



Maratha Vidya Prasarak Samaj's

Rajarshi Shahu Maharaj Polytechnic, Nashik

Udoji Maratha Boarding Campus, Near Pumping Station, Gangapur Road, Nashik-13.

Affiliated to MSBTE Mumbai, Approved by AICTE New Delhi, DTE Mumbai & Govt. of Maharashtra, Mumbai.

*Subject: - Mechanical working drawing
(22341)*



SYLLABUS

Chapter No.	Name of chapter	Marks With Option
1	Development of surfaces	18
2	Intersection of solids	21
3	Conventional representation	08
4	Production drawing	14
5	Details to assembly	32
6	Assembly to details	32
Total Marks :-		125



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BOARD THEORY PAPER PATTERN

Q.1		Attempt any FIVE	5*2=10
	a)	Conventional representation	
	b)	Conventional representation	
	c)	Conventional representation	
	d)	Conventional representation	
	e)	Production drawing	
	f)	Production drawing	
	g)	Production drawing	
Q.2		Attempt any ONE	2*7=14
	a)	Intersection of solids	
	b)	Intersection of solids	
	c)	Intersection of solids	
Q.3	A	Attempt any ONE	1*4=08
	a)	Production drawing	
	b)	Production drawing	
Q.3	B	Attempt any TWO	2*6=12
	a)	Development of surfaces	
	b)	Development of surfaces	
	c)	Development of surfaces	
Q.4		Attempt any following compulsory (Assembly to details)	1*16=16
Q.5		Attempt any one	1*16=16
	a)	Details to assembly	
	b)	Details to assembly	



CLASS TEST - I

PAPER PATTERN

Syllabus:-

Unit No.	Name of the Unit	Course Outcome (CO)
1	Development of surfaces	CO-341.01
2	Intersection of solids	CO-341.02
3	Conventional representation	CO-341.03

Q.1	Attempt any THREE	3*2=6Marks	Course Outcome (CO)
a)	Conventional representation		CO-341.03
b)	Conventional representation		CO-341.03
c)	Conventional representation		CO-341.03
d)	Conventional representation		CO-341.03
Q.2	Attempt any ONE	1*7=7 Marks	
a)	Development of surfaces		CO-341.01
b)	Development of surfaces		CO-341.01
Q.2	Attempt any ONE	1*7= 7Marks	
a)	Intersection of solids		CO-341.02
b)	Intersection of solids		CO-341.02



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CLASS TEST - II

PAPER PATTERN

Syllabus:-

Unit No.	Name of the Unit	Course Outcome (CO)
3	Production drawing	CO-341.04
4	Details to assembly	CO-341.05
5	Assembly to details	CO-341.06

Q.1	Attempt any ONE	1*4= 4Marks	Course Outcome (CO)
a)	Production drawing		CO-341.04
b)	Production drawing		CO-341.04
Q.2	Attempt any ONE	1*7=8Marks	
a)	Details to assembly		CO-341.05
b)	Details to assembly		CO-341.05
Q.2	Attempt any ONE	1*7= 8Marks	
a)	Assembly to details		CO-341.06
b)	Assembly to details		CO-341.06



COURSE OUTCOME (CO)

COURSE:- Mechanical Working Drawing (22341)

PROGRAMME: - ALL

CO.NO	Course Outcome
CO-103.1	Draw Development of lateral surface of various solids
CO-103.2	Draw intersection of curves of different solids
CO-103.3	Use various drawing codes, convention & their symbol
CO-103.4	Use Production drawing , used for produce for products
CO-103.5	Draw assembly of product
CO-103.6	Draw Details of product

1 . Development of surfaces (Total Marks =08)

Position in Question Paper

Total Marks-12

Q.3.B. a) 6-Marks.

b) 6-Marks.

Descriptive Question

1. A vertical cylinder of 70 mm diameter is penetrated by another cylinder of 50 mm diameter. The axis of the penetrating cylinder is parallel to both H.P. and V.P. and is 8 mm away from the axis of the vertical cylinder. Draw its projections showing curves of intersection.
2. A vertical cylinder of diameter of 70 mm and height 100 mm is completely penetrated by a horizontal square prism of side 50 mm and length 110 mm. The axis of the prism bisects the axis of the cylinder. All the rectangular faces of the prism are equally inclined to H.P. Draw Front View, Top View and side view
3. A cone with base diameter 80 mm and axis height 75 mm is kept on the H.P. on its base. It is penetrated by a horizontal cylinder of diameter 40 mm with its axis parallel to V.P. and intersecting the axis of the cone at a distance of 25 mm above the base of the cone. Draw the projections solid showing curves of intersection.
4. Draw the development of the lateral surface of the cylinder having a square hole in it as shown in the Fig.

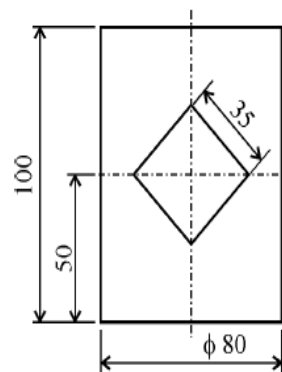
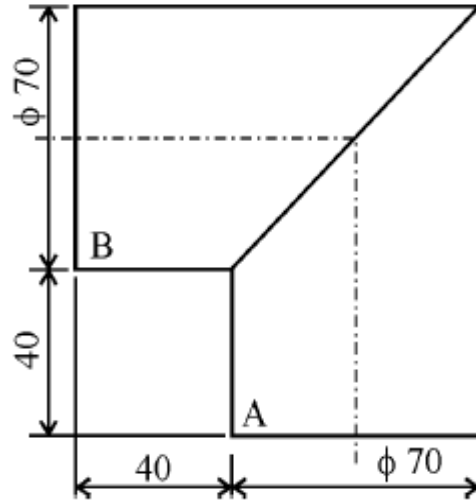


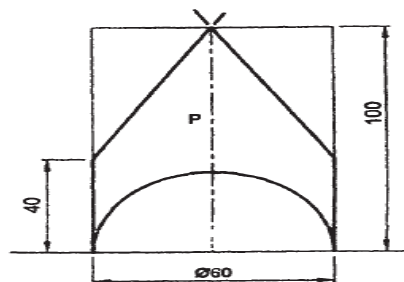
Fig. 3

5. Draw the development of lateral surface of Part 'A' and Part 'B' of a

right angle elbow shown in Fig



6. square prism of base side 40 mm and height 80 mm rests on HP with all faces equally inclined to VP. It is cut by a plane perpendicular to VP and 60° inclined to HP passing through a point on axis 55 mm from base. Draw development of lateral surface of the prism.
7. A cone of base diameter 60 mm and 70 mm long axis rests on HP on its base. It is cut by a section plane perpendicular to VP and inclined 45° to HP passing from a point on axis 35 mm from apex. Draw development of lateral surface of cone.
8. Develop lateral surface of 90° elbow. Each pipe diameter is 60 mm. Maximum length of each leg is 80 mm.
9. A cone resting on H.P is having diameter of base. 45 mm and height 60 mm. If is cut by a vertical plane perpendicular to V.P and 10 mm away from the axis of cone. Draw the development of lateral surface of the cone.
10. Fig. shows a right circular cylinder of diameter 60 mm and height of axis 100 mm it is cut as shown. Draw the development of its lateral surface





MCQ Question

(Total number of Question=Marks*3=8*3=24)

1. When the complete surface of an object laid down on a ___ surface, it is known as its development.

a. Flat

b. Spherical

c. Curved

d. None of the above

2. Rectangular prism is an example of _____

a. objects having isometric lines

c. object having non-isometric lines

b. object having curved surfaces

d. object having straight lines

3. The development of a right cylinder will be

a. Parallelogram

c. Circle

b. Rectangle

d. Rhombus

4. Following is the application of Development of surface

a. Making of Boiler

b. Making of Chimney

c. Both (A) and (B)

d. None of the above

5. The development of a right prism will be

a. Parallelogram

b. Circle

c. Rectangle

d. Rhombus

6. Following method is used for Development of Right Cylinder

a. Radial line method

b. Parallel line method

c. Approximate Method

d. All of the above

7. Following method is used for Development of Right Prism

a. Radial line method

b. Parallel line method

(C) Approximate Method

(D) All of the above

8. Following method is used for Development of Sphere

a. Zone method

b. Lune method

c. Both (A) and (B)

d. None of the above

9. The lateral surface of right cylinder of diameter 30mm and height of axis 60mm is developed, we get

a. Square of each side 60mm

b. Rhombus of each side 60mm

c. Rectangle of 94mm x60mm

d. None of the above

10. The lateral surface of right regular pentagonal prism of each base edge 20mm and height of axis 60mm is developed, we get

a. Square of each side 100mm

b. Rhombus of each side 60mm

c. Rectangle of 100mm x 60mm

d. None of the above

11. Triangulation Method _____

a. It is employed for pyramids

b. It is used for developing prisms

pieces

d. None of these

c. It is used for developing transition

12. Which method of development is employed in case of double curved objects?

a. Parallel-line development

b. Approximation method



c. Triangulation development

d. Radial-linedevelopment

13. Which method of development is employed in case of sphere, ellipsoid?

a. Parallel-line development

c. Triangulation development

b. Approximation method

d. Radial-line development

14. The development of the lateral surface of a cylinder is a rectangle having one side equal to the _____ of its base-circle and the other equal to its length.

a. circumference

c. diameter

b. area

d. radius

15. The development of the curved surface of a cone is a _____ of a _____

a. sector, circle

c. segment, ellipse

b. segment, circle

d. arc, parabola

16. The development of the surface of a cube consists of ____ equal squares, the length of the side of the squares being equal to the length of the edge of the cube.

a. 4

c. 12

b. 6

d. 8

17. The development of lateral surface of a pyramid consists of a number of equal _____triangle in contact.

a. equilateral

c. scalene

b. isosceles

d. right angled

18. Knowledge of Development of surfaces of solids is required for fabrication of

a. Pipe work

c. Containers

b. Ducts

d. All of the above

19. The front view obtained on the development of a square pyramid from its plan and front elevation which stands vertically on its base on H.P with one edge of the base parallel to V.P?

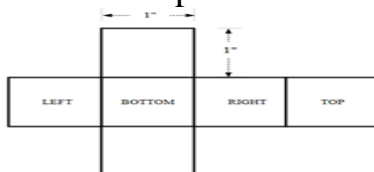
a. Square

c. Trapezium

b. Triangle

d. Rectangle

20. The shape of the development of the surface shown will be as a _____



a. Cube

c. Triangular prism

b. Cuboid

d. Cone

21. For a cone, the front view will be a _____ with the slant edge showing the true length of the generator of the cone.

a) Square

c) Triangle

b) Rectangle

d) Circle

22. The development of lateral surfaces of a pentagonal pyramid is _____

a. Five rectangles

b. Five squares



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c. Five triangles

d. Five circles

23. Zone method is used to develop _____

a. prism

c. cone

b. pyramid

d. sphere

24. The top view obtained by the development of a square pyramid from its plan and front elevation which stands vertically on its base on H.P with one edge of the base parallel to V.P. will be?

a. Triangle

c. Trapezium

b. Square

d. Circle



2. Intersection of solids (Total Marks =14)

Position in Question Paper

Total Marks-18

Q.2. a) 6-Marks.

b) 6-Marks.

c) 6-Marks.

Descriptive Question

1. A vertical cylinder 85 mm diameter is penetrated by another cylinder of 60 mm diameter, the axis of which is parallel to both H.P. and V.P. The two axes are 8 mm apart. Draw the projections showing curves of intersection.
2. A vertical square prism base 50 mm side has its faces equally inclined to V.P. It is completely penetrated by another square prism of base 30 mm side, the axis of which is parallel to both H.P. and V.P. and is 6 mm away from the axis of the vertical prism. The faces of horizontal prism are also equally inclined to the V.P. Draw the projections of solids showing the lines of intersection.
3. A square hole of 35 mm side is cut in a cylindrical shaft 75 mm diameter and 125 mm long. The axis of the hole intersects that of the shaft at right angles. All faces of the hole are inclined at 45degree to the H.P. Draw the three views of the shaft when the plane of the two axes is parallel to the V.P.
4. A vertical cylinder of 70 mm diameter is penetrated by another cylinder of 50mm diameter. The axis of the penetrating cylinder is parallel to both H.P. and V.P. and is 8 mm away from the axis of the vertical cylinder. Draw its projections showing curves of intersection.
5. A vertical cylinder of diameter of 70 mm and height 100 mm is completely penetrated by a horizontal square prism of side 50 mm and length 110 mm. The axis of the prism bisects the axis of the cylinder. All the rectangular faces of the prism are equally inclined to H.P. Draw Front View, Top View and Side View showing the curves of intersection.



