DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD -402 103

Semester Examination – December - 2017

Branch: B. Tech. Mechanical **Sem.:- III**

Subject with Subject Code:- Machine Drawing and CAD (BTMEC304) **Marks: 60**

Date: - 07/12/2018 **Time:- 4 Hr.**

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Instructions to the Students

1. Question No.5 is compulsory. Attempt **any three** questions from the remaining.
2. If some part or data is noticed to be missing, you may appropriately assume it and should mention it clearly.

(Marks)

Q.1. Attempt **any two** of the following. **(12)**

a) Illustrate removed section with an example. **(6)**

b) Show flexible coupling with a neat diagram. **(6)**

c) Represent Bevel gears with convention. **(6)**

Q.2. Attempt **any two** of the following. **(12)**

a) Represent Double Riveted Double strap butt joint. **(6)**

b) Show convex double V butt weld with convention and symbol. **(6)**

c) Represent socket and spigot joint for pipes with a neat diagram. **(6)**

Q.3. Attempt **any two** of the following. **(12)**

a) A right circular cylinder with base diameter 60 mm axis length 60 mm stands vertically on its base in the H.P. A square prism with side of base 25 mm, axis length 80 mm penetrates horizontally such that its axis is parallel to V.P. and 10 mm away (in front) from the axis of vertical cylinder and is 30 mm above the base of the cylinder. The faces of square prism are equally inclined with H.P. draw the projections of solids with curve of intersection. **(6)**

b) A vertical cone of base diameter 100 mm and axis length 90 mm is penetrated by a horizontal cylinder of base diameter 50 mm axis length 120 mm. The axis of the cylinder is parallel to V.P. and is 30 mm above the base of cone. The axis of cylinder is 12 mm away from the axis of the cone. Draw the projections of the solids showing curves of intersection. **(6)**

c) A vertical square prism of side 50 mm and height 90 mm is resting on the ground on its base with one side of base inclined at 30° to the V.P and is completely penetrated by a horizontal square prism of 40 mm side and 100 mm axis length. the axis of the horizontal square prism is parallel to the V.P and bisects the axis of the vertical prism at right angle. All the rectangular faces of the horizontal prism are equally inclined to the V.P. draw the projections of the solids showing the lines of intersection. **(6)**

Q.4. Attempt **any two** of the following. **(12)**

a) Represent transition fit and interference fit. **(6)**

b) Show surface roughness value and roughness grade symbol for roughness grade number N3. **(6)**

c) Highlight the advantages of Computer Aided Design and Drafting (CADD). **(6)**

Q.5. Attempt **any one** of the following. **(24)**

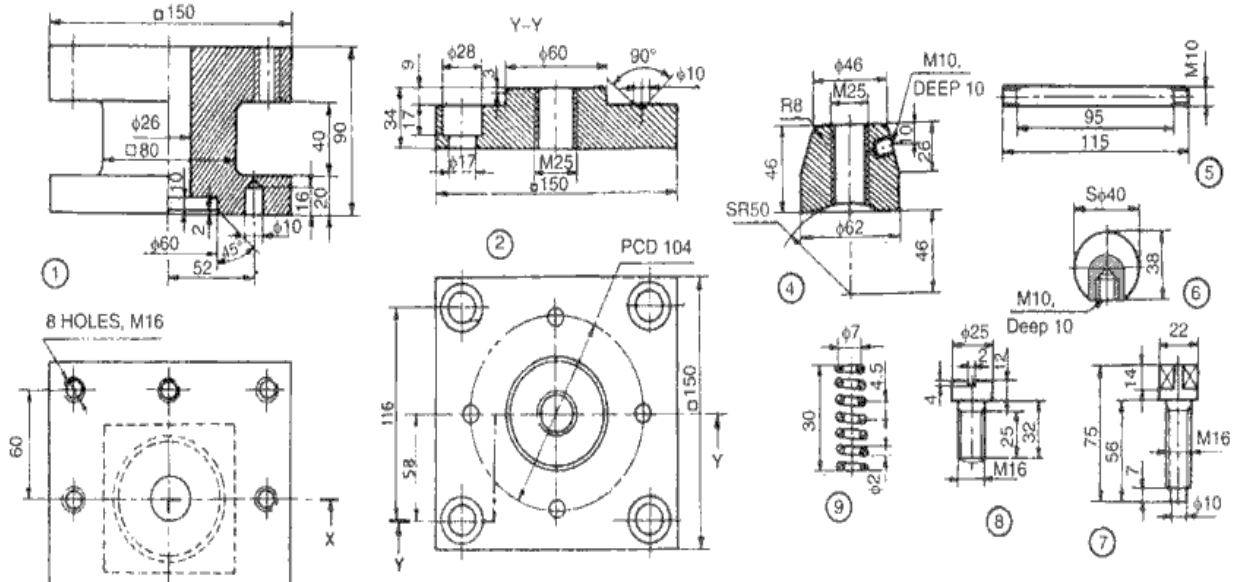
a) Fig. No.1 shows details of square tool post. Draw sectional front view and top view of the assembly and also prepare bill of material. **(24)**

b) Fig. No. 2 shows assembly of Non-Return valve. Draw detailed drawing of the following:

