10 LONG,HALF
IN BODY

BODY C.I.

CRS. 140

HALF CAVITY
FOR PIN (Snug)

HALF CAVITY
FOR PIN
PAD G.M.

BUSH G.M.

SHAFT M.S.

5. Orthographic projection of an object in first angle projection is shown in figure below. Draw its sectional front view section A-A.

[5]

OR

Sketch the symbols for the following.

[5]
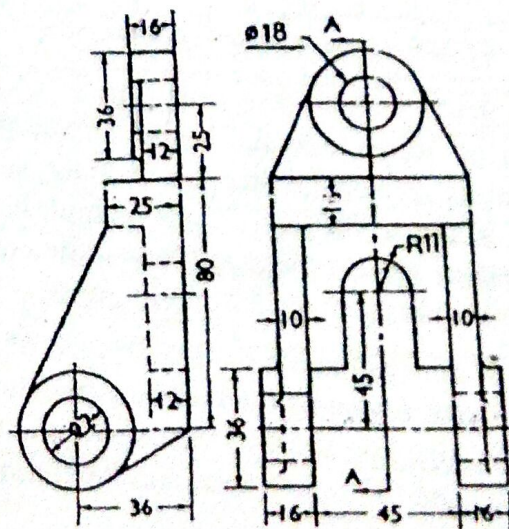
a) NPN type transistor
b) Transformer
c) Hill contour
d) Single phase motor
e) Siren
f) Internal thread
g) Elbow 90°
h) Fillet
i) Surface to be obtained by filing
j) Highway bridge

***

06   INSTITUTE OF ENGINEERING

Examination Control Division

2069 Poush

Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	40
Programme	All (Except B. Arch)	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II *(ME451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
✓ Assume suitable data if necessary.

1. Draw an isometric view of an object shown in figure below (Figure 1) and indicate dimensions. [10]
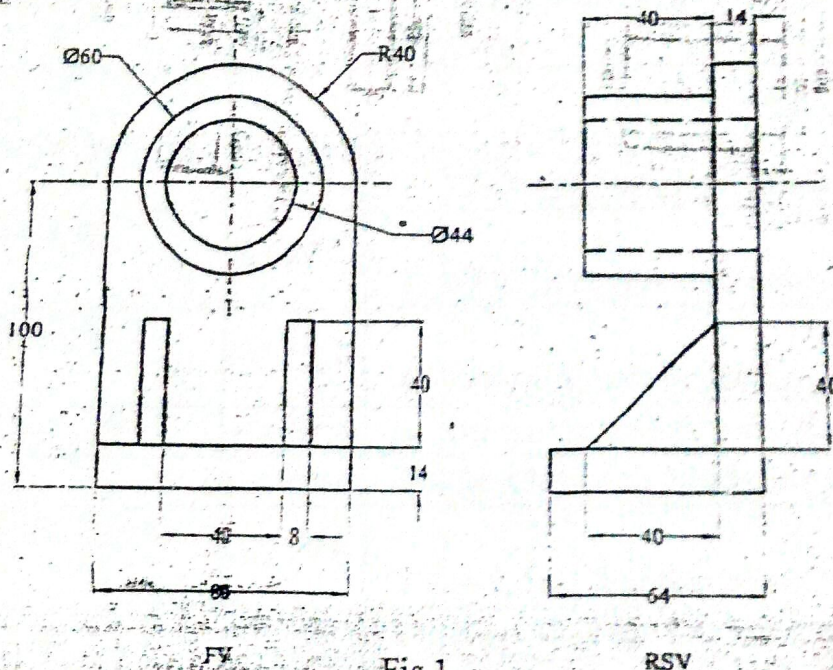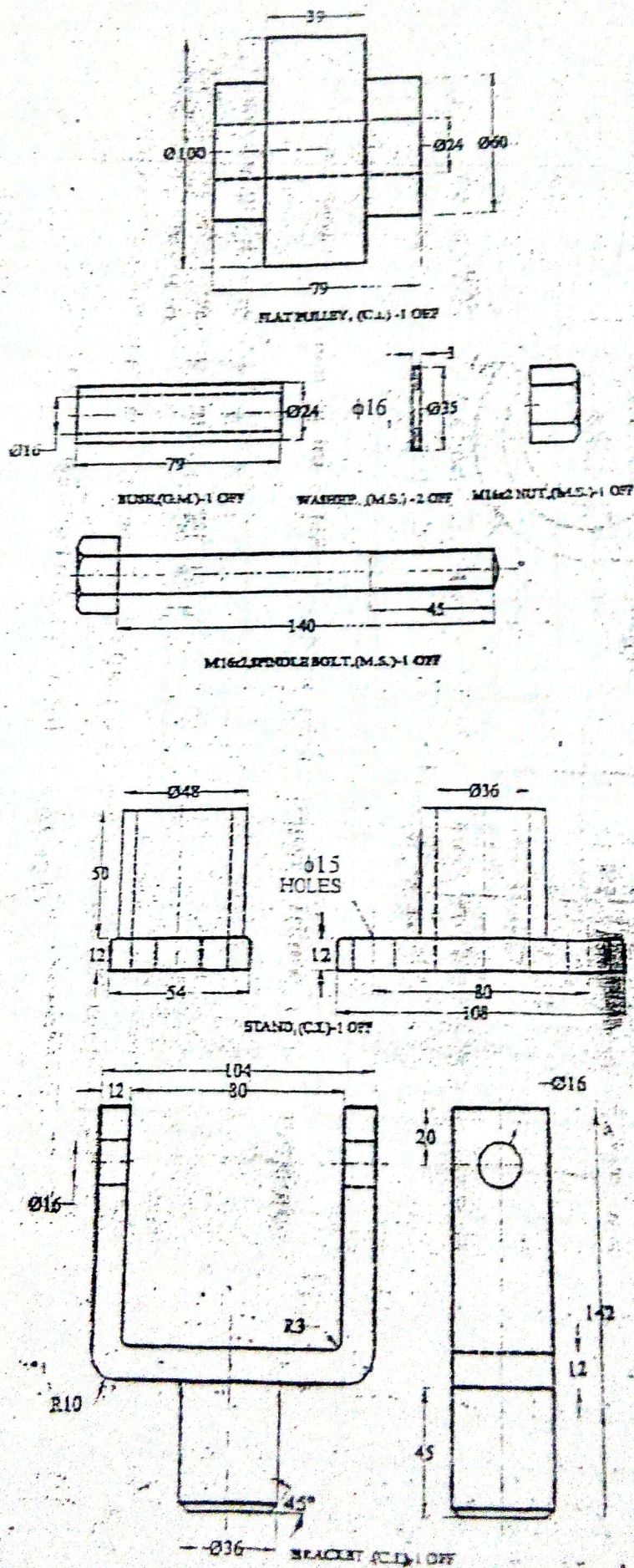

