VISION

"To develop technically skilled engineers with value-based education in automotive industry to face upcoming chances".

MISSION
- *Understanding the need for regional automotive industries.*
- *Provide hands on skills for life long professional development.*
- *To create responsible students with sense of ethics & discipline.*

SYAE

Subject Name: AED

Sheet No. 1

Questions.

1. A square prism side of base 45mm and axis length 90mm has its axis vertical and rectangular faces equally inclined to VP. A square hole of sides 30mm is drilled through the prism completely such that the axis of the hole is perpendicular to VP and bisect the axis of vertical square prism .The side of square hole are equally inclined to HP .Draw DLS with effect of hole.

2. A right circular cone diameter of base 60mm and axis 60mm long is resting on its base on HP It is cut by a section plane perpendicular to front view, top view and DLS of the cone.

3. A cylinder with base diameter 66mm and axis length 84mm has its base in HP .A square hole of side 36mm is punched centrally having its sides equally inclined with HP .draw the DLS with hole.

4. A square pyramid of 60mm side of base and 80mm axis height rests vertically on its base with the adjacent edges of the base equally inclined to VP .A circular hole of 40mm diameter is drilled through the pyramid so that the axis is perpendicular to the VP and parallel to the HP.The axis of the hole is intersecting the axis of the pyramid at 25mm above the base. Develop the lateral surface of the pyramid.

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SYAE

Subject Name: AED

Sheet No. 2

Questions.

1. A square prism side of base 40mm height 75mm is kept on the HP on its base with its rectangular faces equally inclined to VP. It is penetrated by a horizontal square prism of side of base 30m,axis length 75mm such that axis of the two prisms bisects each other at right angles .The two rectangular faces of the horizontal square prism are equally inclined to HP and angles. The two rectangular faces of the horizontal square prism are equally inclined to HP and axis is parallel to both HP and VP .draw the projections of solid showing the lines of intersection axis is parallel to both HP and VP.Draw the projections of solids showing the lines of intersection.

2. A vertical square prism base 50mm side and height 90mm is completely penetrated by a horizontal square prism base 35mm side and axis length 90mm so that their axes are 6mm apart. The axis of the horizontal prism is parallel to the VP.while the faces of both prism are equally inclined to the VP.Draw the projections of the prisms showing lines of intersection.

3. A vertical square prism 50mm side of base and 100mm long having its faces equally inclined to the VP is completely penetrated by a horizontal cylinder 40mm diameter and 100mm long the axis of which is parallel to VP and 6mm away from that of axis of prism. Draw the projection of the solids showing

curves of intersection.

4. A vertical cylinder of 60mm diameter is penetrated by another cylinder of the same size. The axis of penetrating cylinder is parallel to both HP and VP and is 10mm away from the axis of the vertical cylinder .Draw the projections of two cylinder showing curves of intersection. Assume the length of vertical cylinder as 90mm and horizontal cylinder with length 100mm.

5. A vertical cylinder of diameter 70mm and height 100mm is completely penetrated by a horizontal square prism of side 50mm and length 110mm.The axes of the prism bisect the axis of the cylinder. All the rectangular faces of the prism are equally inclined to HP. Draw FV, TV and SV showing the curves of intersection.

6. A cone with base diameter 80mm and axis height75mm is kept on the HP on its base It is penetrated by a horizontal cylinder of the diameter 40mm with axis parallel to VP and intersections the axis of the cone at a Distance of 25mm above the base of the cone .Draw the projections of the solids showing curves of intersection.

7.a cylinder of 80mm diameter is resting on HP on its base A cone diameter of base 90mm and height 110mm penetrates the cylinder at right angle .The axis of the cone is parallel to HP and VP both. Apex of the cone reaches 60mm beyond the axis of cylinder .Draw the projects and show the line intersections.

8. A vertical cone diameter of base 80mm and axis 90mm long is completely penetrated by a cylinder of 44mm diameter. The axis of the cylinder it's parallel to HP and VP and intersect the axis of the cone at a point 25mm above the base. Draw the projections showing curves of intersection.

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Subject Name: AED

Sheet No. 3

Questions.

1. Draw Conventional representations of

A.Bevel gear

B.Semi-elliptic leaf spring with eyelets

C.Spring with square and flat ends

D.Rack and pinion gear

E.Compression spring with square section

F.Sprial spring

G.External Screw Threads

H.Spur gear

I. Worm Gear

J.Helical compressing spring with flat ends

K.Internal Screw threads

L.Semi-elliptic leaf spring

M.Cylindrical helical Compression spring of wire of circular cross section

2. Draw Conventional representations of

A.Diamond Knurling

B.Gate valve

C.Ball bearing

D.Splined shaft

E.Roller bearing

F.Reducing socket

G.Globe valve

H.Cross pipe joint

I. Rack and pinion

J.check valve

K.saddle key

3. Draw Conventional representations of

A.Conventional break for pipe.