i) Body – Sectional Front view and Top view. **(10)**

ii) Cover – Front view and Top view. **(7)**

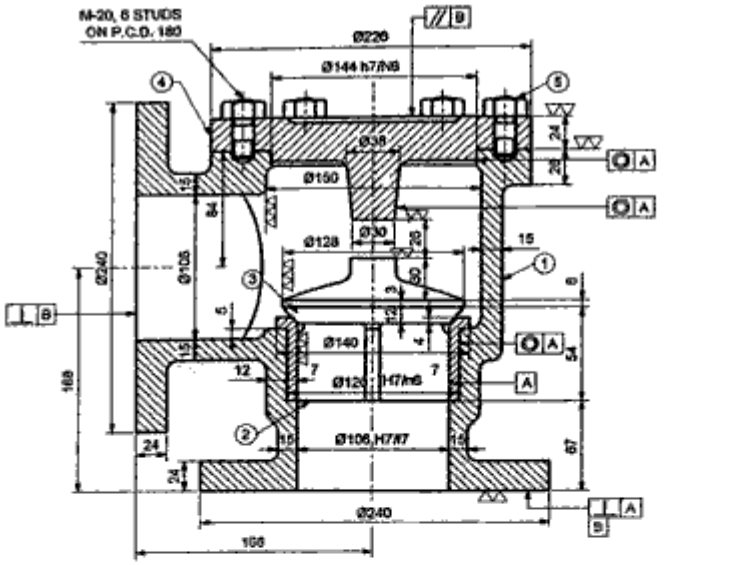
iii) Valve seat – Front view and Top view. **(7)**

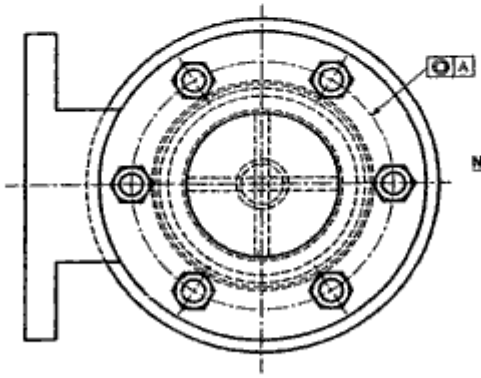


Parts list

Part No.	Name	Matl	Qty
1	Tool holder	MS	1
2	Base plate	MS	1
3	Stud	MS	1
4	Clamping nut	MS	1
5	Handle	MS	1
6	Knob	Ebonite	1
7	Set screw	MS	8
8	Grub screw	MS	4
9	Spring	Steel	1
10	Ball ϕ9	MS	1

Fig. No. 1 – Details of Square Tool Post





ASSEMBLY OF
NON-RETURN VALVE

FIT CHART

106H7/f7 = CLEARANCE FIT
144H7/h6 = CLEARANCE FIT
120H7/k6 = TANSINTION FIT

PART LIST

PART NO.	PART NAME	MATERIAL	QTY.
1	BODY	C.I.	1
2	VALVE SEAT	G.M.	1
3	VALVE	G.M.	1
4	COVER	C.I.	1
5	STUD WITH NUT	M.S.	4

Fig. No. 2 – Assembly of Non-Return valve

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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD -402 103

Semester Examination – December - 2017

Branch: B. Tech. Mechanical **Sem.:- III**

Subject with Subject Code:- Machine Drawing and CAD (BTMEC304) **Marks: 60**

Date: - 07/12/2018 **Time:- 4 Hr.**

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Instructions to the Students

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2. If some part or data is noticed to be missing, you may appropriately assume it and should mention it clearly.

(Marks)

Q.1. Attempt **any two** of the following. **(12)**

a) Illustrate removed section with an example. **(6)**

b) Show flexible coupling with a neat diagram. **(6)**

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b) Show convex double V butt weld with convention and symbol. **(6)**

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Q.3. Attempt **any two** of the following. **(12)**

a) A right circular cylinder with base diameter 60 mm axis length 60 mm stands vertically on its base in the H.P. A square prism with side of base 25 mm, axis length 80 mm penetrates horizontally such that its axis is parallel to V.P. and 10 mm away (in front) from the axis of vertical cylinder and is 30 mm above the base of the cylinder. The faces of square prism are equally inclined with H.P. draw the projections of solids with curve of intersection. **(6)**

b) A vertical cone of base diameter 100 mm and axis length 90 mm is penetrated by a horizontal cylinder of base diameter 50 mm axis length 120 mm. The axis of the cylinder is parallel to V.P. and is 30 mm above the base of cone. The axis of cylinder is 12 mm away from the axis of the cone. Draw the projections of the solids showing curves of intersection. **(6)**

c) A vertical square prism of side 50 mm and height 90 mm is resting on the ground on its base with one side of base inclined at 30° to the V.P and is completely penetrated by a horizontal square prism of 40 mm side and 100 mm axis length. the axis of the horizontal square prism is parallel to the V.P and bisects the axis of the vertical prism at right angle. All the rectangular faces of the horizontal prism are equally inclined to the V.P. draw the projections of the solids showing the lines of intersection. **(6)**

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b) Show surface roughness value and roughness grade symbol for roughness grade number N3. **(6)**

c) Highlight the advantages of Computer Aided Design and Drafting (CADD). **(6)**