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- 6.** A cone with base diameter 80 mm and axis height 75 mm is kept on the H.P. on its base. It is penetrated by a horizontal cylinder of diameter 40 mm with its axis parallel to V.P. and intersecting the axis of the cone at a distance of 25 mm above the base of the cone. Draw the projections solid showing curves of intersection
- 7.** A cone with base diameter 80 mm and axis height 75 mm is kept on the H.P. on its base. It is penetrated by a horizontal cylinder of diameter 40 mm with its axis parallel to V.P. and intersecting the axis of the cone at a distance of 25 mm above the base of the cone. Draw the projections of solid showing curves of intersection.
- 8.** A vertical square prism side of base 35 mm and 80 mm long has its vertical faces equally inclined to V.P. It is penetrated by another square prism side of base 35 mm and axis length 80 mm so that its axis is parallel to both H.P. and V.P. and is 10 mm in front of the axis of the vertical prism. The faces of the penetrating prism are equally inclined to H.P. Draw the projections of the prisms showing lines of intersection.
- 9.** A vertical square prism 50 mm side of base and 100 mm long having its faces equally inclined to the V.P. is completely penetrated by a horizontal cylinder 40 mm diameter and 100 mm long the axis of which is parallel to V.P. and 6 mm away from that of axis of prism. Draw the projections of the solids showing curves of intersection
- 10.** 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 showing curve of intersection



MCO Question

(Total number of Question=Marks*3=14*3=42)

1. A cylinder 50mm dia. and 70mm axis is completely penetrated by a triangular prism of 45 mm sides and 70 mm axis, horizontally. One flat face of prism is parallel to Vp and Contains axis of cylinder. Draw projections showing curves of intersections.

- a. Triangle with a circle
- b. **Cylinder with a triangle**
- c. Cylinder with a circle
- d. Circle with a cylinder

2. The _____ planes are so selected as to cut the surface of one of the solids in straight lines and that of the other in straight lines or circles.

- a. **line**
- b. cutting
- c. horizontal
- d. xy

3. The three lines meeting at a point and making an angle of 120° with each other is called _____

- a. **isometric axes**
- b. axonometric
- c. orthographic axes
- d. oblique axes

4. The plane surfaces intersect in a _____ the line of intersection between two curved surfaces is _____ and between a plane surface and curved surfaces is a _____

- a. **straight line, curve, curve**
- b. straight line, straight line, curve
- c. straight line, curve, straight line
- d. curve, curve, curve

5. The line of intersection formed is straight line while two solids are intersecting the solids may be _____

- a. prism, cylinder
- b. prism, cone
- c. pyramid, cone
- d. **prism, pyramid**

6. The line of intersection formed is curve while two solids intersect the solids may be _____

- a. cube, triangular prism
- b. **pentagonal prism, cone**
- c. triangular pyramid, cube
- d. triangular prism, square pyramid

7. A prism and cylinder got intersected at 90 degrees the line of intersection will be _____ and parallel to axis of _____

- a. straight line, prism
- b. **curve, prism**
- c. straight line, cylinder
- d. curve, cylinder

8. The line of intersection formed is straight line while two solids are intersecting the solids may be _____

- a. cube, cylinder
- b. prism, cone
- c. **pyramid, cuboid**
- d. cube, cone

9. Selecting of a particular plane in a series of planes drawn cutting the solid either parallel, perpendicular or oblique which cut the surface of one of the solids in straight lines and that of the other in straight lines or circles. This is called _____ method.

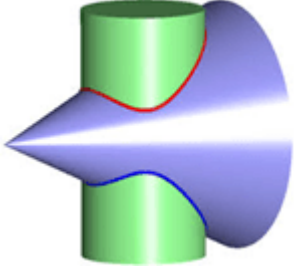
- a. assumption
- b. line
- c. removing material
- d. **cutting- plane**

10. The surfaces of which intersect one another in lines which are called line of intersection.

a. True

b. False

11. The red, blue curve in the figure (shown below) represents _____



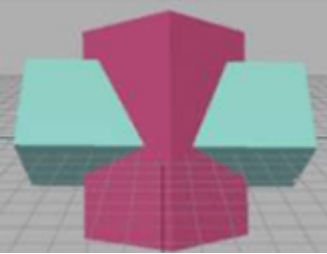
a. welding

b. joining

c. fitting

d. curve of intersection

12. The figure (4-sided) below represents the intersection of _____



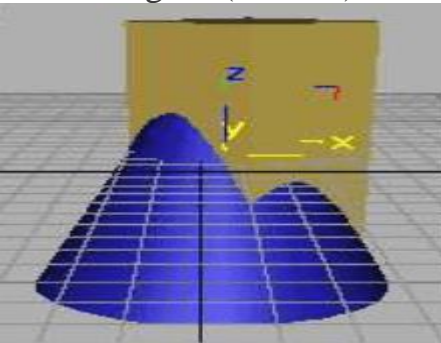
a. triangular prism standing and Triangular prism penetrating

b. cylindrical prism standing and square prism penetrating

c. sq. prism standing and square prism penetrating

d. triangular prism standing and Square prism penetrating

13. The figure (4-sided) below represents the intersection of _____



a. triangular prism standing and Triangular prism penetrating

b. cylindrical prism standing and square prism penetrating

c. triangular prism standing and Square prism penetrating

d. cone standing and square prism penetrating

14. This type of solid has two bases that are parallel equal polygons:

a. pyramid

b. prism

c. cone

d. torus

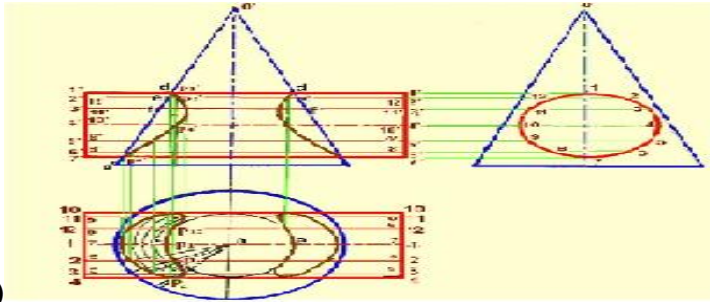


15. The solid having a polygon for a base and triangular lateral faces intersecting at a vertex is
a. pyramid
b. prism
c. cone
D) torus
16. Among the following solids, a regular polyhedron is
a. square prism
b. square pyramid
c. cube
d. sphere
17. A solid having minimum number of faces is
a. tetrahedron
b. triangular prism
c. square pyramid
d. cube
18. The number of face in a tetrahedron are
a. 4
b. 8
c. 12
d. 20
19. The number of stages that are necessary to get the orthographic views of a solid having its axis inclined to both reference planes is
a. 1
b. 2
c. 3
d. 4
20. A tetrahedron is resting on its face on the H.P. with a side perpendicular to the V.P. Its front view will be
a. equilateral triangle
b. isosceles triangle
c. scalene triangle
d. right-angle triangle
21. A square pyramid is resting on a face in the V.P. The number of dotted lines which will appear in the front view is
a. 1
b. 2
c. 3
d. 4
22. The solid, which will have two dotted lines in the top view when it is resting on its face in the H.P. is
a. square pyramid
b. pentagonal pyramid
c. hexagonal pyramid
d. all of these
23. A cube is resting on the H.P. with a solid diagonal perpendicular to it. The top view will appear as
a. square
b. rectangle
c. irregular hexagon
d. regular hexagon
24. A right-circular cone resting on a point of its base circle in the H.P. has the axis inclined at 30° to the H.P. and 45° to the V.P. The angle between the reference line and top view of the axis will be
a. 30°
b. between 30° and 45°
c. 45°
d. more than 45°
25. A right-circular cone resting on a generator in the H.P. has the axis inclined at 30° to the H.P. and 45° to the V.P. The angle between the reference line and top view of the axis will be
a. less than 45°
b. 45°
c. more than 45°
d. any of these
26. A cylinder rests on a point of its base circle in the H.P., having the axis inclined at 30° to the H.P. and 60° to the V.P. The inclination of the top view of the axis with the reference line will be

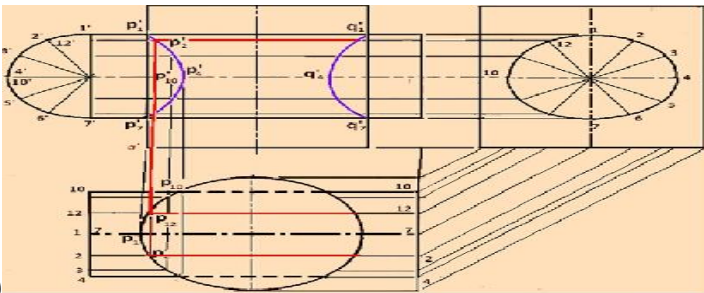


- a. 30° c. 90°
b. 60° d. none of these
27. A cutting plane cut the cone such a way that true shape of cutting portion is seen as triangle when cutting plane is cut the base and passed through
a. midpoint of axis c. generator of cone
b. apex of cone d. any point on axis
28. Another name for a cube is a
a. hexahedron c. **icosahedron**
b. tetrahedron d. octahedron
29. Another name for a tetrahedron is a
a. triangular prism c. **triangular pyramid**
b. square prism d. square pyramid
30. _____ cone has two planar surfaces parallel to each other.
a. **truncated** c. right
b. frustum d. oblique
31. The solid having a polygon for a base and triangular lateral faces intersecting at a vertex is
a. pyramid c. cone
b. prism d. torus
32. Name the solid formed by four equilateral triangle
a. Square pyramid c. **Tetrahedron**
b. Triangular pyramid d. Square prism
33. A cylinder standing on the HP is cut by a vertical plane parallel to the axis and away from it. The shape of the section will be
a. **Rectangle** c. Ellipse
b. Circle d. Hyperbola
34. When the axis of the solid is parallel to both HP and VP the view which reveals the true shape of the base is
a. Front view c. **Side view**
b. Top view d. None of these
35. Name the solid formed by revolving right angle triangle with one of its perpendicular side fixed
a. Cone c. Tetrahedron
b. Cylinder d. Octahedron
36. When the cone, resting on base on V.P., is cut by section plane parallel to V.P. then the true shape is _____ and can be seen in _____ view.
a. Circle, Front c. Ellipse, Top
b. Ellipse, Front d. Circle, Top
37. To obtain the true shape of the section of solid, an auxiliary plane is set
a. Inclined at an 45° to a cutting plane c. **Parallel to a cutting plane**
b. parallel to XY d. perpendicular to a cutting plane
38. A vertical cone, diameter of base 75 mm and axis 100 mm long, is completely penetrated by a

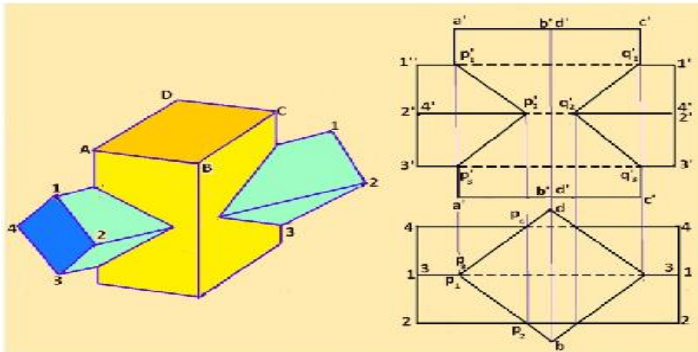
cylinder of 45 mm diameter. The axis of the cylinder is parallel to HP and VP and intersects the axis of the cone at a point 22 mm above the base. Draw the projections of the solids showing curves of intersection. Ans is _____