B.Short break for pipe.

C.Long break for pipe.

d. I section or rolled section

E.Glass and Rubber

F.Cast iron

G. petrol

Rectangular section (wood)

I. Steel

j. Cement concrete.

SYAE

Subject Name: AED

Sheet No. 4

Questions.

1. Draw symbol representing the characteristics of geometrical tolerance.

2. Draw conventional representation of the all forms of weld.

3. What is the meaning of symbol X and Y

4. State the meaning of the symbol

Grinding
100 (50)

N7

5 C

5. From the drawing answer the question

A. what is the meaning of a

B. what is the meaning of d

Ø12.6 HOLES
EQUI-SPACED

// 0.04 A (c)

⊕ Ø0.01 Ⓜ A
(e)

✓ 0.1 B
(d)

KEY
μ6

8

6.3

Ø116 +0.01

2.5

Ø38 +0.01

Ø60

Ø110

⊥ 0.02 A
B (b)

6.3

◯ 0.4
(f)

16

+0.01
50⁰

(a) ⬜ 0.1
A
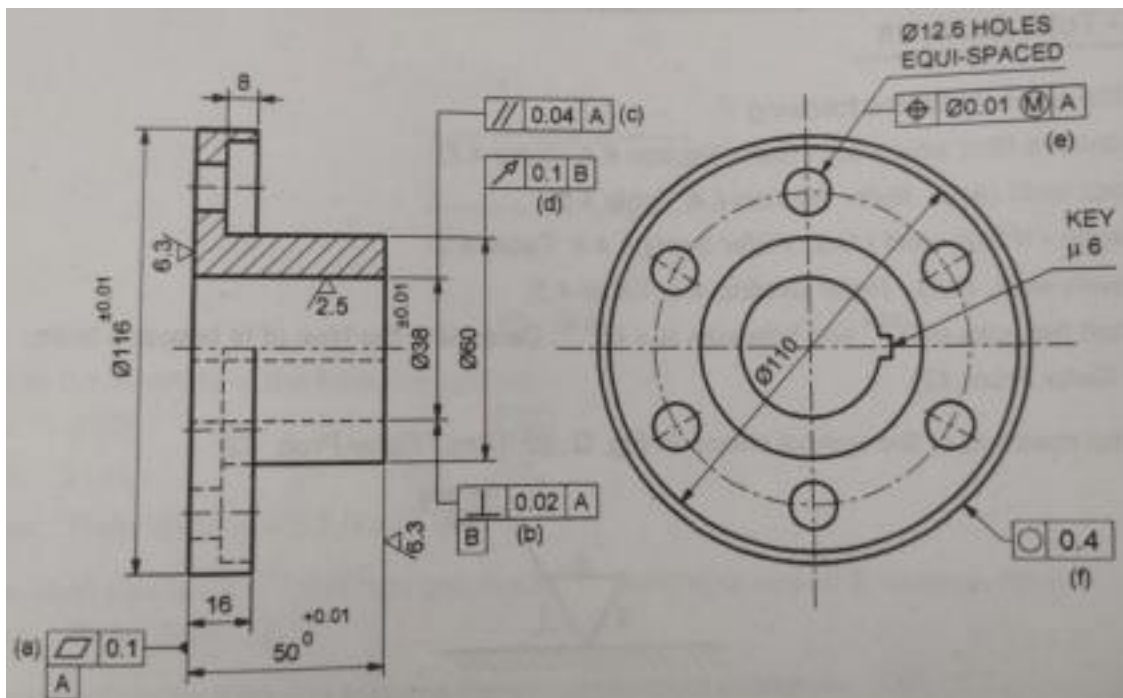
6. State the meaning of X and Y
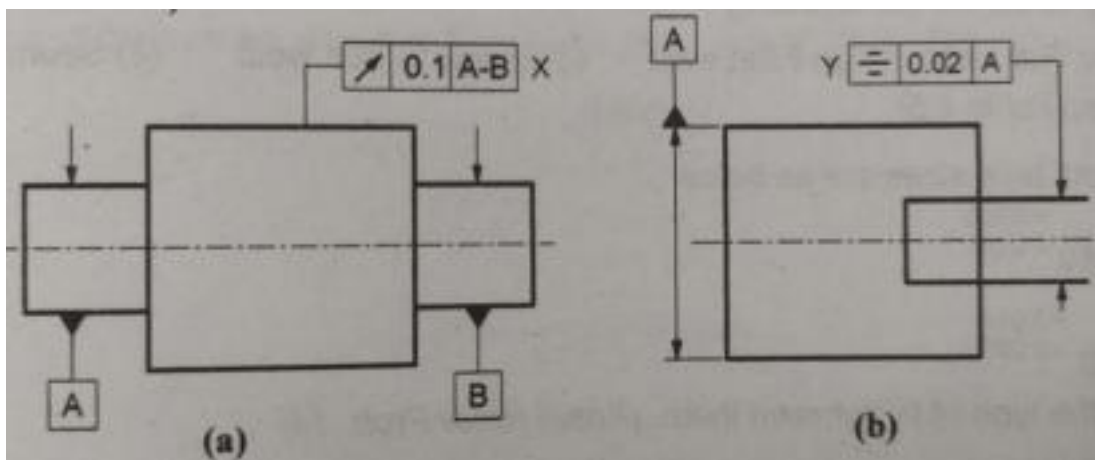
✓ 0.1 A-B X