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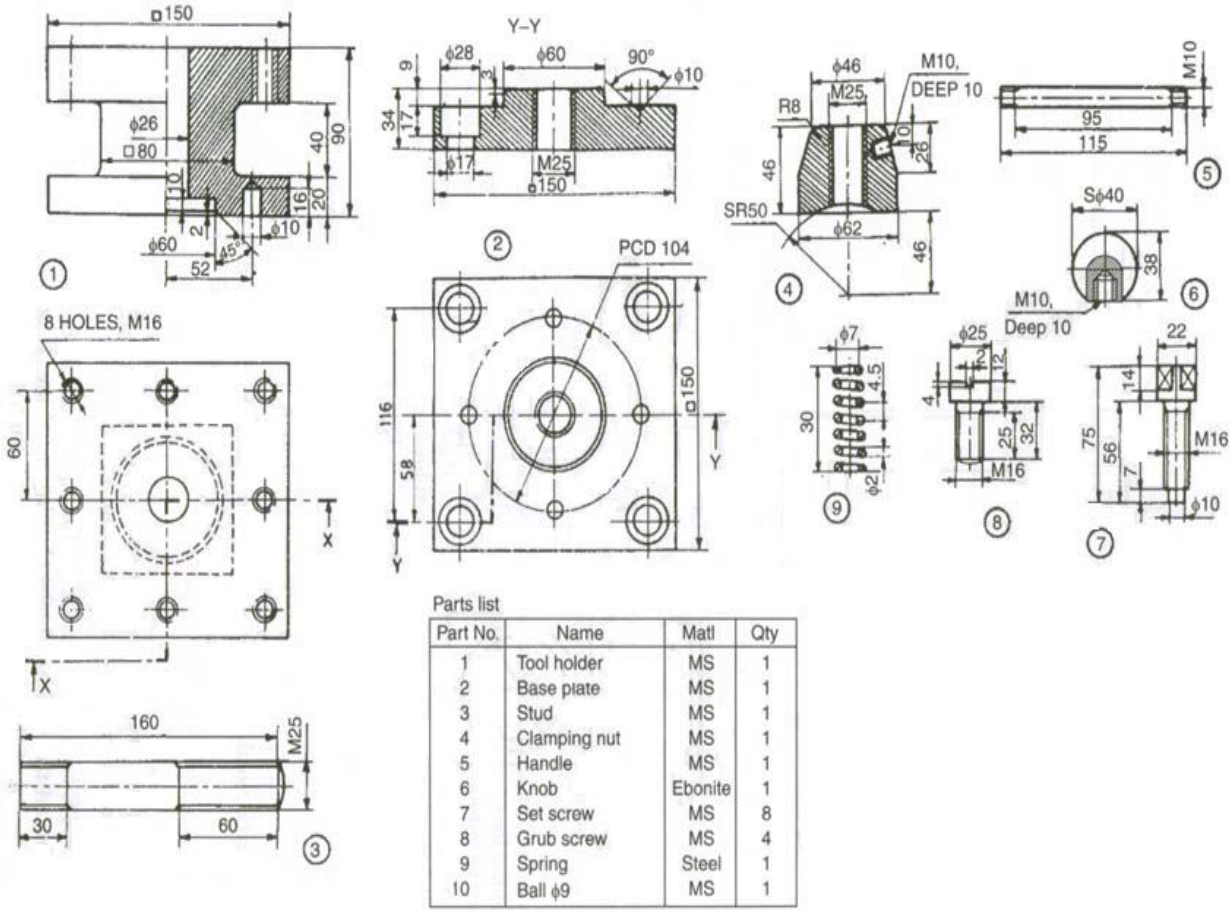
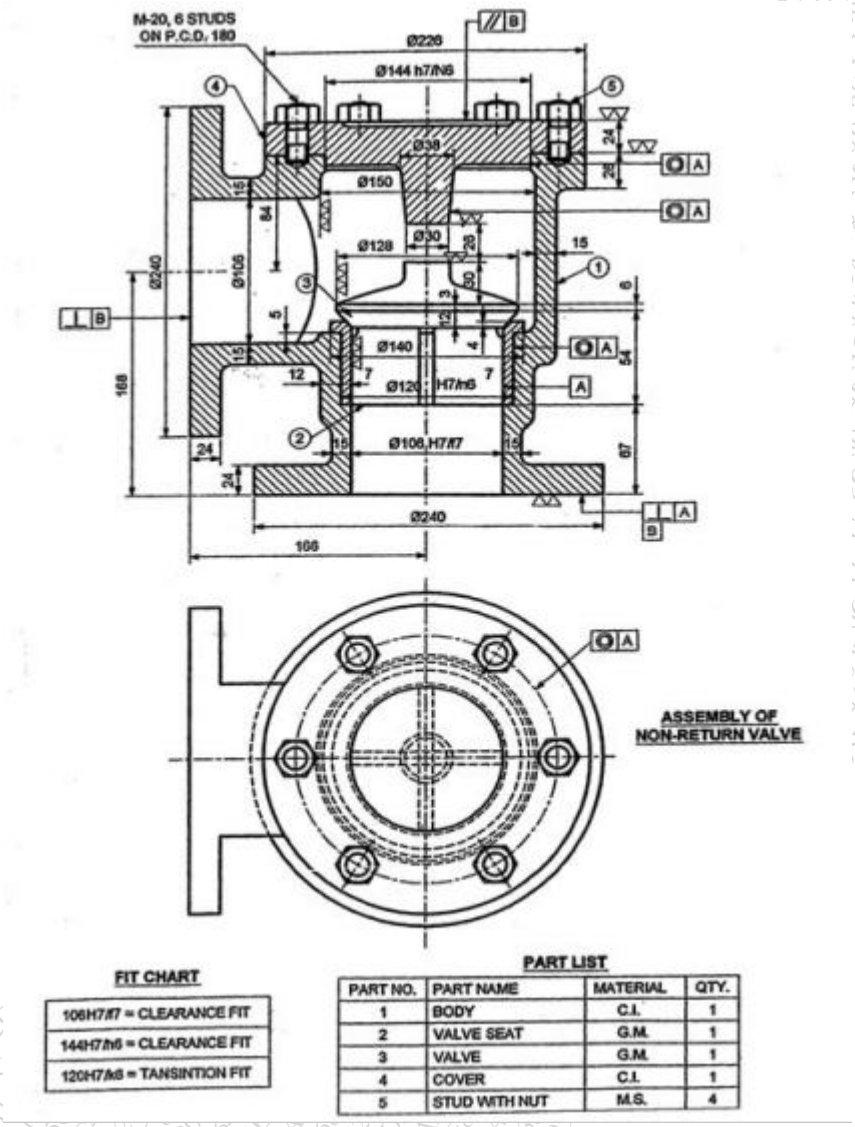