A)



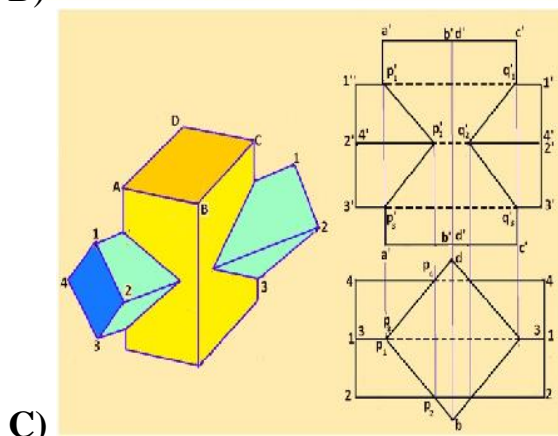
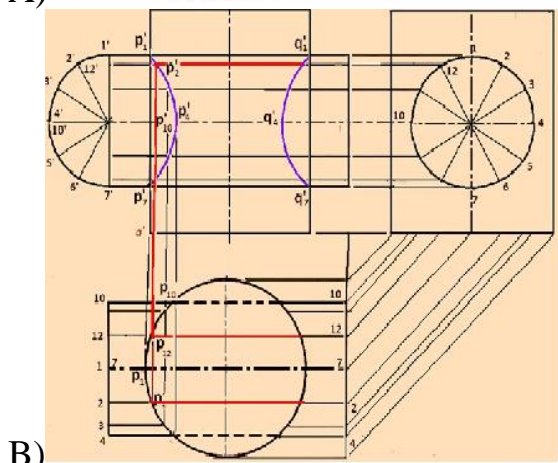
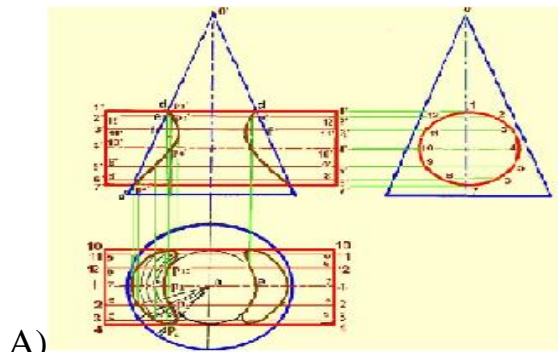
B)



C)

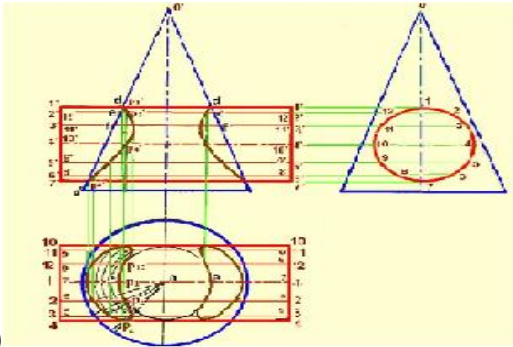
D) None of above

39. A vertical square prism, base 50 mm side, is completely penetrated by a horizontal square prism, base 35 mm side, so that their axes intersect. The axis of the horizontal prism is parallel to the prism, while the faces of the two prisms are equally inclined to the prism. Draw the projections of the solids, showing lines of intersection. (Assume suitable lengths for the prisms.)

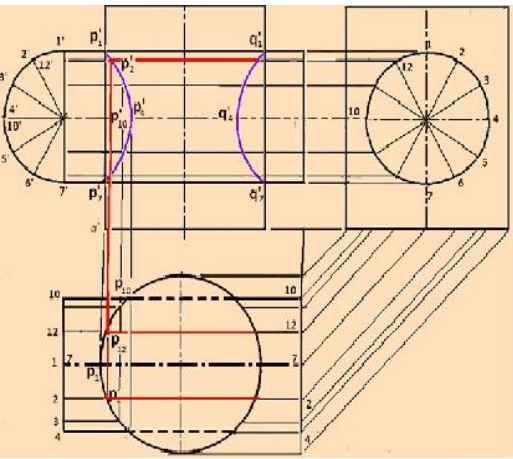


D) None of above

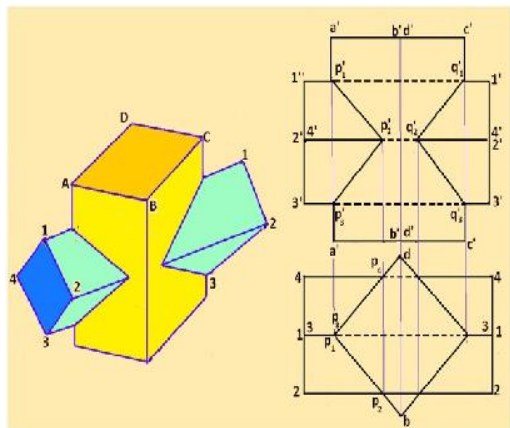
40. A vertical cylinder of 80 mm diameter is completely penetrated by another cylinder of 60 mm diameter, their axes bisecting each other at right angles. Draw their projections showing curves of penetration, assuming the axis of the penetrating cylinder to be parallel to the VP.



A)



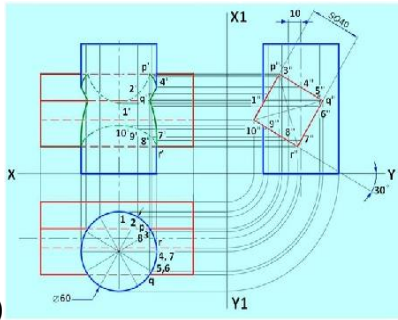
B)



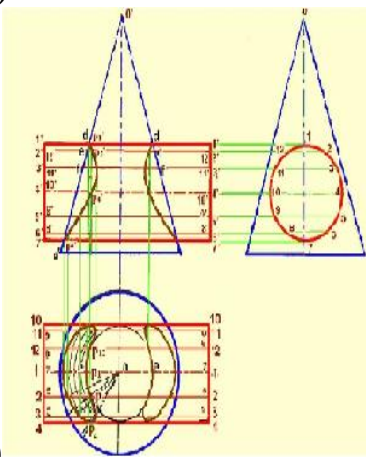
C)

D) None of above

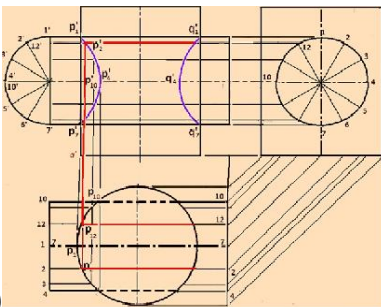
41. A vertical cylinder with a 60 mm diameter is penetrated by a horizontal square prism with a 40 mm base side, the axis of which is parallel to the VP and 10 mm away from the axis of the cylinder. A face of the prism makes an angle of 30° with the HP. Draw their projections showing curves of intersection.



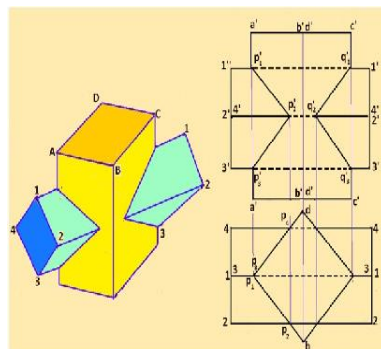
A)



B)

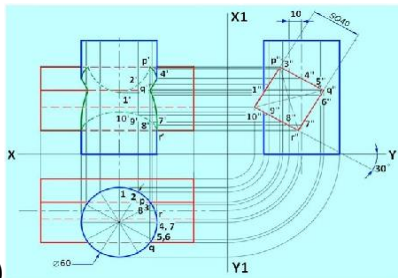


C)

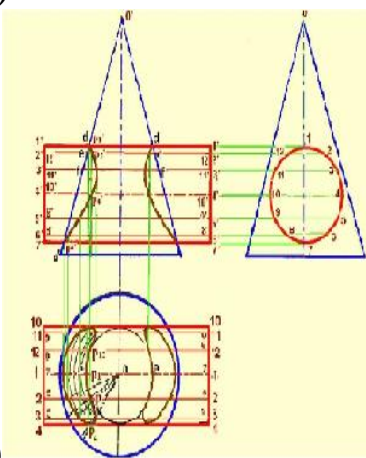


D)

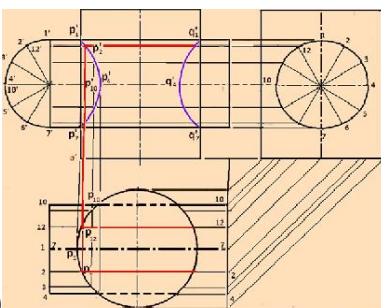
42. A cone with a base diameter of 64 mm and an axis length of 70 mm is kept on its base on the HP. A cylinder of diameter 30 mm and length 90 mm penetrates the cone horizontally. The axis of the cylinder is 20 mm above the base of the cone and 5 mm away from the axis of the latter. Draw the three views of the solids showing curve of intersection.



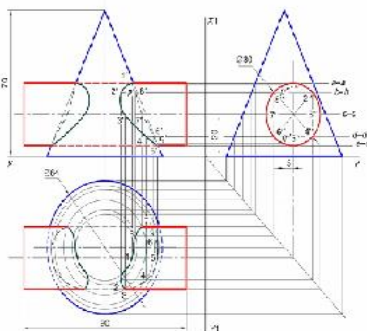
A)



B)



C)



D)



3. Conventional Representation (Total Marks =08)

Position in Question Paper

Total Marks- 08

- Q.1. a) 2-Marks.
b) 2-Marks.
c) 2-Marks.
d) 2-Marks

Descriptive Question

1. Draw the conventional representation of the following :
 - (i) Cylindrical helical compression spring of wire of circular cross-section
 - (ii) Semi-elliptic leaf spring.
2. Draw a part showing fillet radius and chamfered edge.
3. Draw the conventional representation of :
 - (i) Spur gear
 - (ii) Bevel gear.
4. Draw the actual view and conventional representation of
 - (i) External screw thread
 - (ii) Straight knurling.
5. Draw the conventional representation of the following :
 - (i) I-section or rolled section
 - (ii) Long Break in pipe
7. Draw the conventional representation for common feature.
 - (i) Radial Ribs
 - (ii) Bearings
6. Draw the actual sketch of Counter Bore and Counter Sunk hole.
7. Draw the actual sketch and conventional representation :
 - (i) Spiral Spring
 - (ii) Semi-elliptic leaf spring with eyelets.
8. Draw the conventional representation for common feature



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- (a) Revolved section
- (b) Splined shaft
- (c) Worm gear
- (d) Internal thread
- (e) Compression spring with square section
- (f) Roller bearing
- (g) Globe valve

9. Draw conventional representation for any SIX of the following : 12

- (i) Steel
- (ii) Diamond knurling
- (iii) Helical spring with flat end
- (iv) Bevel gear
- (v) I-section
- (vi) Ball and Roller bearing
- (vii) Gate valve
- (viii) Internal screw thread

10. Draw Conventional representation for any SIX of the following : 12

- (a) Offset section
- (b) Globe valve
- (c) Diamond Knurling
- (d) Leaf spring with eyes and central Band
- (e) Wood
- (f) Spur gears
- (g) Counter bored holes
- (h) Ball and Roller beari

MCQ Question

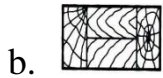
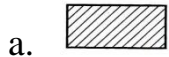
(Total number of Question=Marks*3=8*3=24)

1. When four pipes are joined, then _____ is used

- a. Elbow
- b. Tee

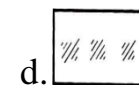
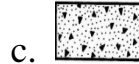
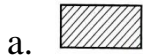
- c. Cross
- d. None of above

2. Draw Conventional representation wood _____

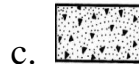


d. None of above

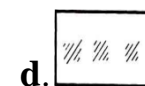
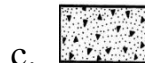
3. Conventional representation Glass is _____