Fig.1

2. A model of steps has 3 steps of 15mm tread and rise 10mm. The steps measure 50mm wide. The front vertical edges of bottom steps touches the picture plane and the 50mm width of steps recede to the left at an angle of 30° to picture plane. The station point is 90mm in front of the PP, 60mm above the ground plane and 10mm to the right of the front vertical edge. Draw the perspective view. [5]

3. Determine the limits of dimensions and types of fit designated by H7/k6 for the basic size of 50 mm, assuming fundamental deviation for h and k respectively as 0 μm and 10μm above the basic size line and international tolerance grades for 7 and 6 as 25 μm and 16μm respectively. [5]

OR

Sketch the top view and sectional front view of double riveted, double strap zig-zag butt joint. Take diameter of rivet as 24 mm.

FLAT PULLEY, (C.I.) -1 OFF

BUSH (G.M.)-1 OFF   WASHER, (M.S.) -2 OFF   M16×2 NUT, (M.S.)-1 OFF

M16×2 SPINDLE BOLT, (M.S.)-1 OFF

ø15 HOLES

STAND, (C.I.)-1 OFF

BRACKET (C.I.)-1 OFF

5. Draw the standard symbols for the following:

- a) Double V butt
- c) Surface to obtain by milling
- e) Battery
- g) Rectangular tube
- i) Hill contour

- b) Internal thread
- d) AC generator
- f) Plug
- h) Antenna
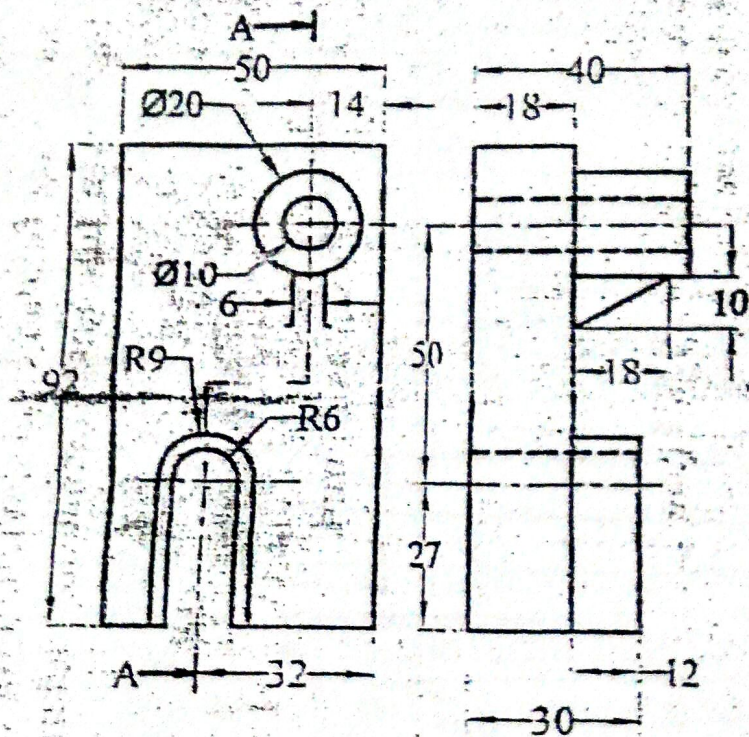- j) Siren

OR

Draw an offset sectional at A-A of figure 5.

Fig.5

***

INSTITUTE OF ENGINEERING.
Examination Control Division
2068 Bhadra

Level	BE	Regular	
		Full Marks	40
Programme	A" (Except B.Arch.)	Pass Marks	16
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt *All* questions.
✓ The figures in the margin indicate *Full Marks*.
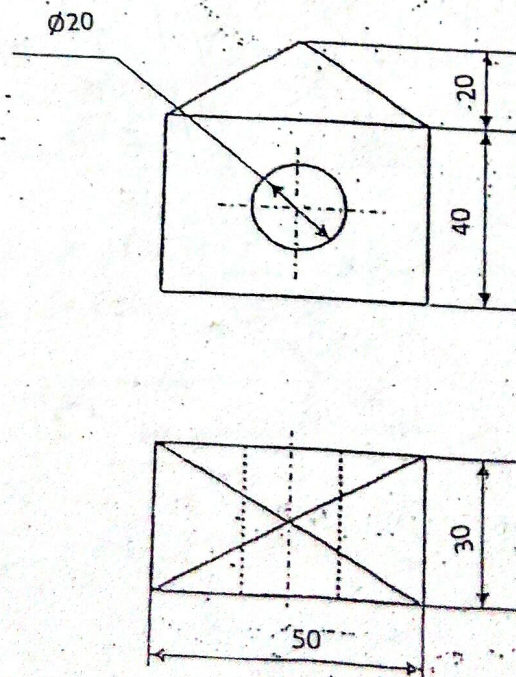✓ Assume suitable data if necessary.