Parts list

Part No.	Name	Matl	Qty
1	Tool holder	MS	1
2	Base plate	MS	1
3	Stud	MS	1
4	Clamping nut	MS	1
5	Handle	MS	1
6	Knob	Ebonite	1
7	Set screw	MS	8
8	Grub screw	MS	4
9	Spring	Steel	1
10	Ball ϕ9	MS	1

Fig. No. 1 – Details of Square Tool Post



FIT CHART

108H7/f7 = CLEARANCE FIT
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PART LIST

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3	VALVE	G.M.	1
4	COVER	C.I.	1
5	STUD WITH NUT	M.S.	4

Fig. No. 2 – Assembly of Non-Return valve

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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD -402 103

Winter Semester Examination – December - 2019

Branch: **B. Tech Mechanical** Sem.:- **III**

Subject with Code:- **Machine Drawing and CAD (BTMEC304)** Marks: **60**

Date:- **17/12/2019** Time:- **3 Hr.**

Instructions to the Students

1. Each question carries 12 marks.
2. Attempt **any five** questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately Assume it and should mention it clearly

(Marks)

Q.1. Illustrate **any three** with an example **(3×4=12)**

a) Half section
b) Removed section
c) Broken section
d) Auxiliary section

Q.2. Attempt **any two** of the following **(12)**

a) Draw the symbol of the following **(6)**
   1. concave fillet weld
   2. convex double V-butt weld

b) Draw conventional representation for the following **(6)**
   1. Spur gears in mesh
   2. Roller bearing

c) Draw neat sketch in two views of a flanged coupling. **(6)**

Q.3. Attempt **any two** of the following **(12)**

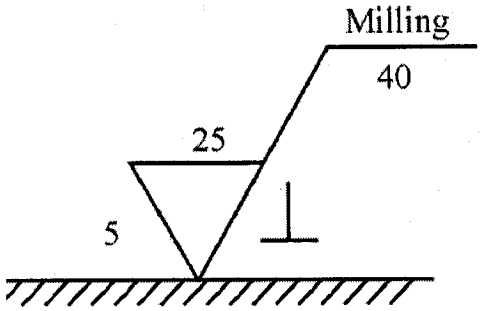
a) A vertical cylinder of 75 mm diameter is penetrated by another cylinder of 50 mm diameter. The axis of which is parallel to both HP & VP. The two axes are 9 mm apart. Draw the projection of two cylinders showing curves of intersection. The length of both cylinders is 100 mm. **(6)**

b) A vertical square prism of side of base 40 mm axis height 75 mm has its faces equally inclined with V.P. A cylinder of diameter 40 mm and length 75 mm intersects the prism horizontally such that its axis is perpendicular bisector to the axis of vertical square prism. The plane containing both the axis is parallel to V.P. Draw the projections of solids showing curve of intersection. **(6)**

c) A cone with base diameter 70 mm & axis height 65 mm is kept on HP on its base. It is penetrated by a horizontal cylinder of diameter 35 mm with its axis parallel to VP & intersecting axis of cone at distance of 20 mm above base of cone. Draw projection of solid and curve of intersection. (6)

Q.4. Attempt any two of the following (12)

a) State the meaning of following symbol as shown in Fig. (6)



b) State the advantages of Computer Aided Design and Drafting. (6)

c) A shaft and hole are given as (6)

$$\text{Shaft } 50^{+0.280}_{+0.120} \qquad \text{Hole} 50^{+0.090}_{+0.000}$$

Determine:

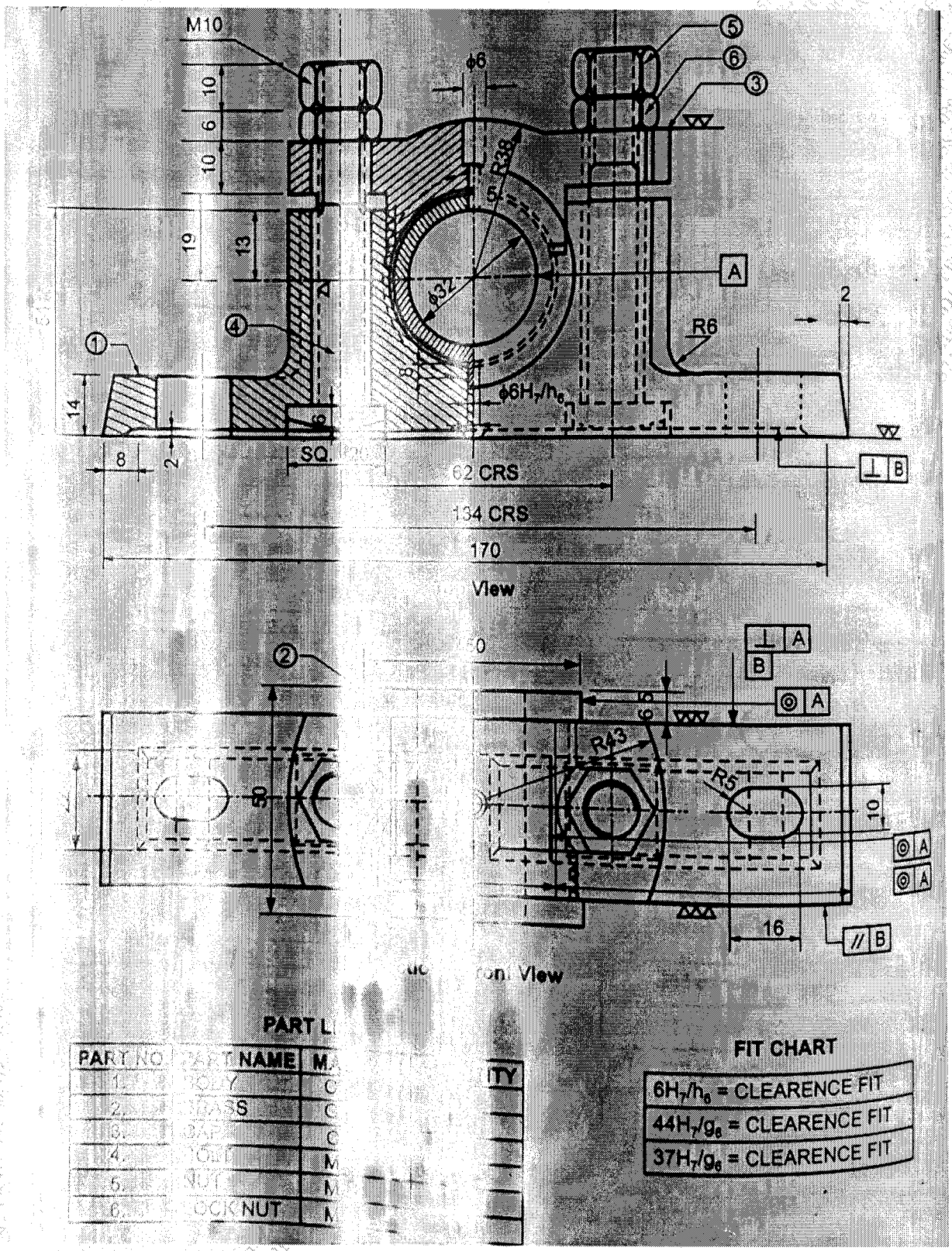
(i) Maximum allowance (ii) Minimum allowance (iii) Type of fit

Q.5. Fig. shows assembly of Pedestal Bearing. Draw detailed drawing of the following.