A

Y ≑ 0.02 A

A

B

(a)

(b)

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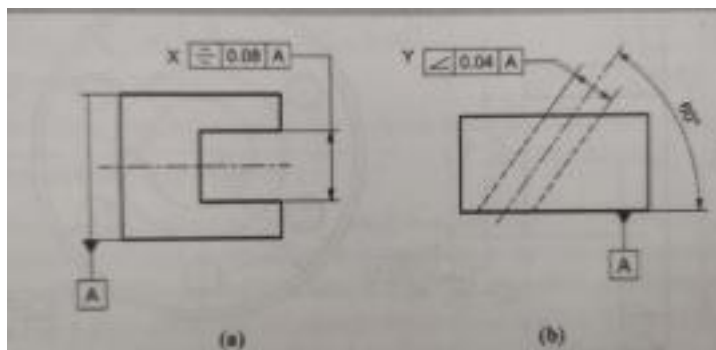- To create responsible students with sense of ethics & discipline.
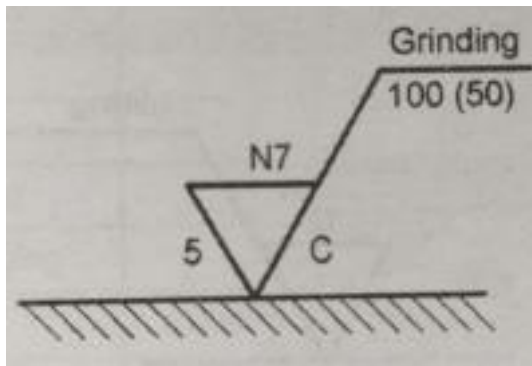
SYAE

Subject Name: AED

Sheet No. 5

Questions. (Draw diagram as it is)