1. Draw isometric drawing of an object shown in figure below. [9]
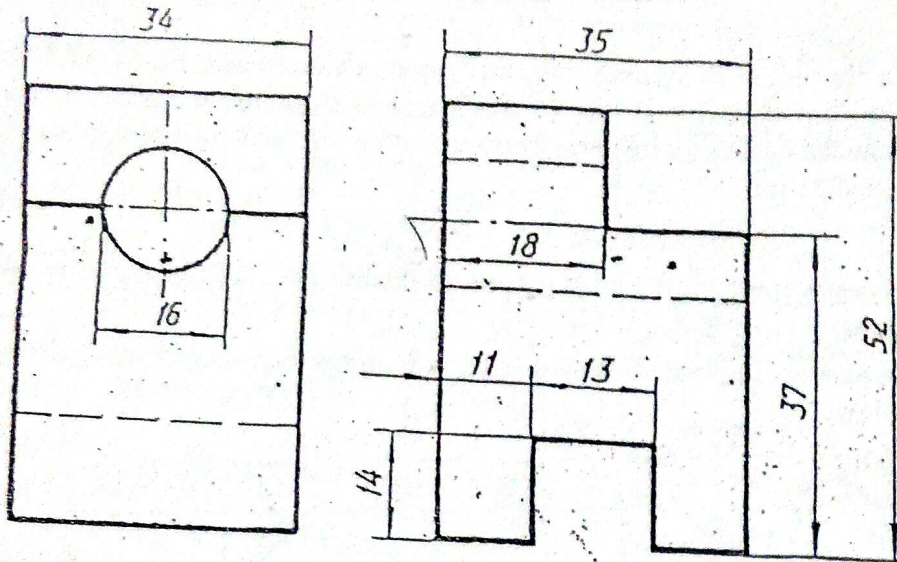
2. Draw the angular perspective views from given orthographic projections as shown in figure below. [7]
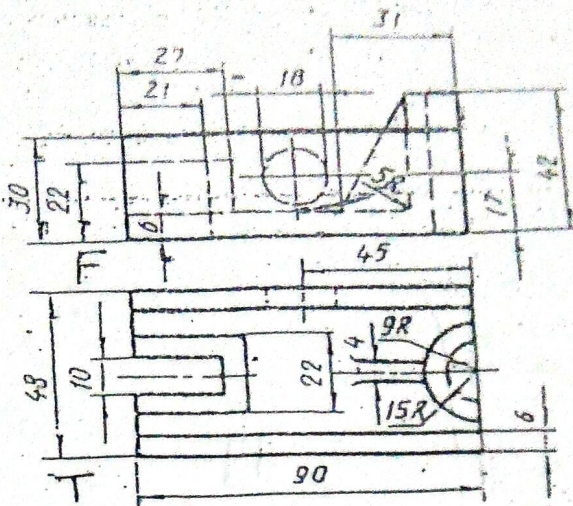

3. Draw the standard symbols for the following: [5]

a) Square butt
b) Cap
c) Surface to obtained by filing
d) Amplifier
e) PNP-type transistor
f) AC motor single phase
g) Angle
h) Antenna
i) Lake
j) Hill contours