4. Conventional representation Cast iron is _____



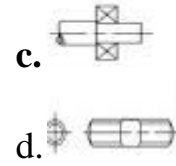
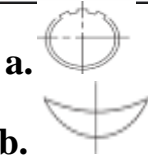
5. Conventional representation Concrete is _____



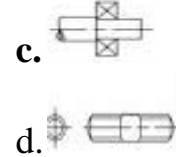
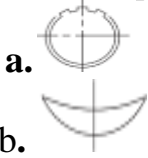
6. Conventional representation Splined shaft is _____



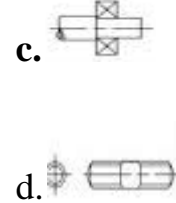
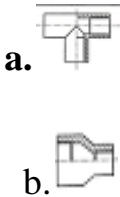
7. Conventional representation Leaf spring is _____



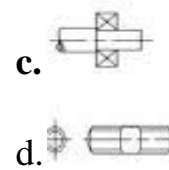
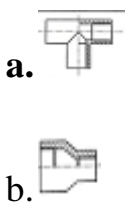
8. Conventional representation Bearing is _____



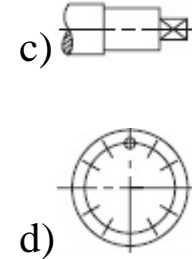
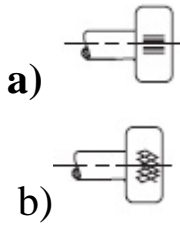
9. Conventional representation Tee joint is _____



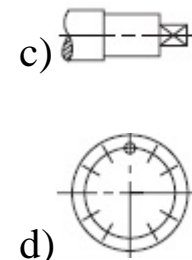
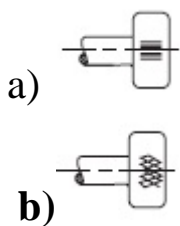
10. Conventional representation Reducing socket is _____



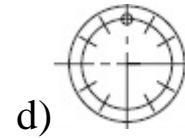
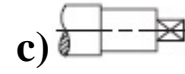
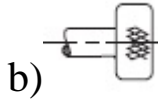
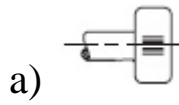
11. Conventional representation of Straight Knurling _____



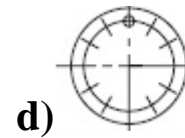
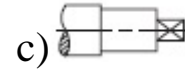
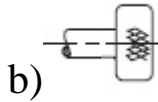
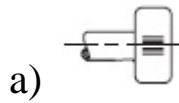
12. Conventional representation of Diamond Knurling _____



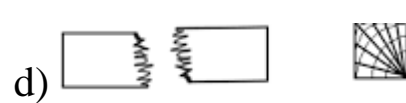
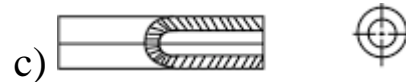
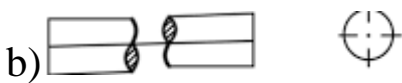
13. Conventional representation of Squared on shaft _____



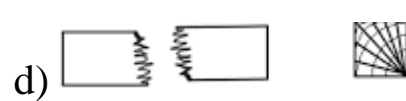
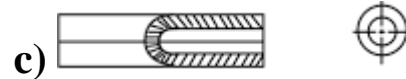
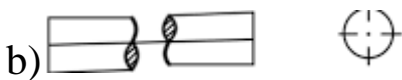
14. Conventional representation of Holes on circular shaft _____



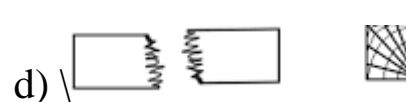
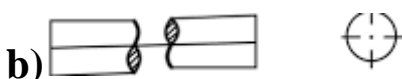
15. Conventional representation of Rectangular (metal)Section _____



16. Conventional representation of Pipe or Tubing Section _____



17. Conventional representation of Round section _____

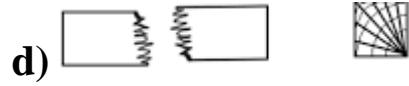
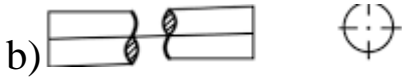
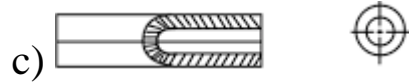




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18. Conventional representation of Rectangular wood section _____



4. Production Drawing (Total Marks =10)

Position in Question Paper

Total Marks- 10

Q.1. e) 2-Marks.

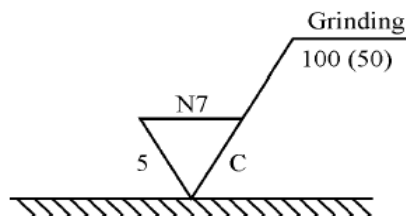
f) 2-Marks.

g) 2-Marks.

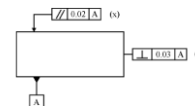
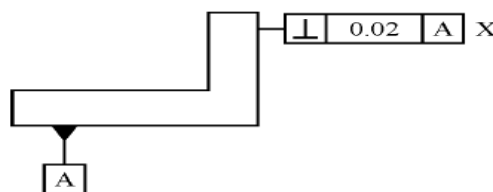
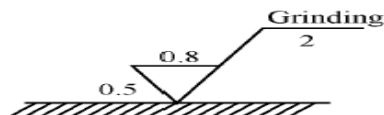
Q.3. A) 4-Marks.

Descriptive Question

1. State the meaning of the symbol shown in Fig.

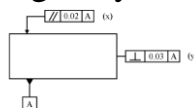


2. State the meaning of symbols shown in the Fig.



3. Refer Fig. and state the meaning of symbol at X.

4. Refer Fig. and state the meaning of symbol X and Y.





5. Define : (i) Allowance (ii) Clearance (iii) Interference (iv) Deviation

6. Write the symbol for light press fit, and give its two applications.

7. A bush bearing has internal diameter $\phi 25^{+0.025}_{+0.000}$ and the shaft diameter is

$\phi 25^{-0.020}_{-0.040}$. Find the minimum and maximum clearance and identify the type of fit between bush and shaft.

8. A bush bearing has internal diameter $50^{+0.280}_{+0.120}$ and the shaft diameter is $50^{+0.090}_{+0.000}$. Find the minimum and maximum clearance and identify the type of fit between bush and shaft.

9. Draw a sketch showing basic size, lower deviation, upper deviation and tolerance.

10. Draw the symbols representing the characteristics to be tolerance.

(i) Circularity

(ii) Cylindricity.

11. Draw the symbol for the following

(i) Concave fillet weld

(ii) Seam Weld

(iii) Flat Single V butt Weld

(iv) Square butt weld

12. Draw the symbol of the following :

(i) Square butt

(ii) Double J-butt

(iii) Spot weld

(iv) Convex fillet weld



13. Write the symbol for light press fit, and give its two applications.

14. A bush bearing has internal diameter $\phi 25^{+0.025}$ and the shaft diameter is

$\phi 25^{-0.020}$. Find the minimum and maximum clearance and identify the type of fit between bush and shaft.

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16. Draw a sketch showing basic size, lower deviation, upper deviation and tolerance.

17. Draw the symbols representing the characteristics to be tolerance.

(i) Circularity

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18. Draw the symbol for the following

(i) Concave fillet weld

(ii) Seam Weld

(iii) Flat Single V butt Weld

(iv) Square butt weld

19. Draw the symbol of the following :

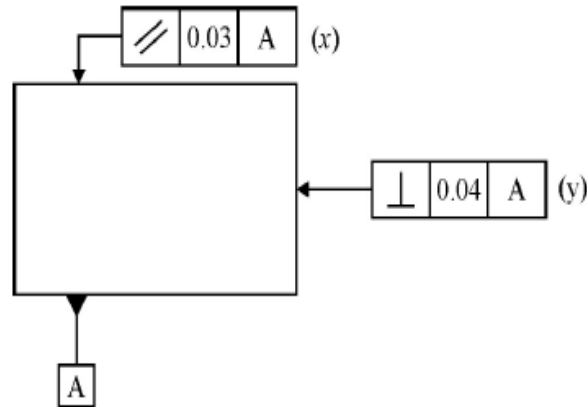
(v) Square butt

(vi) Double J-butt

(vii) Spot weld

(viii) Convex fillet weld

20. Refer Fig. 3. What is the meaning of 'x' and 'y'?



21. Two mild steel plates of 8 mm thickness are to be welded to have a lap joint by a fillet weld of leg length 8 mm. Represent the weld on drawing with proper symbols.
22. Represent a welding drawing of A right circular cylinder is to be welded to a steel plate at right angles to it, with all round fillet weld of 6 mm leg length.
23. Represent the welding drawing of two shafts with equal diameter welded end to end by means of square butt weld with convex counter of site.

MCQ Question

(Total number of Question=Marks*3=10*3=30)

1. Which of the following is not a classification of fit?

- a. Clearance
 b. Transition
 c. Interference
d. Enjoining

2. Which of the following always provides a positive clearance between the hole and the shaft over the entire range of tolerances?

- a. Clearance**
 b. Transition
 c. Interference
 d. None of the mentioned

3. Tolerance for a shaft of 50mm diameter as the basic size, with the fundamental deviation denoted by g and tolerance of grade 7 is represented as?

- a. g50,7
- b. **50g7**
- c. 7g50
- d. None of the mentioned

4. Why tolerances are given to the parts?

- a) **Because it's impossible to make perfect settings**
- b) To reduce weight of the component
- c) To reduce cost of the assembly
- d) To reduce amount of material used

5. Which type of tolerance provided in drilling mostly?

- a. Bilateral
- b. **Unilateral**
- c. Trilateral
- d. Compound

6. Which of the following option is true for given statements?

Statement 1: Bilateral tolerances are used in mass production techniques.

Statement 2: The basic size should be equal to upper and lower limits.

- a. T, T
- b. F, F
- c. **T, F**
- d. F, T

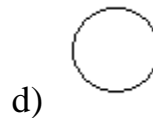
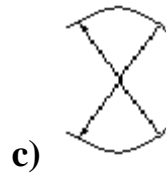
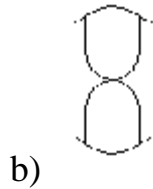
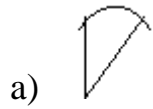
7. The symbol for weld type fillet is _____

- a. 
- b. 
- c. 
- d. 