1. Draw the production drawing of at following machining component showing dimensional and geometrical tolerance, surface finish.
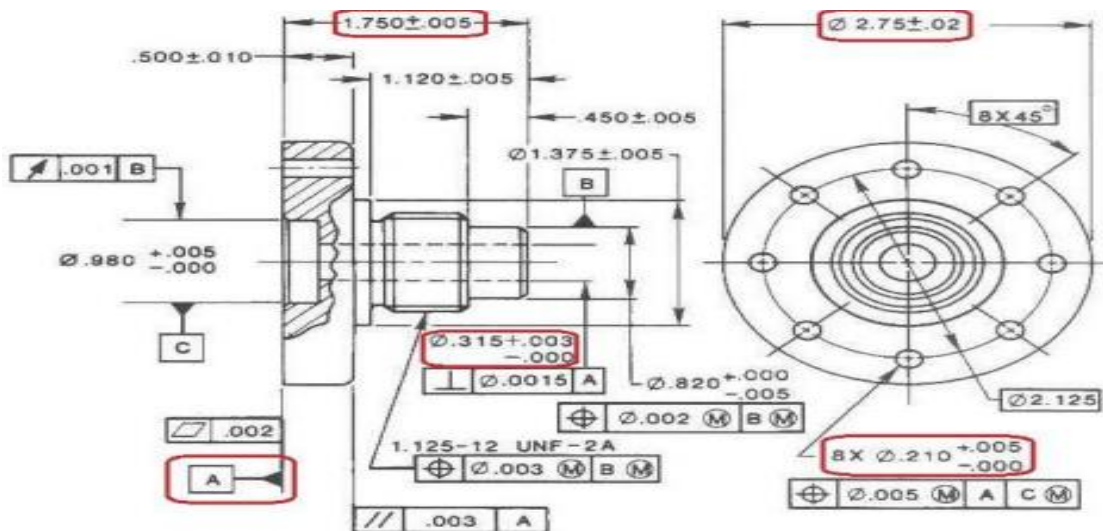
2. .Draw the production drawing of at following machining component showing dimensional and geometrical tolerance,
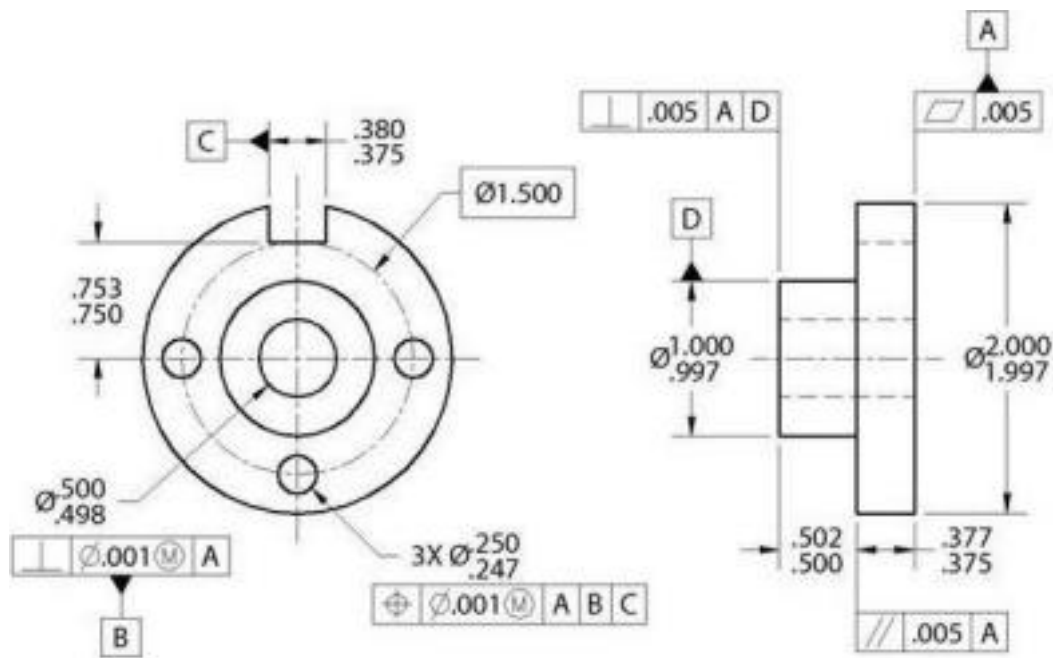
surface finish.

3. .Draw the production drawing of at following machining component showing dimensional and geometrical tolerance, surface finish.
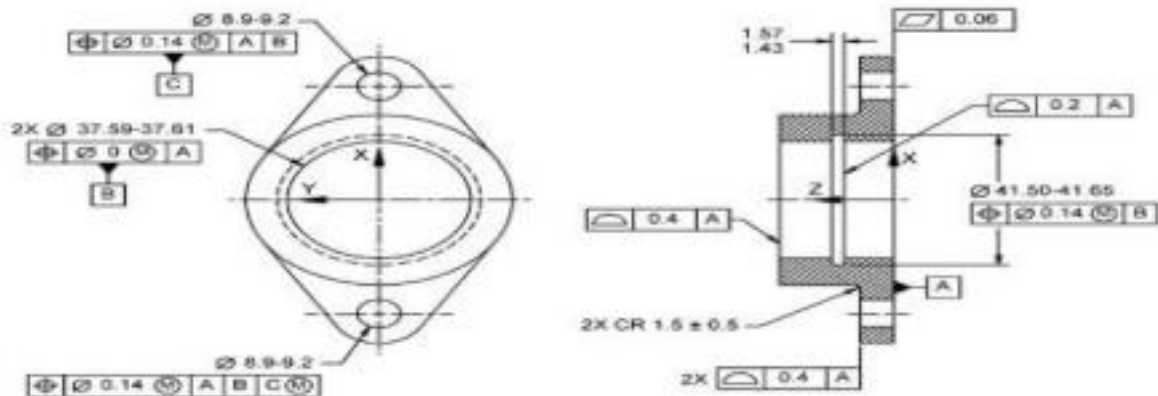
4. .Draw the production drawing of at following machining component showing dimensional and geometrical tolerance, surface finish.