-3-

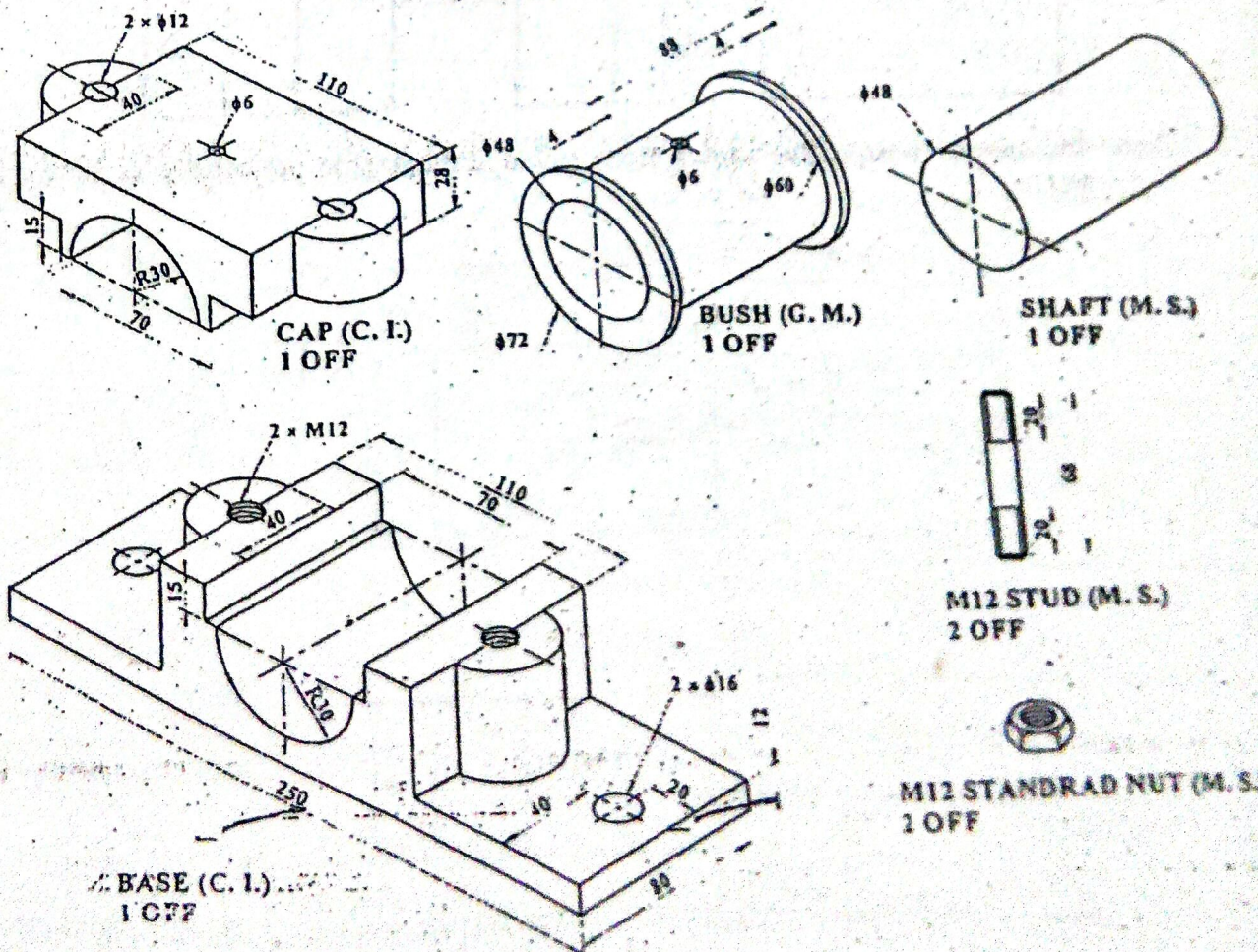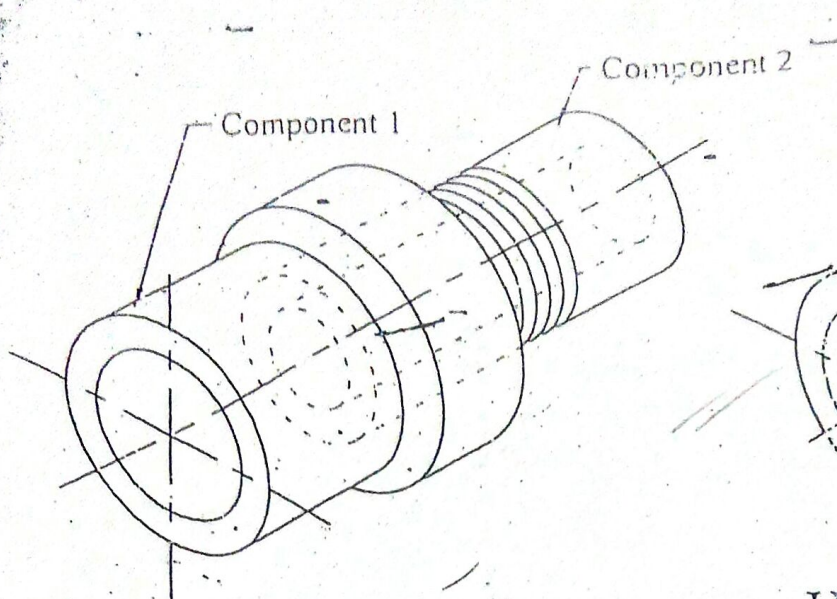Replace front view by sectional view of figure below

4. Determine the limits of dimensions and type of fit designated by 60 H8/f7, assuming fundamental deviation for H and f respectively as 0 μm above the basic size line and 25μm below the basic size line and the values of international tolerance grades for 8 and 7 as 39 μm and 25 μm.
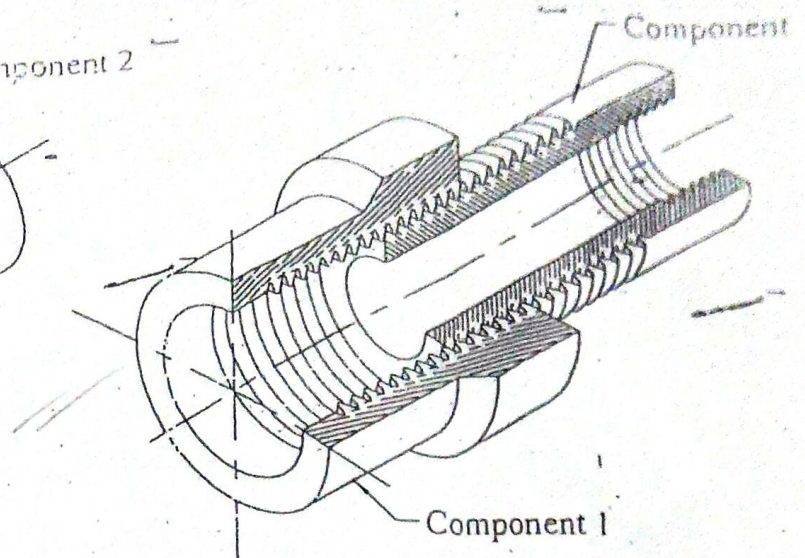
OR

Draw sectional front view and top view of double row, zig-zag type, single strap butt riveted joint.

5. Draw the assembled front view with section from the following detail drawings shown in figure below.
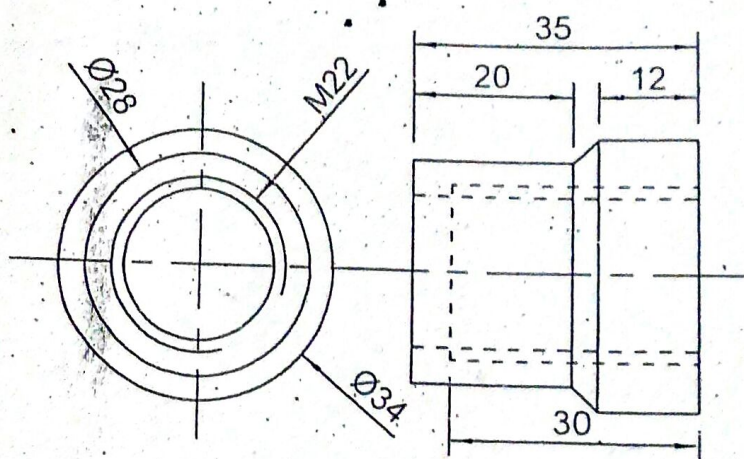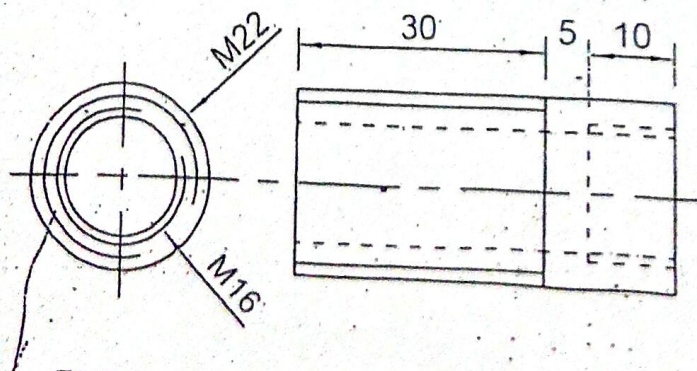