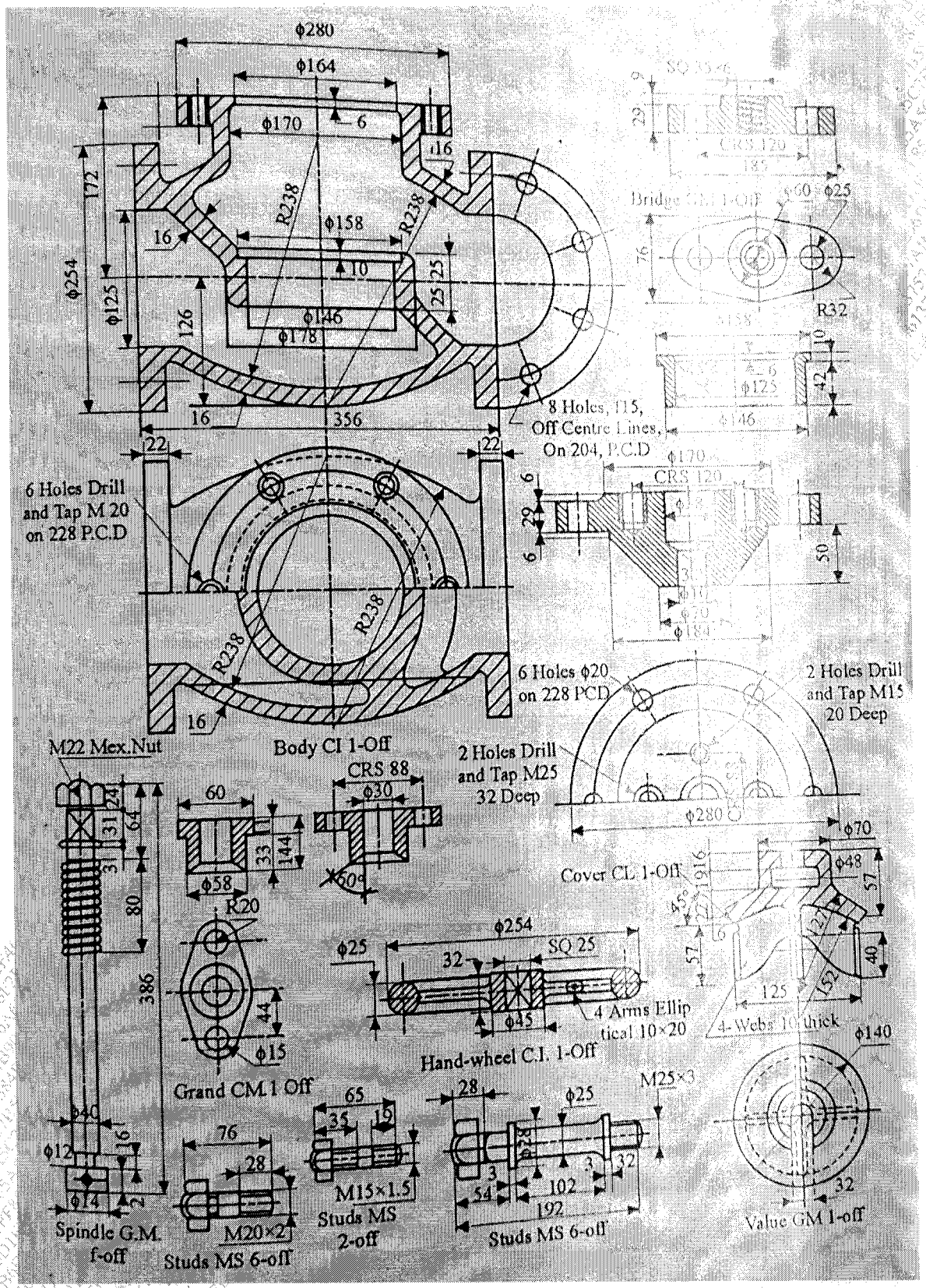
a) Body (4)

b) Brass (4)

c) Cap (4)



Q.6. Figure shows the details of 125 mm Steam Valve. Draw the assembled full sectional elevation. (12)



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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End Semester Examination – Summer 2019

Course: B. Tech in Mechanical Engineering **Sem: III**

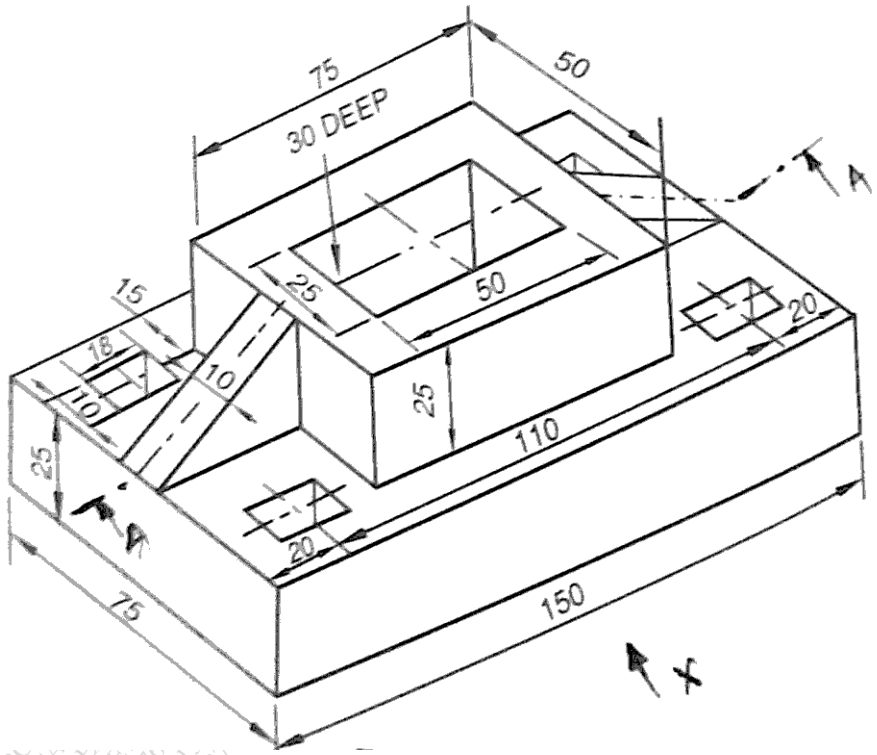
Subject Name: Machine Drawing & CAD **Subject Code: BTMEC304**

Max Marks: 60 **Date: 31-05-2019** **Duration: 3 Hr.**

Instructions to the Students:

1. *Solve **ANY FIVE** questions out of the following.*
2. *The level question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/ CO)	Marks
Q. 1	**Solve the following. (Any TWO)**		**12**
A)	Draw the conventional representation of **a)** Leaf spring with eye b) Splined shaft c) Tension spring	01	**06**
B)	Draw one example of following sections **a)** Half section b) Removed section	03	**06**
C)	**Fig shows a block, Draw** i) Sectional Front view along A-A ii) Top view	03	**06**



Q.2	**Draw the free hand sketch of the following. (Any THREE)**		**12**
A)	Single riveted (Double straps) butt joint.	02	**04**
B)	Castle nut	02	**04**

C) Eye Foundation bolt 02 **04**

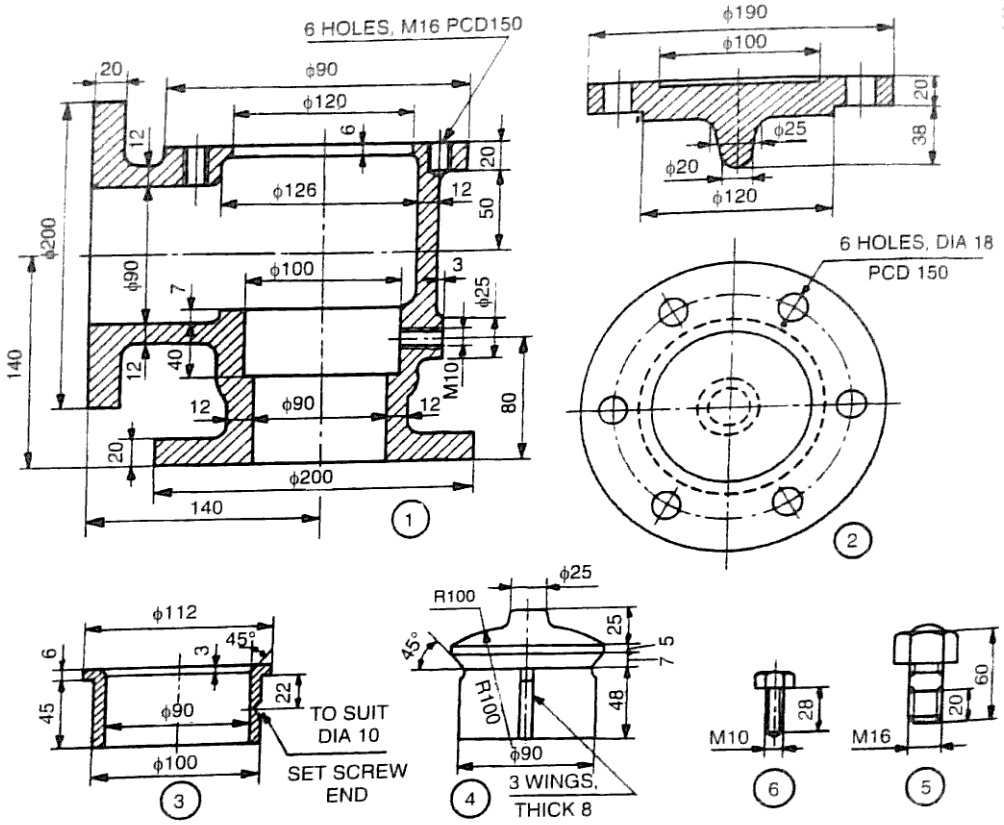
D) Flanged Coupling 02 **04**

Q. 3 Solve the following. **12**

A) A circular cylinder with base diameter 60mm, axis length 70mm stands vertically on its base on H.P. The square prism with side of base 25mm, axis length 90mm penetrates horizontally such that its axis is parallel to V.P. and 10mm away from axis of vertical cylinder and is 30 mm above the base of cylinder. The faces of square prism are equally inclined to H.P. Draw the projection showing curve of intersection. 02

Q.4 Attempt the following. (Any ONE) **12**

A) The fig. shows details of "Non-return valve". Draw the Assembly drawing for it consisting, i) Sectional Front View ii) Top view iii) Prepare part list 03