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SYAE
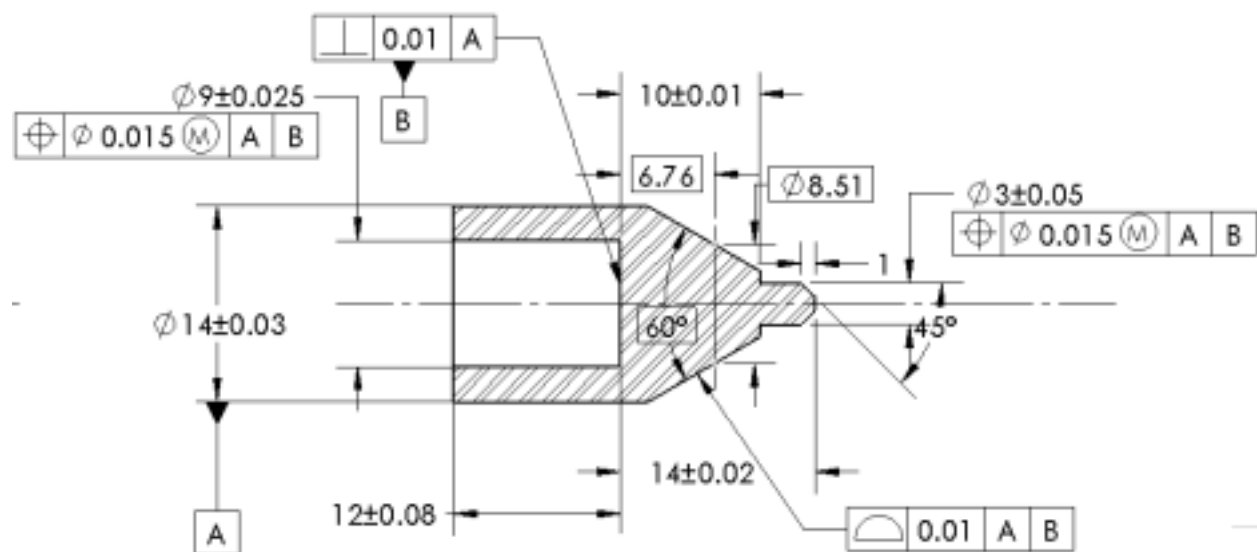
Subject Name: AED

Sheet No. 6

Questions.

Draw Detail to Assembly of following questions

1. Draw assembly of Universal Coupling from given details

Fig. 5.1(a) : Universal coupling details
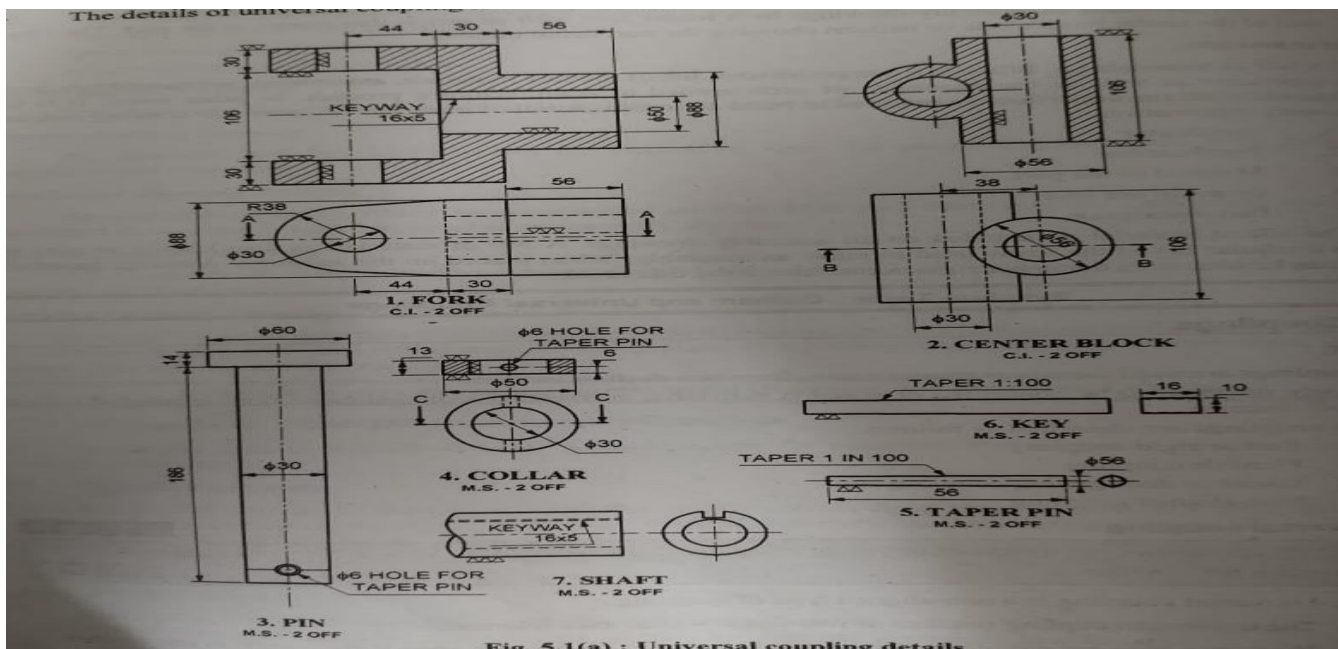
2.Draw assembly of Oldham Coupling from given details