CAP (C. I.)
1 OFF

BUSH (G. M.)
1 OFF

SHAFT (M. S.)
1 OFF

M12 STUD (M. S.)
2 OFF

M12 STANDRAD NUT (M. S.)
1 OFF

BASE (C. I.)
1 OFF

***

Component 1

Component 2

Assembled Isometric View

Component

Component 1

Half Sectional Pictorial View

Ø28

M22

Ø34

35

20

12

30

END VIEW

FV

Component 1, 1-Off (M.S.)

M22

M16

30

5

10

END VIEW

FV

Component 2, 1-Off (M.S.)

All dimensions are in mm

Fig. 3

06

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2068 Magh
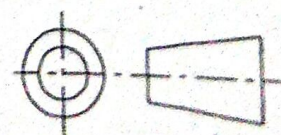
Exam.	New Back (2066 & Later Batch)		
	BE	Full Marks	40
Level	All (Except	Pass Marks	16
Programme	B.Arch.)		
Year / Part	I / II	Time	3 hrs.

Subject: - Engineering Drawing II

✓ Candidates are required to give their answers in their own words ʿar as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
✓ **Necessary figures are attached herewith.**
✓ Assume suitable data if necessary.

Orthographic views of an object are shown in figure 1. Draw its isometric view. [9]

A cube having side 60mm is surmounted by a square pyramid having side 30mm and height 45mm. Draw its angular perspective projection when one of the cube side is 30° inclined and its nearest corner is 25mm behind the projection plane. Take station point 35mm in front of projection plane, 25mm left of nearest corner and 100mm above the ground level. [6]

Sketch removed section at A-A for the component of coupling as shown in figure 3. Take suitable dimensions. [5]

OR

Sketch the symbol of following items (Refer Figure 3(b)):

a) 90° elbow   b) 45° Bend   c) Reducer   d) Cross   e) Tee
f) Plug   g) Amplifier   h) Fuse   i) Check Valve   j) Transistor

Sketch the front view full sectioned and top view of double riveted double strap chain butt joint. [5]

OR

Determine the limits of dimensions and types of fit designed by 50H8/f7. Assume fundamental deviation for H and f as 0µm above the basic size and 25µm below the basic size line respectively and international tolerance grade for 8 and 7 as 39µm and 25µm respectively.

The production drawing of stuffing box is shown figure 4. Draw its assembled half sectional front view. Use packing if necessary. [15]
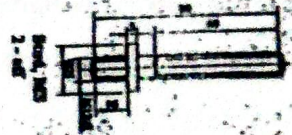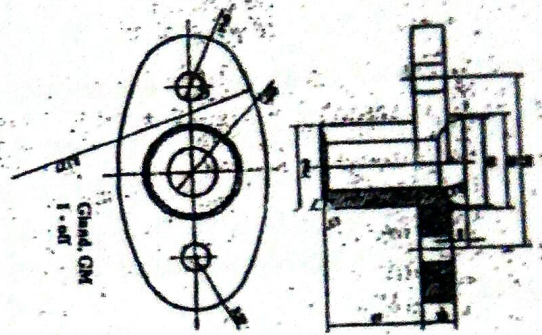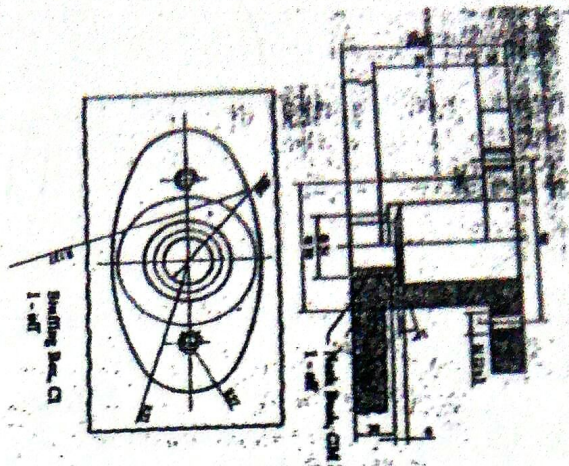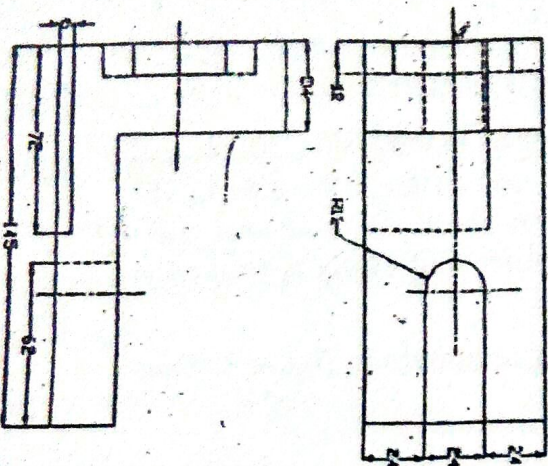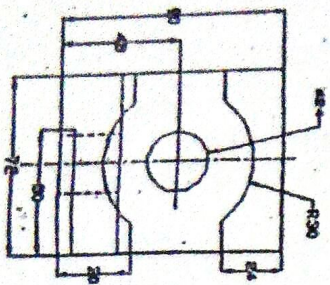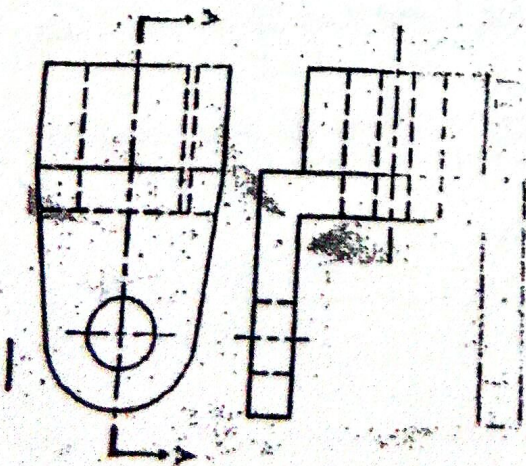
***