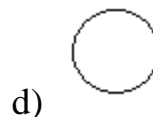
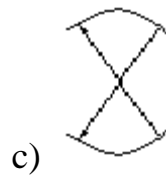
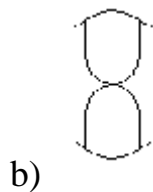
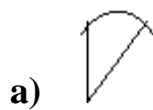
8. The symbol for seam welding is _____

- a) 
- b) 
- c) 
- d) 

9. The symbol for weld type double-V butt is _____



10. The symbol for weld type Bevel butt is _____



11. What is the term of the algebraic difference between a size, to its corresponding basic size?

a. **Deviation**

b. Upper deviation

c. Lower deviation

d. Actual deviation

12. What is the name of system if the size of the hole is kept constant, shaft is varied?

a. Bilateral system

b. Unilateral system

c. **Hole basis system**

d. Shaft basis system

13. Which is grade of tolerance?

a. Bilateral tolerance

b. Unilateral tolerance

c. **Fundamental tolerance**

d. Fundamental deviation

14. What is the smaller of two limits of size?

a. Actual size

b. Maximum limit of size

c. **Minimum limit of size**

d. Limit of size



15. How many number of fundamental deviation in the BIS system?

- a. **25**
- b. 20
- c. 15
- d. 26

16. Which term is used to indicate maximum permissible overall variation of form or position of a feature?

- a. Tolerance
- b. Deviation
- c. **Geometrical tolerance**
- d. Fundamental tolerance

17. Which symbol is used to indicate datum face to represent geometrical tolerance?

- a. Circle
- b. Square
- c. **Triangle**
- d. Parallelogram

18. Which one of the following is belongs to form group of geometrical tolerance?

- a. **Angularity**
- b. Parallelism
- c. Cylindricity
- d. Concentricity

19. Which one of the following belongs to 'attitude' group in geometrical tolerance?

- a. Position
- b. Flatness
- c. **Parallelism**
- d. Straightness

20. What is the term used for the relationship exists between two mating parts?

- a. **Fit**
- b. Limit
- c. Tolerance
- d. Allowance

21. What is the algebraic difference between the actual size and its corresponding basic size?

- a. Deviation
- b. Tolerance
- c. **Actual deviation**
- d. Upper deviation

22. What is the tolerance if dimension is stated as 25 ± 0.02 mm in a drawing?

- a. +0.02 mm
- b. **-0.02 mm**
- c. 0.04 mm
- d. 25.00 mm

23. What is the fit if the limits of hole are 25.000 to 25.021 mm and the limits of shaft are 25.022 to 25.03 mm?

- a. Clearance fit
- b. **Interference fit**

c. Transition fit

d. Maximum clearance fit

24. What is the advantage of adopting geometrical tolerance symbols on production drawing?

a. It indicates surface finish level

c. It indicates method of operation

b. It makes dimensional accuracy

d. It over come usual language barrier

25. What is the name of the system, if the size of the shaft is kept constant and the size of the hole is varied to get the different class of fit?

a. Tolerance

c. Shaft basic system

b. Allowance

d. Hole basic system

26. Which type of joint is used if plate thickness is less than 5 mm?

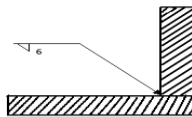
a. Single V butt weld

c. Square butt weld

b. Single U butt weld

d. Double U butt weld

27. Which welding symbol is shown below?



a. Lap joint

c. Double fillet weld

b. Single V butt joint

d. Single fillet weld

28. In welding symbol, if the symbol is above the baseline then the welding is to be done at

a. The arrow side

c. Right side of the arrow

b. Other side of the arrow

d. Both side of the arrow

29. For the vertical position of the weld fillet and other symbols should saw in which side

a. Right

c. Bottom

b. Left

d. Above

30. For plates of thickness more than 16 mm which weld is used

a. Square butt weld

c. Double V butt Weld

b. Single V butt weld

d. Double U butt Weld

6. Details to Assembly (Total Marks =16)

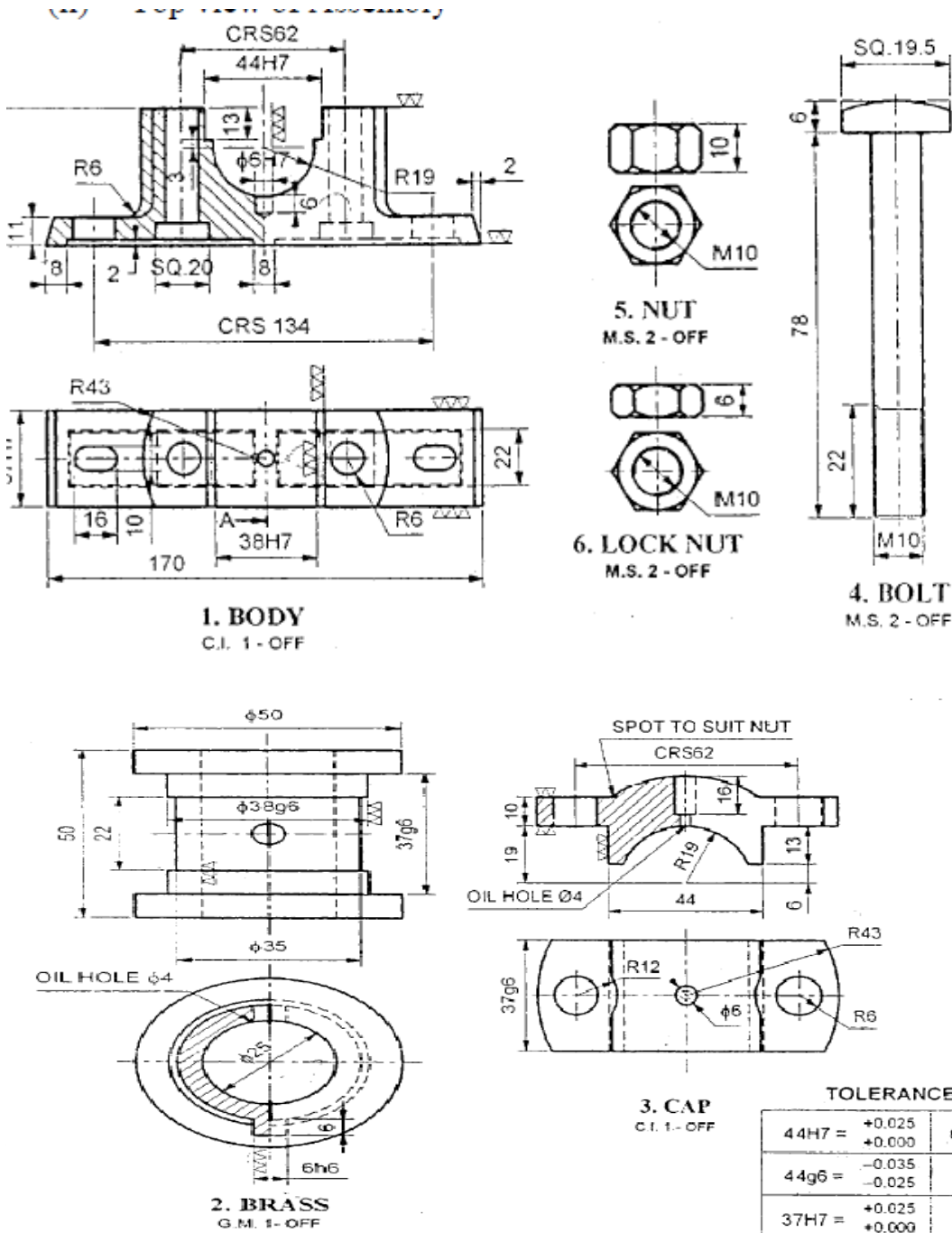
Position in Question Paper
 Q.4. A) 16-Marks.

Total Marks- 16

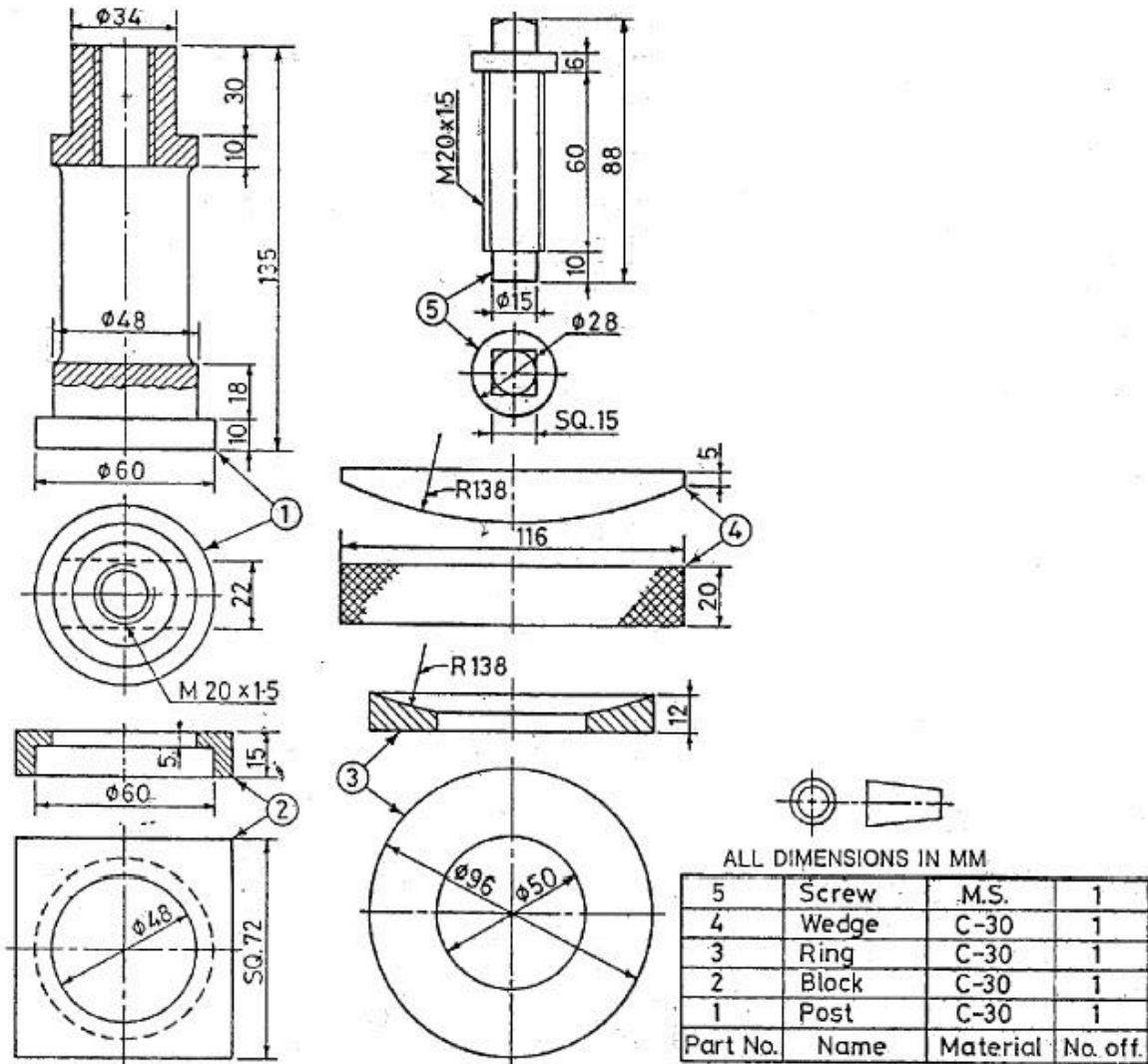
Descriptive Question

1. Fig. shows details of Pedestal Bearing.

Draw : (i) Half Sectional front view of Assembly (ii) Top view of Assembly



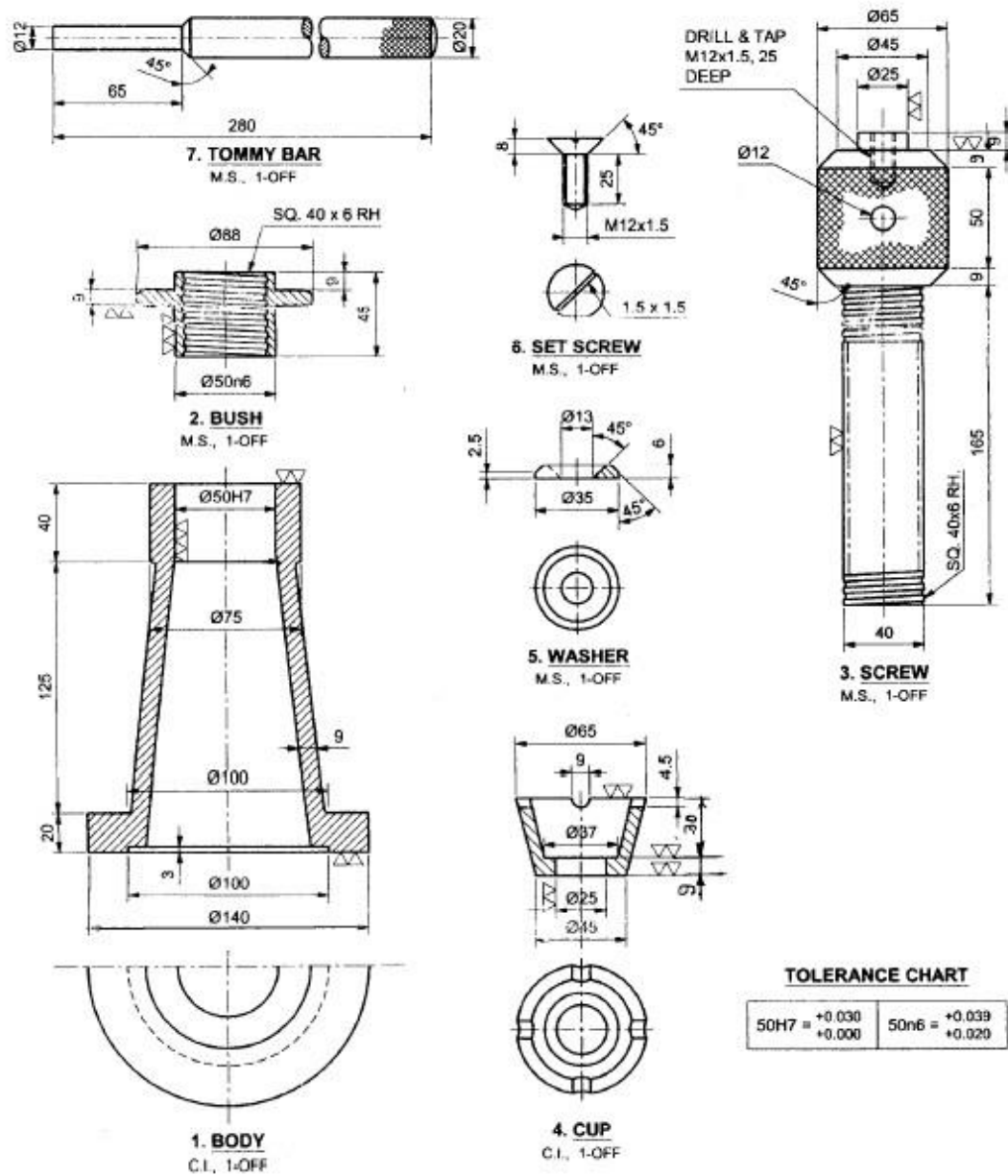
2. Fig. shows details of Tool Post. Draw : (i) Half sectional front view of Assembly
 (ii) Top view of Assembly