Fig. 5.2(a) : Oldham's coupling details
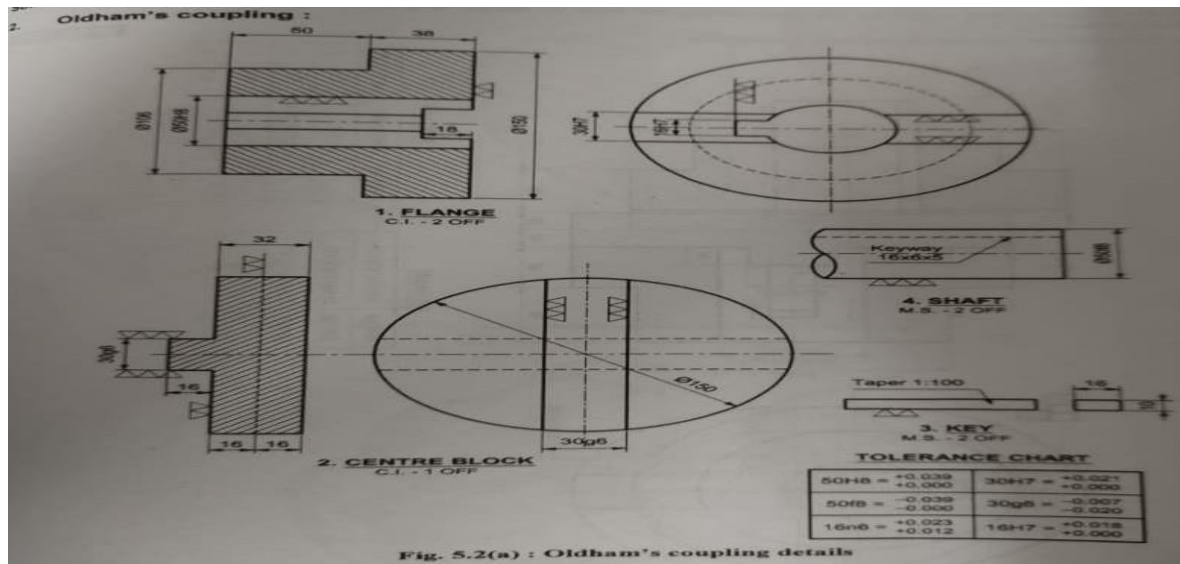
3.Draw assembly of scerw jack coupling from given details

Fig. 5.13(a) : Screw jack coupling details

4. Draw assembly of Lathe tool post from given details

Ø48   M 18

60

66

24H7

Ø60H7

36

132

12

Ø72

1. POST
C.I. - 1-OFF

Ø60   Ø120

R144

18

3. RING
C.I. - 1-OFF

144

2/n6

6

R144

4. WEDGE
M.S. - 1-OFF

SQ.90

90

Ø60e8

SQ.18

8

Ø36

15

72

M18   6

5. SCREW
M.S. - 1-OFF

6

Ø74

12

2. BLOCK
C.I. - 1-OFF

TOLERANCE CHART

60H7 =	+0.000 +0.030	60e8 =	-0.060 -0.106
24H7 =	+0.021 +0.000	24n6 =	+0.036 +0.015