Fig 3 (b)

Figure 4

Figure 3

Subject: - Engineering Drawing II

Orthographic views of an object are shown in figure below. Draw its isometric view.　　　[10]

A solid box of size 60 × 45 × 40mm is resting with it's base (60 × 45) on the ground plane. Draw it's angular perspective view with it's vertical faces equally inclined to the picture plane (PP) and the nearest vertical edge is touching the PP. The station point is 80mm above ground level, 40mm away from the PP and the central plane passes from the vertical edge which is touching the PP.　　　[5]
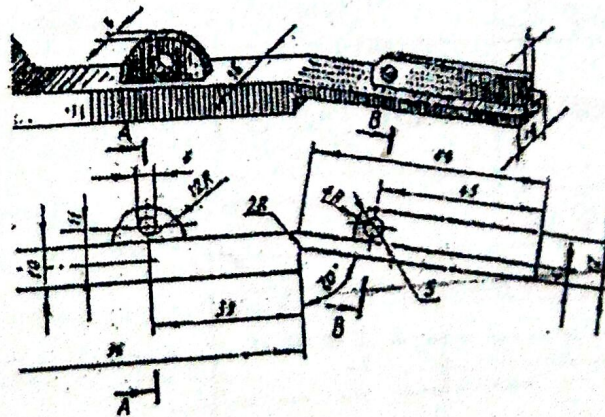
The production drawing of coupling is shown in figure 3. Draw its assembled half sectional front view and side view.　　　[15]

Sketch revolved section at A-A and removed section at B-B for the link as shown in figure below.　　　[5]

OR　　　[5]

Sketch the graphical symbols for the following.

a) End view of external thread
b) Capacitor
c) Square section
d) Resistor
e) Thermocouple
f) Hill contour
g) Delta connection
h) Circuit breaker
i) V-weld
j) Church

5. Determine limits, tolerance, allowance and types of fit designated by 80T8/h5. The value of fundamental deviation given by 'h' is zero and 'T' is –0.024mm. International tolerance grades for 8 and 5 are 0.032mm and 0.014mm respectively.

OR

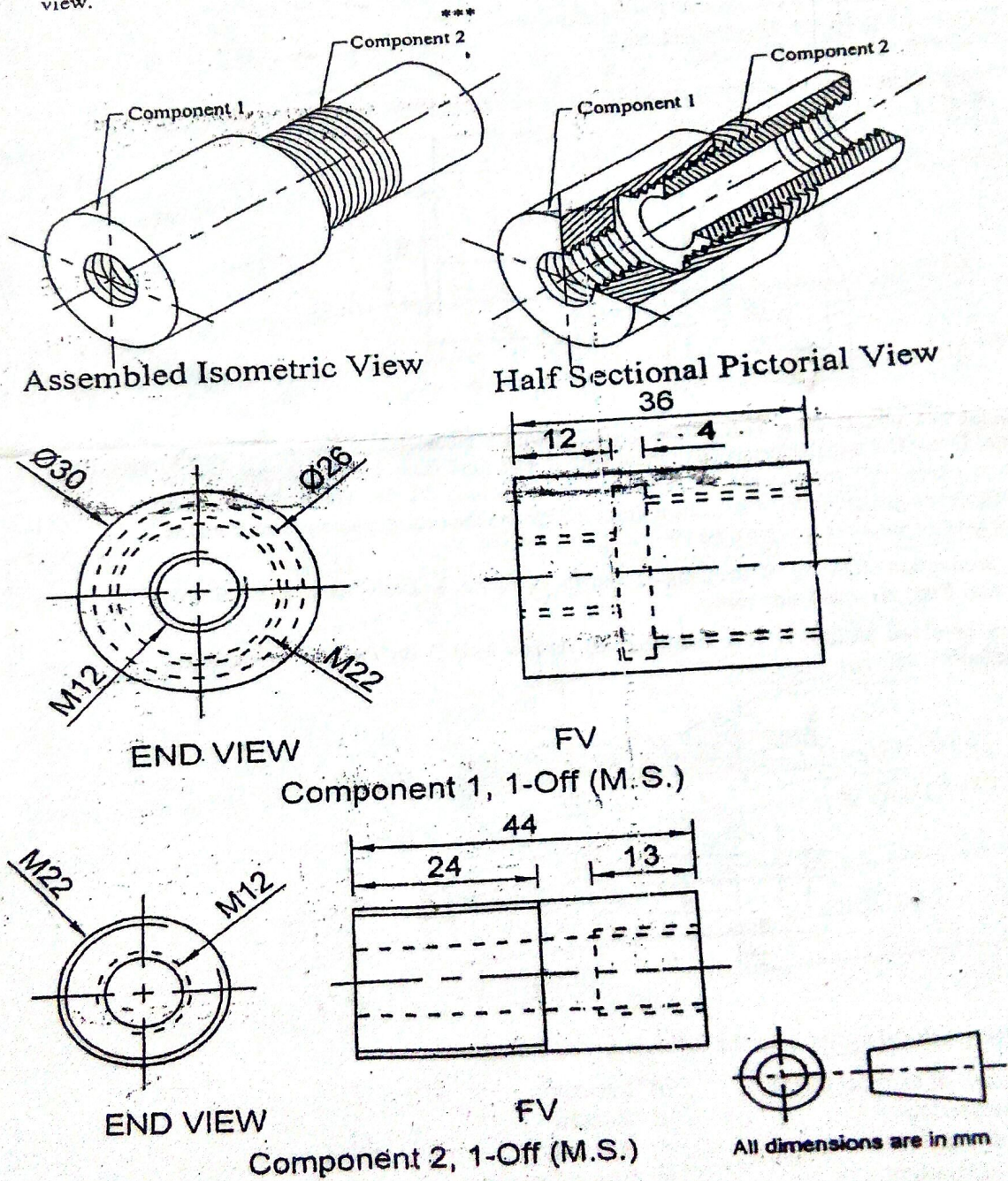Sketch the single strap, double row, zig zag butt joint with top view and sectional front view.