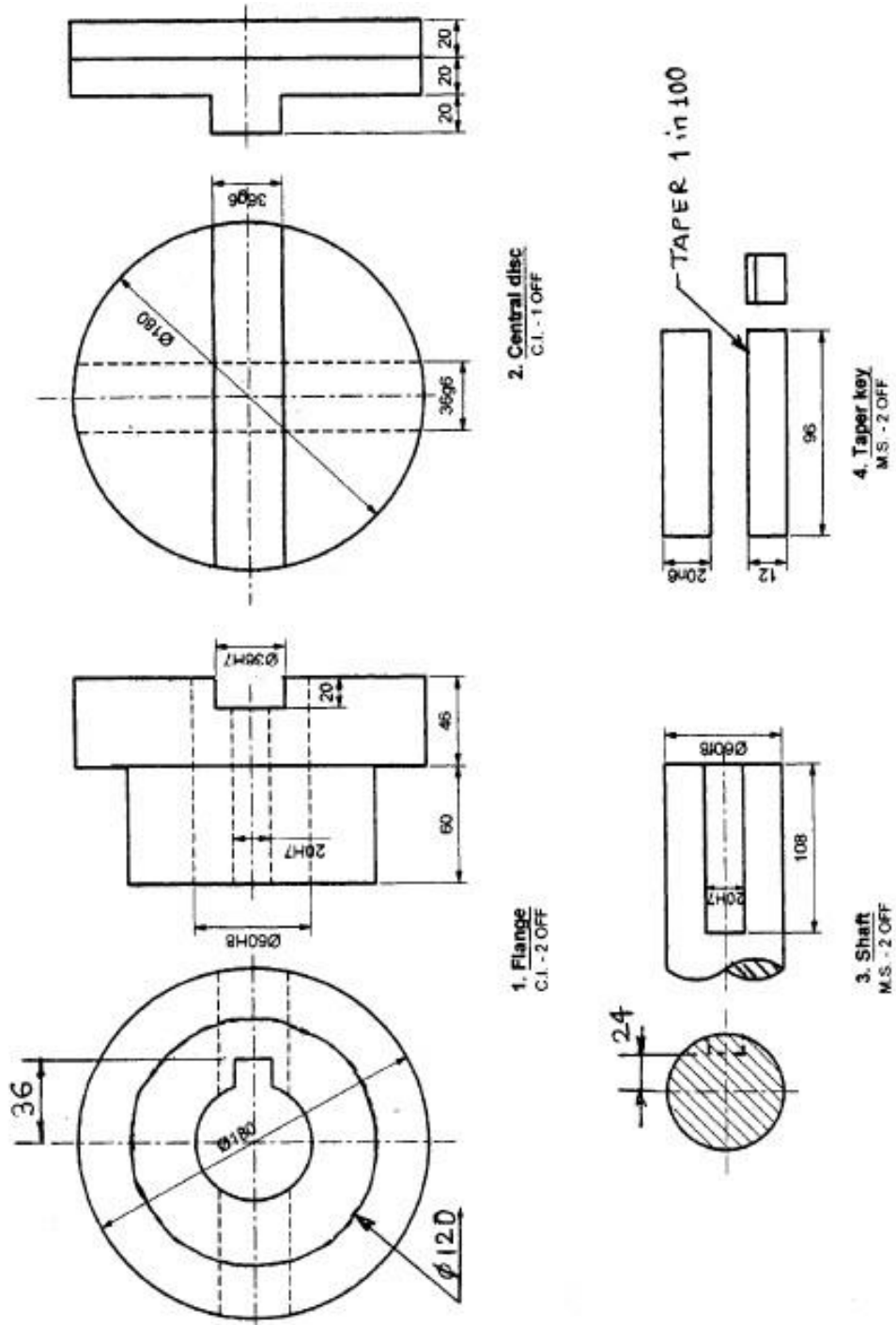
3. Fig. shows the details of screw jack. Draw the (i) Sectional Front View

(ii) Top view

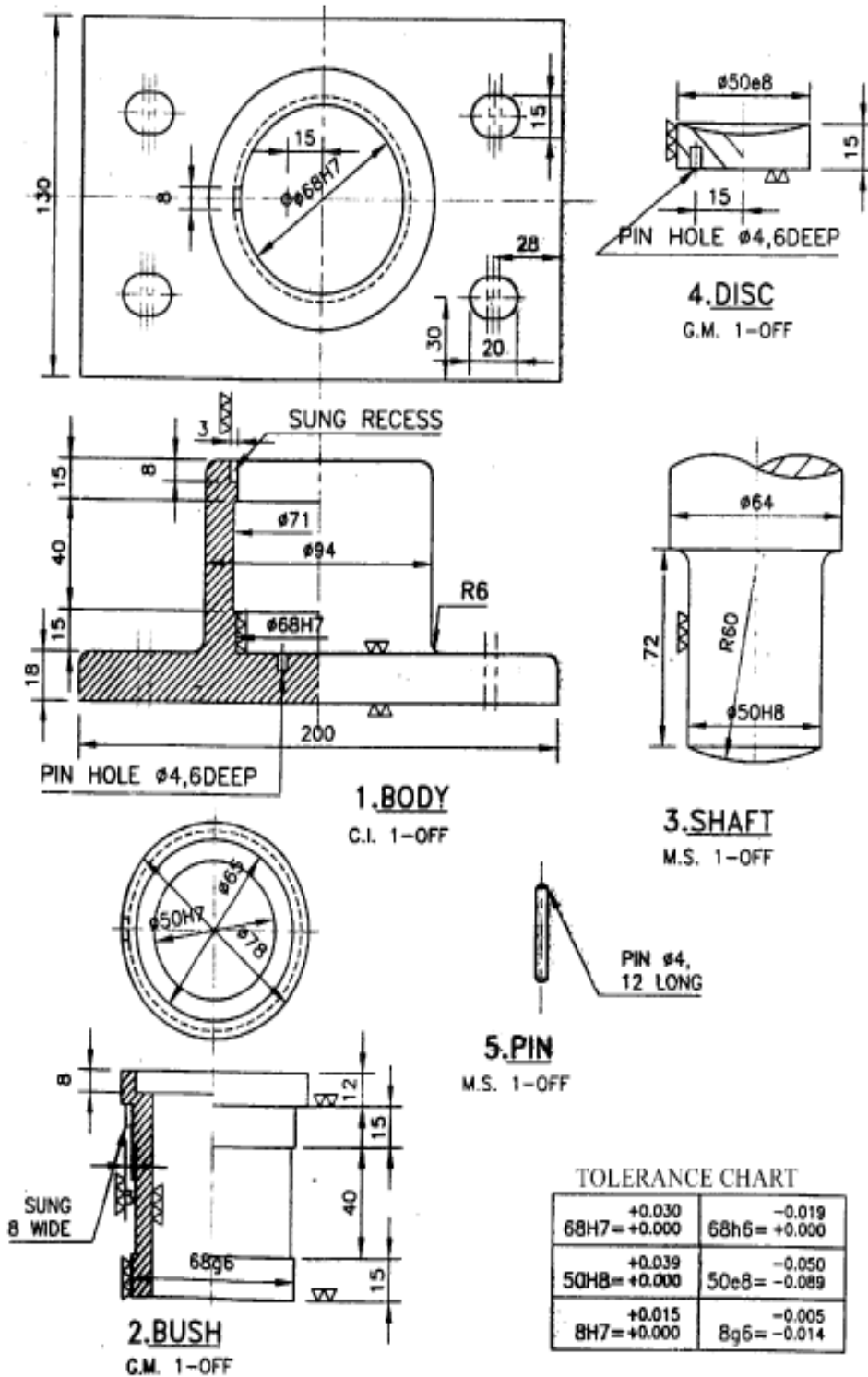
(iii) Part List and Dimensions



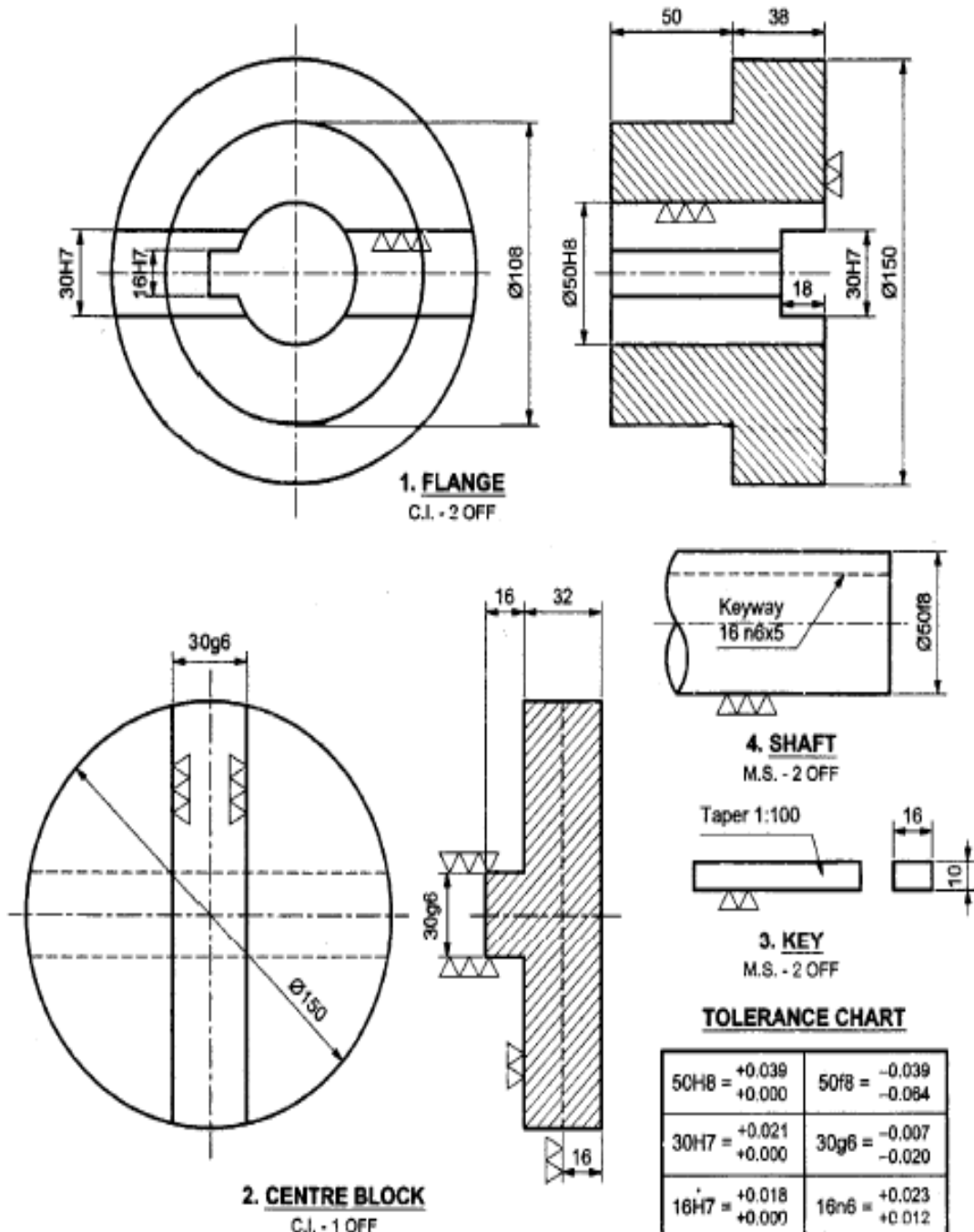
4. Fig. shows the details of Oldham's coupling. Draw the following views of the assembly
 (i) Sectional Front View (ii) Left hand Side View



5. Figure No. shows the details of foot step bearing. Draw sectional F.V. and T.V. of the Assembly prepare bill of material.