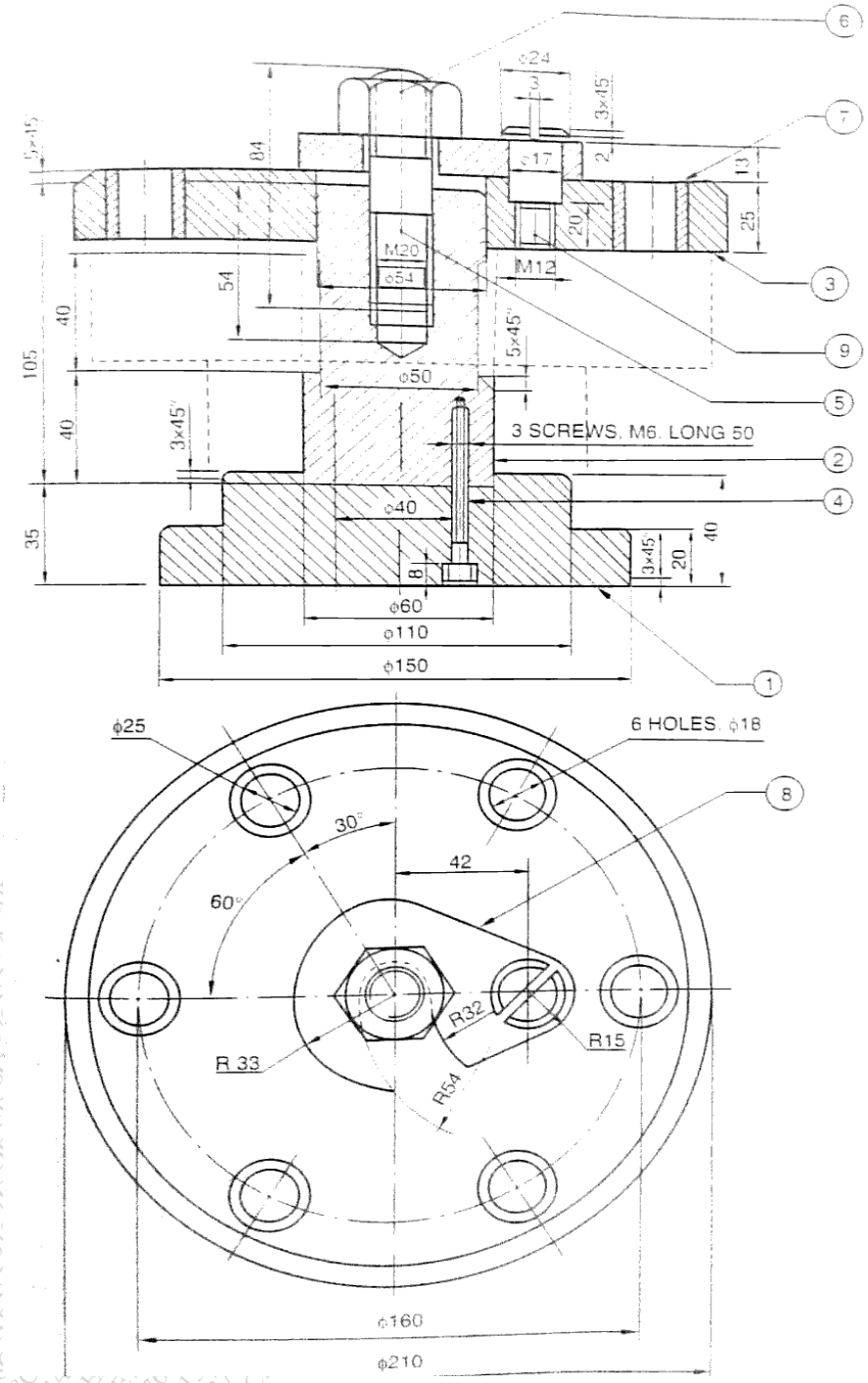
Parts list

No.	Name	Matl	Qty
1	Body	Brass	1
2	Cover	Brass	1
3	Valve seat	Bronze	1
4	Valve	Brass	1
5	Stud with nut	MS	6
6	Set screw	MS	1

B) The fig. shows Assembly of "Drilling Jig". Draw the Details of part number 01, 02, 03 03, 04, 05.

Draw the Front view of part number 01, 02, 04, 05.

Draw the Front view and Top View of part number 03.



Part list

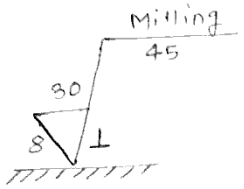
PART NO.	NAME	MATERIALS	NO. OFF
1	BASE PLATE	C.I.	1
2	STEM	M.S.	1
3	JIG PLATE	C.I.	1
4	SCREW	M.S.	3
5	STUD	M.S.	1
6	NUT	M.S	1
7	BUSH	A.S.	6
8	LATCH WASHER	M.S	1
9	SCREW	M.S.	1

Q. 5 Solve the following. **12**

A) The hole size is $\emptyset 20^{+0.018}_{-0.000}$ and shaft size is $\emptyset 20^{+0.023}_{+0.012}$ determine the type of fit. 01 **04**

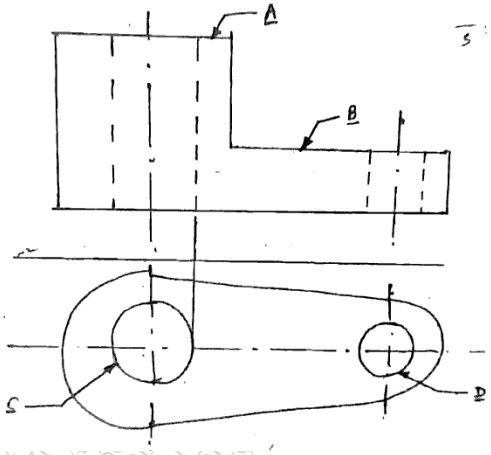
Dimensions are in mm.

B) State the meaning of every term shown in following symbol. 02 **04**



Redraw the following fig. and show the following items on it. 02 **04**

C)
a) Show the Parallelism between hole C and D with 0.1 mm.
b) Flatness of surface B is within 0.08 mm.



Q. 6 Solve the following **12**

A) Write advantages of CADD 01 **04**

B) Write short note on Auto LISP programming 01 **04**

C) List Commands in Draw and modify in Auto CAD. 02 **04**

END