***

Assembled Isometric View

Half Sectional Pictorial View

END VIEW

FV

Component 1, 1-Off (M.S.)

END VIEW

FV

Component 2, 1-Off (M.S.)

All dimensions are in mm

Figure 3

Subject: - Engineering Drawing II

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **All** questions.
✓ The figures in the margin indicate **Full Marks**.
✓ **Necessary figures are attached herewith.**
✓ Assume suitable data if necessary.

1. Orthographic views of an object are shown in Figure 1. Draw its isometric view.   [10]

2. A solid cube having 50mm sides, is resting with it's flat base on the ground plane. Draw its angular perspective view with it's vertical faces equally inclined to the picture plane (PP) and the nearest vertical edge is touching the PP. The station point is 80mm above ground level, 40mm away from the PP and the central plane passes from the centre of the solid cube.   [5]

3. The production drawing of coupling is shown in figure 3. Draw its assembled half sectional front view and the side (or end) view.   [15]
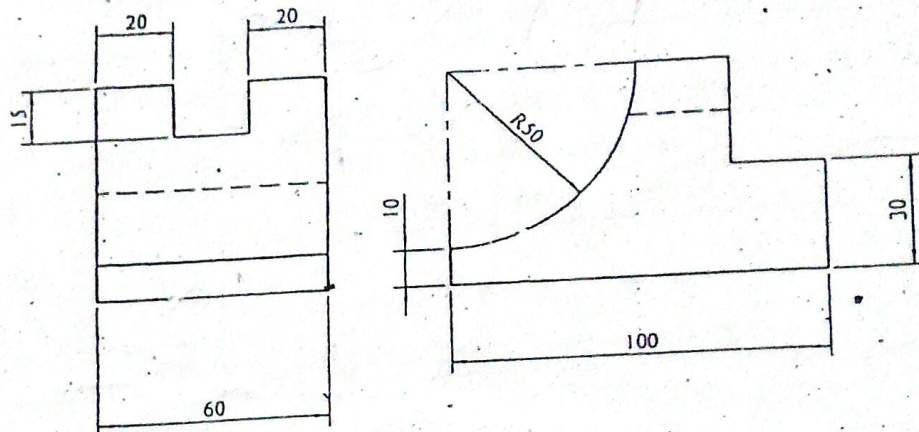

Figure 1

4. Sketch revolved section at A-A and removed section at B-B for the link as shown in figure 4.   [5
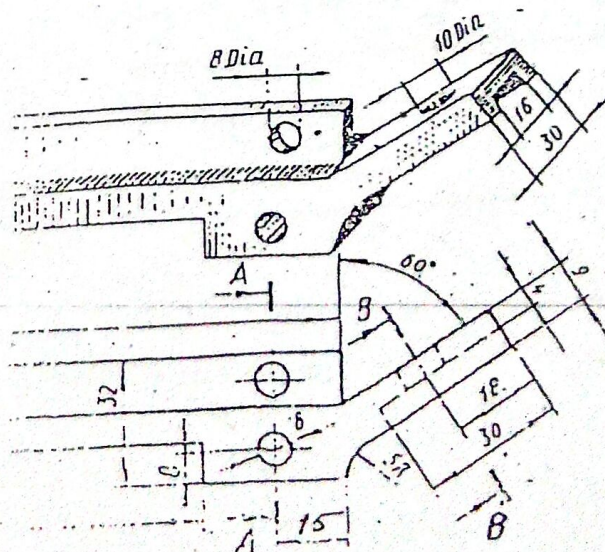

Figure 4

-9-   OR

Sketch the symbols for the following: [5]

a) Single U Butt weld
b) Reducing pressure valve
c) Wall mounted fan
d) Siren
e) Rectifier
f) Antenna
g) Capacitor
h) Multidirectional lay
i) Embankment
j) Thermocouple

5. Determine limits, tolerance, allowance and types of fit designated by 60B7/h8. The fundamental deviation of hole is 0.042 mm more than fundamental deviation of shaft. International tolerance grades for 8 and 7 are 0.024 mm and 0.021 mm respectively. The value of fundamental deviation given by 'h' is zero. [5]