6. Fig. Shows the details of Oldham's coupling. Draw sectional F.V. and LHSV of assembly. Prepare bill of material.

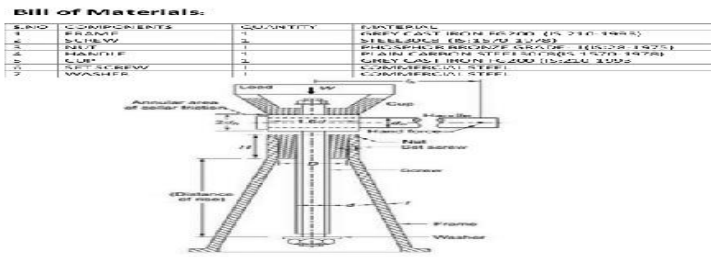




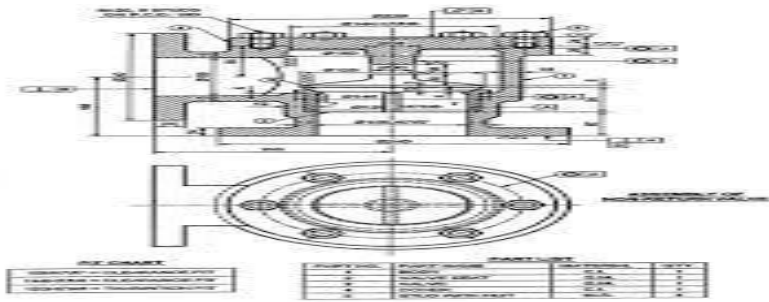
MCO Question

1. _____ is a drawing giving details about size tolerance, heat treatment, etc.
 - a. Exploded drawing
 - b. **Production drawing**
 - c. Assembly drawing
 - d. Machine drawing
2. Drawing showing the position of each part with respect to each other is called _____.
 - a. **assembly drawing**
 - b. part drawing
 - c. machine drawing
 - d. installation drawing
3. Exploded drawing is the drawing which gives the _____ of each component of an assembly and they arranged in the same sequence in which they are assembled.
 - a. clear view
 - b. sectional view
 - c. **pictorial view**
 - d. front view
4. Detailed drawing of each part of a machine is called _____.
 - a. **part drawing**
 - b. assembly drawing
 - c. patent drawing
 - d. tabular drawing
5. Which type of drawing is supplied by the manufacturer to the client?
 - a. Tabular drawing
 - b. Assembly drawing
 - c. Client drawing
 - d. **Installation drawing**
6. Working drawing is used by _____.
 - a. **production department**
 - b. customer
 - c. marketing department
 - d. designer
7. Production drawing is used by _____.
 - a) **production department**
 - b) customer
 - c) marketing department
 - d) designer
8. Which of the following does not form the important part of the screw jack?
 - a) Frame
 - b) Nut
 - c) Cup
 - d) **Coupling**
9. The various dimensioning methods include _____.
 - a) **Parallel dimensioning**
 - b) Vertical dimensioning
 - c) Inclined dimensioning
 - d) Horizontal dimensioning
10. The method in which the series of dimensions are applied from one point to other is called _____.
 - a) Parallel dimension
 - b) **Chain dimensioning**
 - c) Combined dimensioning
 - d) Tabular dimensioning
11. In an assembly section, these parts should have their section lines left out or shown solid black:
 - a. Bolt
 - b. All fasteners
 - c. **Thin parts**
 - d. Rivet

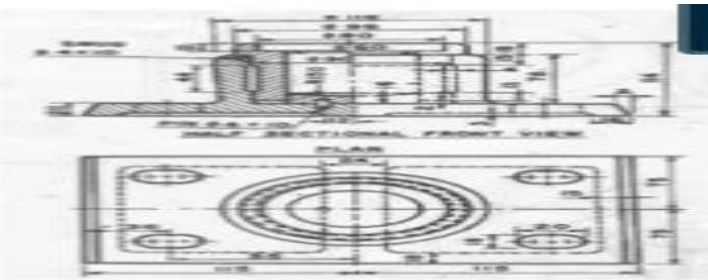
12. Assembly of screw jack _____



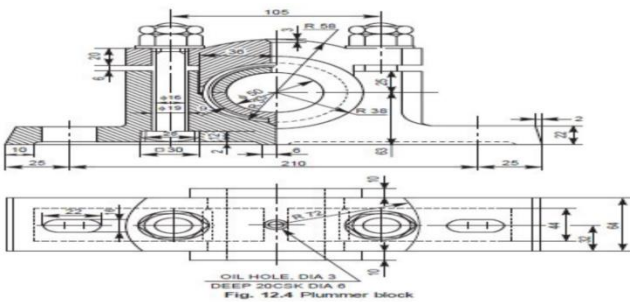
a.



b.



c.

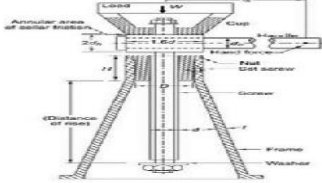


d.

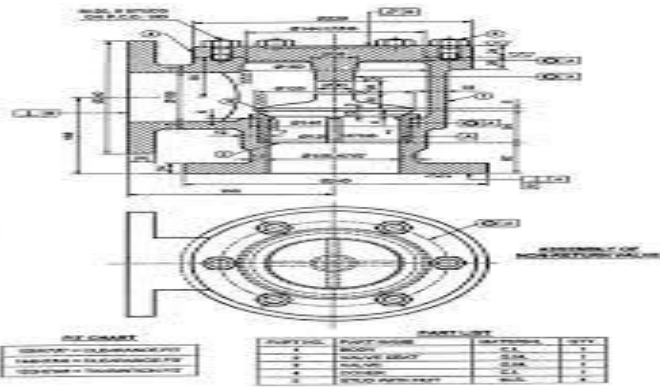
13. Assembly of None return Valve _____

Bill of Materials:

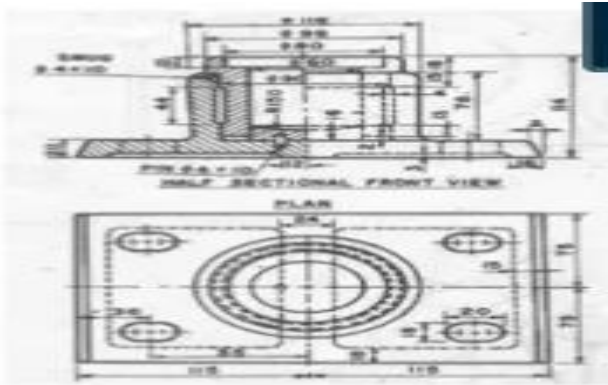
S.NO	COMPONENTS	QUANTITY	MATERIAL
1	FRAME	1	CAST IRON
2	VALVE	1	BRASS
3	PLATE	1	BRASS
4	SCREW	4	STEEL
5	WASHER	4	STEEL
6	SPRING	1	STEEL
7	ROD	1	STEEL



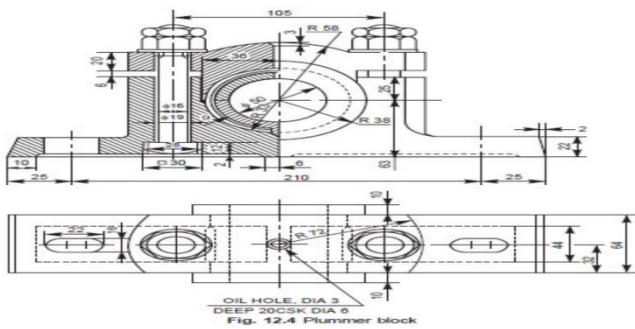
a.



b.



c.

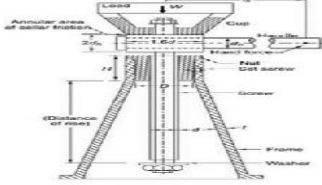


d.

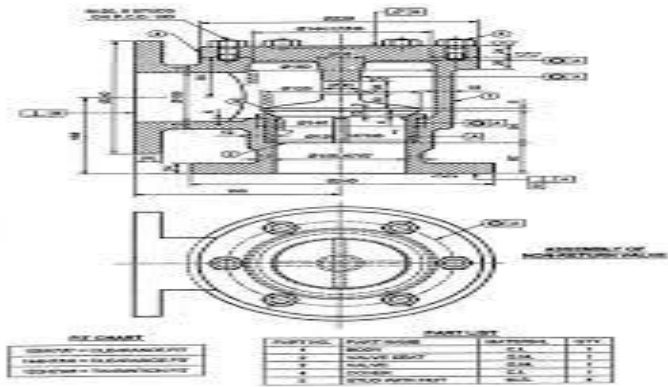
14. Assembly of Plummer Block _____

Bill of Materials:

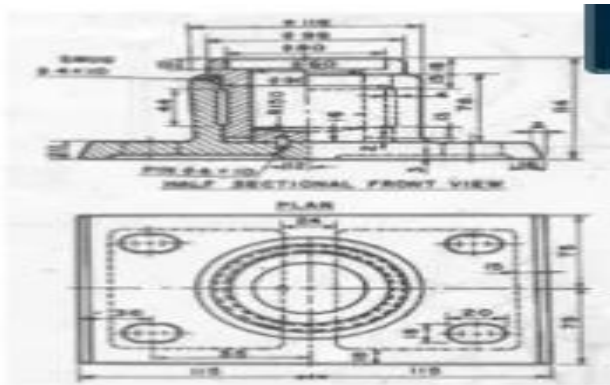
S.NO	COMPONENTS	COUNTRY	MATERIAL
1	BRACKET	INDIA	CAST IRON (IS 210-1978)
2	SCREW	INDIA	STEEL (IS 1702-1978)
3	WASHER	INDIA	STEEL (IS 1702-1978)
4	FLAT	INDIA	STEEL (IS 1702-1978)
5	FLAT	INDIA	STEEL (IS 1702-1978)
6	SCREW	INDIA	STEEL (IS 1702-1978)
7	WASHER	INDIA	STEEL (IS 1702-1978)



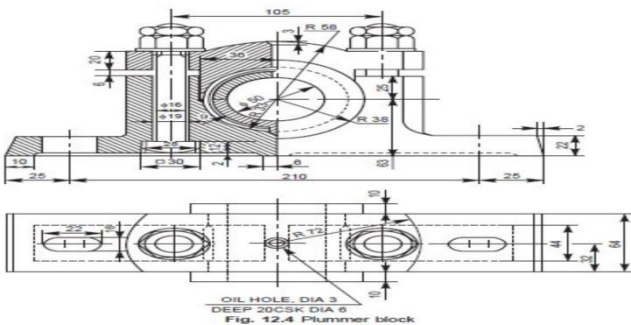
a.



b.



c.