Tool Post
Fig. 5.9(a) : Lathe tool post details

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Sheet No. 7
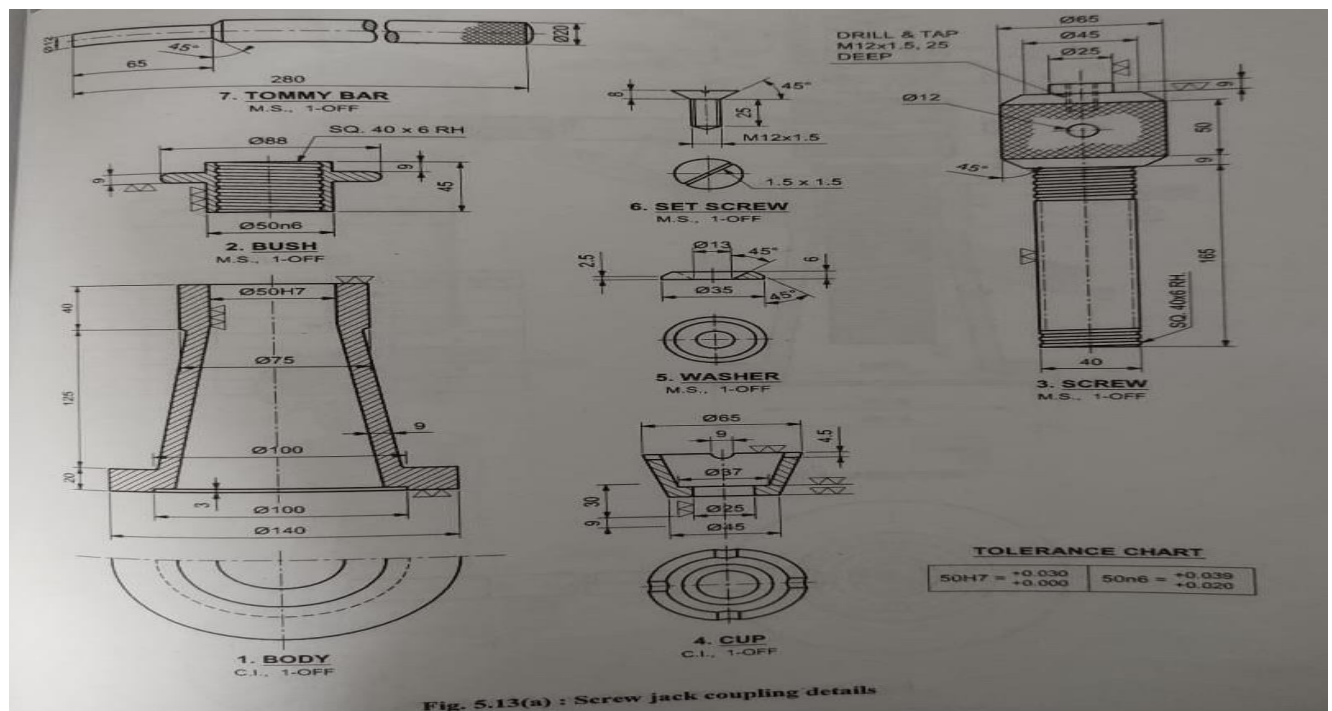
Questions.

Draw Assembly to Detail of following questions

1. Draw detail of connecting rod from given assembly.

Fig. 6-4(a) : Assembly of petrol engine piston and connecting rod

2. Draw detail of non-return valve from given assembly.

Ø225
Ø175 PCD 4 HOLES M 16
Ø110H7
Ø120
Ø100H7
Ø85H7
Ø70
Ø170
168

1. BODY
C.I. 1-OFF

Ø225
Ø175 PCD
Ø99
Ø17.4 HOLES
R10
Ø110f7
Ø30

4. COVER
C.I. 1-OFF

Ø100g6
Ø70H7
Ø85n6

2. VALVE SEAT
G.M. 1-OFF

M16
5. STUD
M.S. 4-OFF

Ø80
Ø26
Ø70e8

3. VALVE
G.M. 1-OFF

TOLERANCE CHART

110H7 =	+0.035 / +0.000	110f7 =	-0.036 / -0.071
100H7 =	+0.035 / +0.000	100g6 =	-0.012 / -0.034
85H7 =	+0.030 / +0.000	85n6 =	+0.045 / +0.023
70H7 =	+0.030 / +0.000	70e8 =	-0.060 / -0.106

Fig. Prob. 17
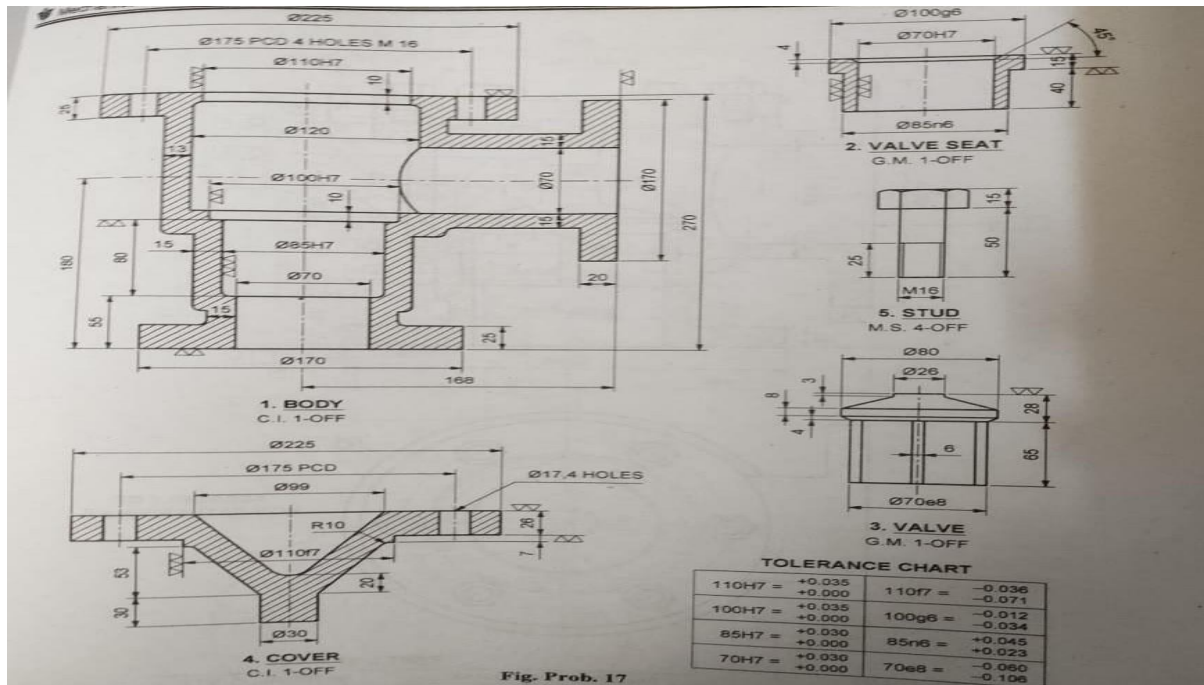
3. Draw detail of foot step bearing from given assembly.