OR

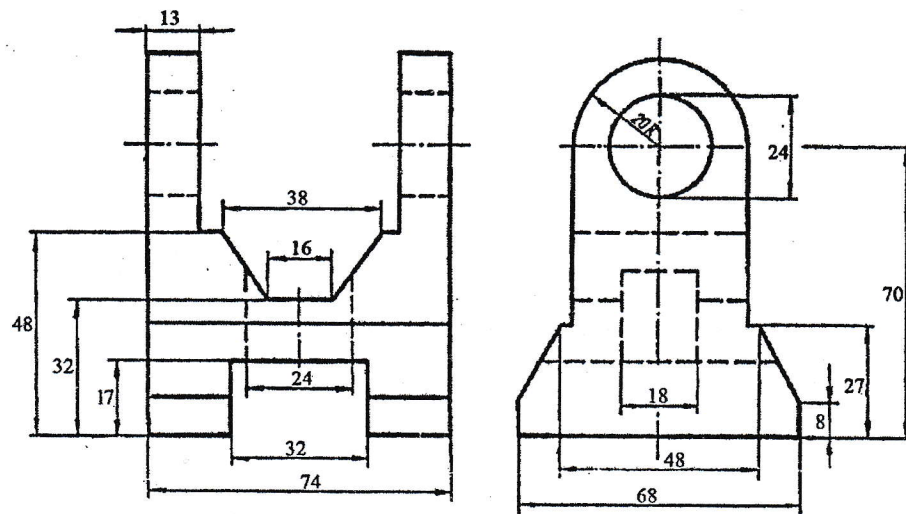Sketch the triple row, zigzag lap joint with top view and sectional front view. [5]

***

Exam.		Back	
Level	BE	**Full Marks**	40
Programme	All (Except BAR)	**Pass Marks**	16
Year / Part	I / II	**Time**	3 hrs.

Subject: - Engineering Drawing II *(ME 451)*

✓ Candidates are required to give their answers in their own words as far as practicable.
✓ Attempt **_All_** questions.
✓ The figures in the margin indicate **_Full Marks_**.
✓ Assume suitable data if necessary.

1. Draw an isometric drawing of an object with the orthographic views shown in figure below. [10]

2. A right pentagonal base pyramid of 25 mm base side and axial height 65 mm resting on by its base, one side of base is inclined to picture plane at 30° to right side, one nearest corner of base is 20 mm behind the picture plane. The station point is 50mm in front of picture plane and 75 mm above ground plane and center plane lies 15 mm left to the nearest corner. Draw the perspective view of the Pyramid. [5]

3. Sketch and make the complete fit analysis [Indicate type of fit, allowance and shaft basis or hole basis system] of 45 S6/h12. (FD. For S = -0.034, h = 0.000, value for ITG no. 6 and 12 are 0.016 and 0.160 respectively) [5]
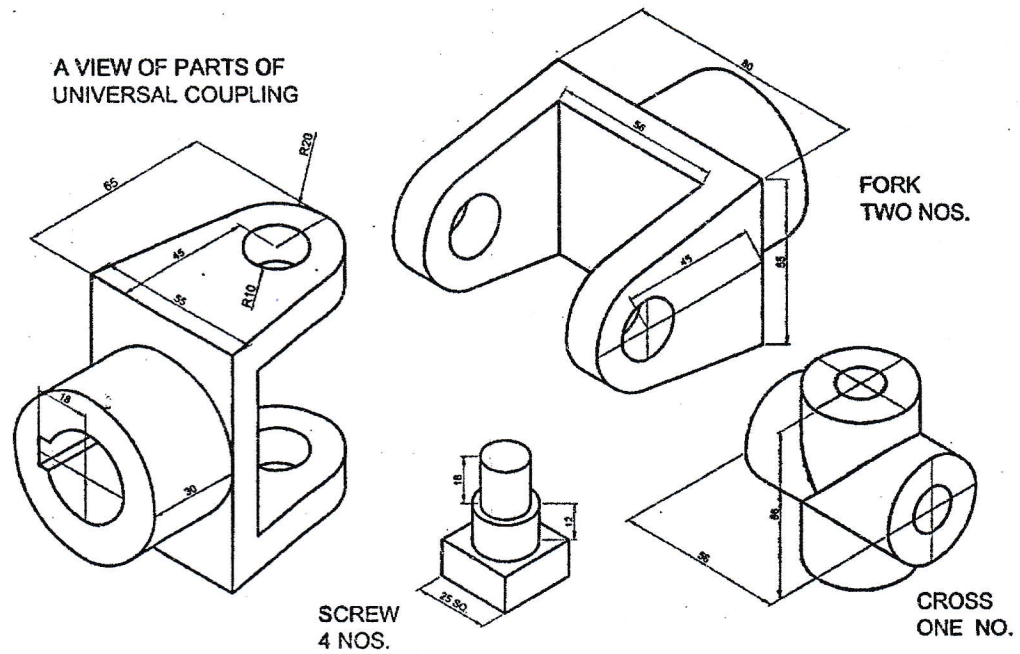
OR

Sketch the Sectional Front view and Top view of the double riveted, double strap, zig-zag type butt joint. [5]
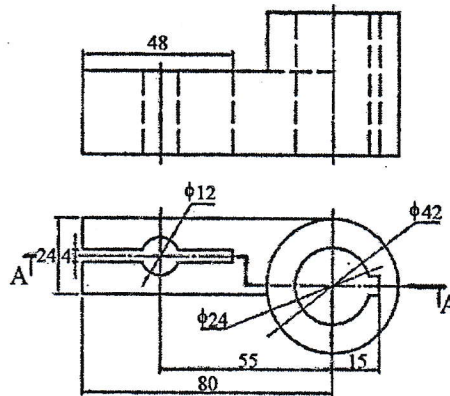
4. Draw the assembled full sectional front view of a universal coupling shown in figure below. [15]

A VIEW OF PARTS OF
UNIVERSAL COUPLING

FORK
TWO NOS.

SCREW
4 NOS.

CROSS
ONE NO.

5. Draw the sectional front view of the given orthographic views. [5]

48

ϕ12

ϕ42

A

ϕ24

55

15

80

OR

Sketch symbol of the followings:

a. Depression Contour	b. School
c. Surface to be coated	d. Check Valve
e. Depression Contour	f. School
g. Surface to be coated	h. Check Valve
i. Depression Contour	j. School

***