SUNG 8 WIDE
Ø71
Ø94
Ø68
R6
PIN HOLE Φ4,6 DEEP
200

1. BODY
C.I. 1 - OFF

12
15
40
15
Ø68
Ø78
Ø50
B

2. BUSH
G.M. 1 - OFF

Ø50
15

4. DISK
G.M. 1 - OFF

Ø64
Ø50
R60

3. SHAFT
M.S. 1 - OFF

PIN Φ4,
12 LONG

5. PIN
M.S. 1 - OFF

Fig. 5.8(a) : Details of foot step bearing
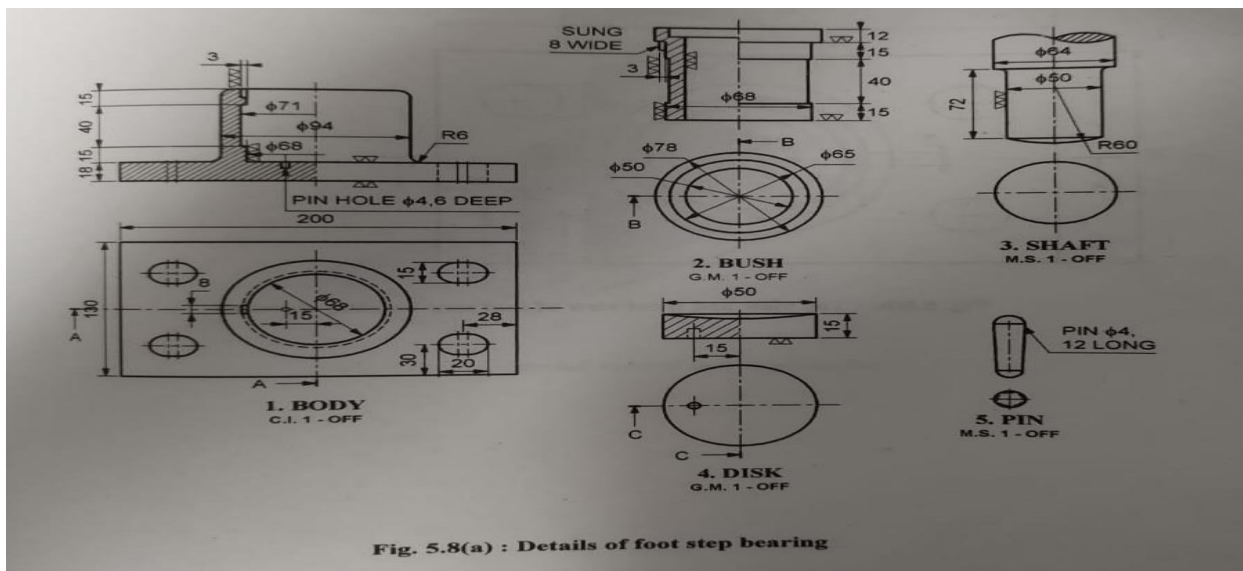
4. Draw detail of pedestal bearing from given assembly.

T.V.

ASSEMBLY OF PEDESTAL BEARING

FIT CHART

8H7/h6 = CLEARANCE FIT	
48H7/g6 = CLEARANCE FIT	
46H7/g6 = CLEARANCE FIT	
56H7/g6 = CLEARANCE FIT	

PART LIST

PART NO.	PART NAME	METAL	QTY.
1.	BODY	C.I.	1
2.	BRASS	G.M.	1
3.	CAP	C.I.	1
4.	BOLT	M.S.	2
5.	NUT	M.S.	2
6.	LOCK NUT	M.S.	2

Fig. Prob. 1