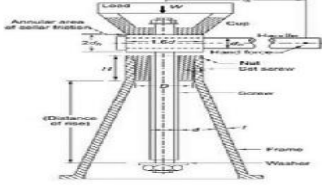


d.

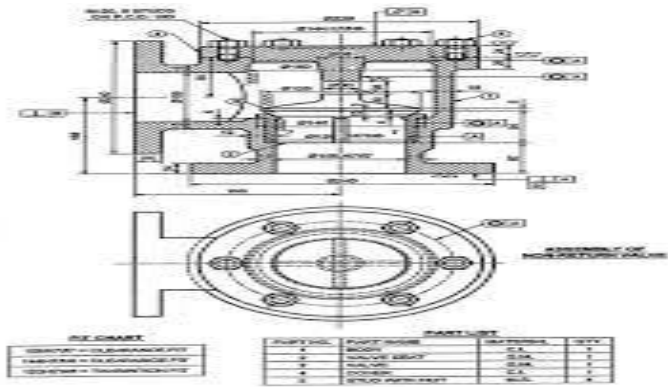
15. Assembly of Pedestal Bearing _____

Bill of Materials:

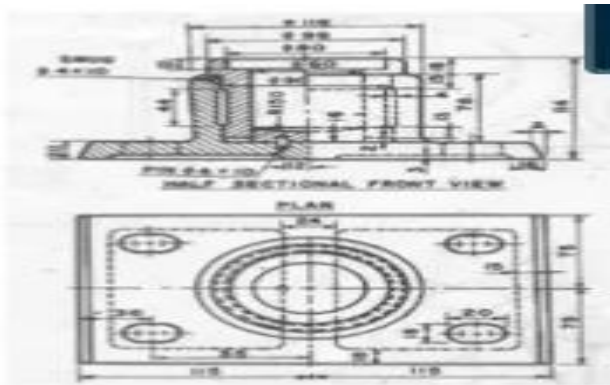
S.NO	COMPONENTS	COUNTRY	MATERIAL
1	BRIM		GREY CAST IRON 25 200 (IS 210 1978)
2	SCREW		STEEL (IS 1929 1978)
3	WASHER		STEEL (IS 1929 1978)
4	FLAT		GREY CAST IRON 150 100 (IS 150 1978)
5	SCREW		COMPRESSION STEEL
6	WASHER		COMPRESSION STEEL



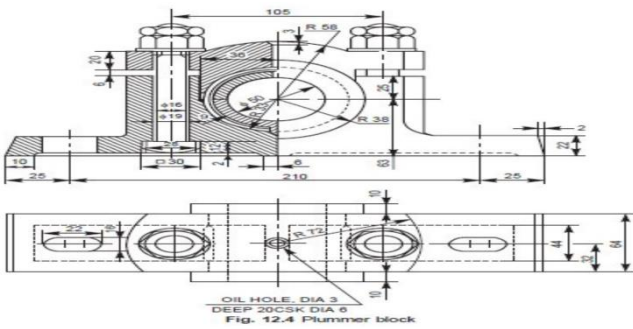
a.



b.

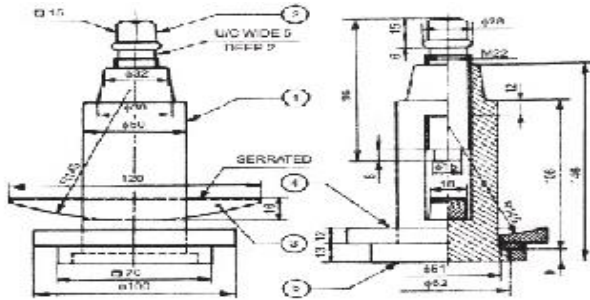


c.



d.

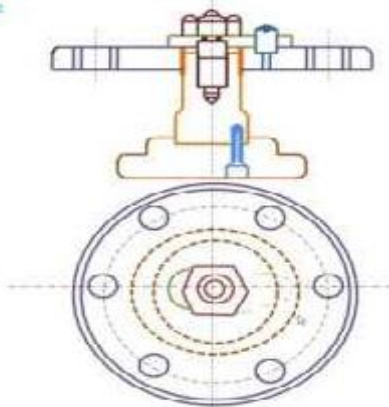
16. Assembly of Tool Post _____



Part No.	Name	Matl	Qty
1	Body	MSE	1
2	Clamp screw	MSC	1
3	Wash washer	C	1
4	Pin	MSE	1
5	Support block	MSE	1

a)

Solution:



b)

3] ASSEMBLY OF LATHE TAIL-STOCK

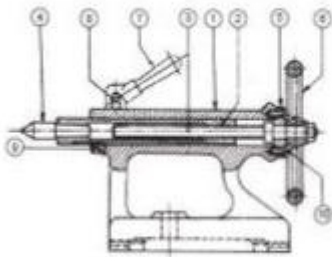
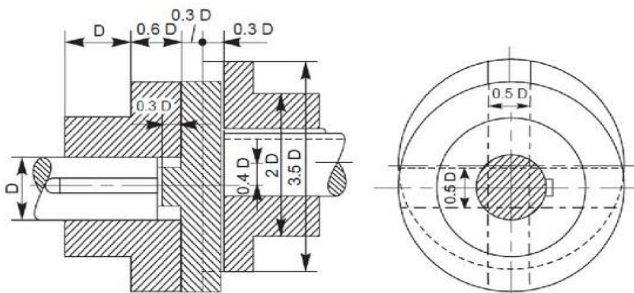


Fig. 18.15A Lathe tail-stock

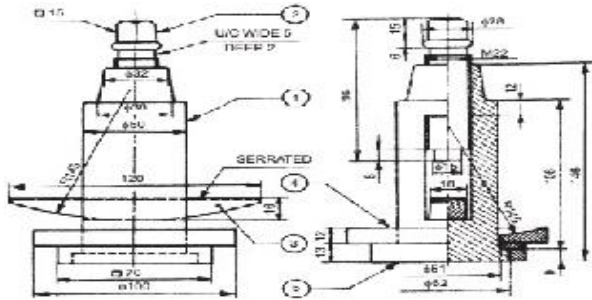
Part No.	Name	Matl	Qty
1	Body	MSE	1
2	Clamp screw	MSC	1
3	Wash washer	C	1
4	Pin	MSE	1
5	Support block	MSE	1
6	Clamp screw	MSC	1
7	Wash washer	C	1
8	Pin	MSE	1
9	Support block	MSE	1
10	Clamp screw	MSC	1

c)



d)

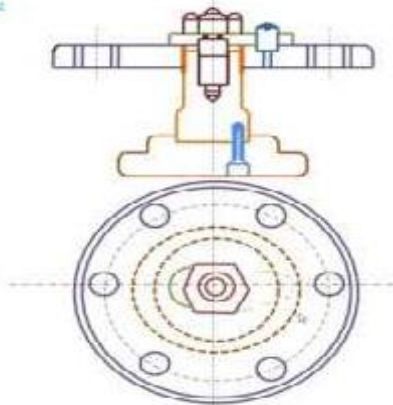
17. Assembly of Drilling jig _____



Part No.	Name	Matl	Qty
1	Body	MBC	1
2	Clamp screw	MBC	1
3	Washer	C	1
4	Pin	MBC	1
5	Support block	MBC	1

a)

Solution:



b)

3] ASSEMBLY OF LATHE TAIL-STOCK

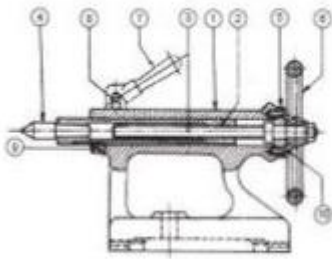
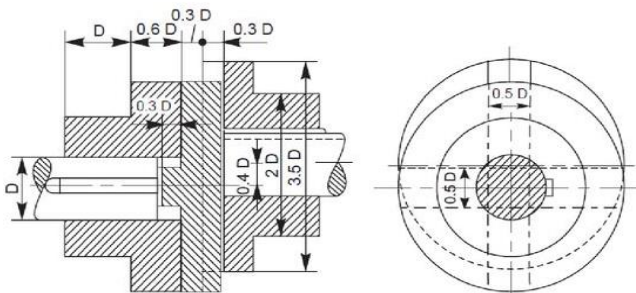


Fig. 18.15A Lathe tail-stock

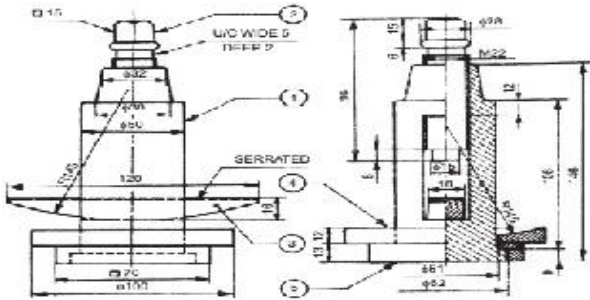
Part No.	Name	Matl	Qty
1	Body	MBC	1
2	Support block	MBC	1
3	Pin	MBC	1
4	Washer	C	1
5	Clamp screw	MBC	1
6	Pin	MBC	1
7	Washer	C	1
8	Clamp screw	MBC	1
9	Pin	MBC	1
10	Washer	C	1

c)



d)

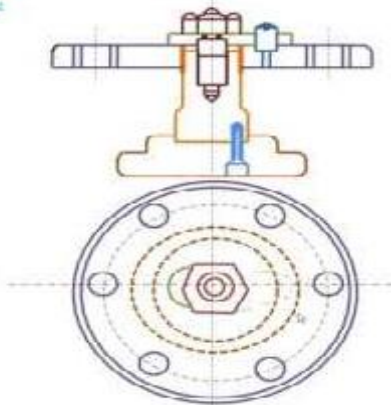
18. Assembly of Drilling jig _____



Part No.	Name	Matl	Qty
1	Body	MBC	1
2	Clamp screw	MBC	1
3	Washer	C	1
4	Pin	MBC	1
5	Support block	MBC	1

a)

Solution:



b)

3] ASSEMBLY OF LATHE TAIL-STOCK

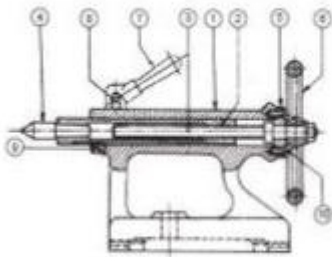
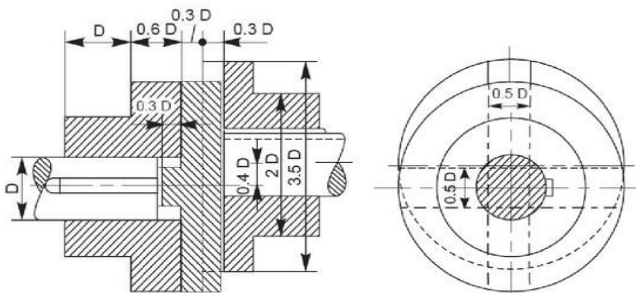


Fig. 18.15A Lathe tail-stock

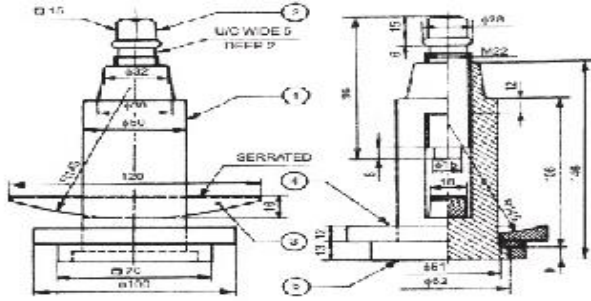
Part No.	Name	Matl	Qty
1	Body	MBC	1
2	Support block	MBC	1
3	Pin	MBC	1
4	Washer	C	1
5	Clamp screw	MBC	1
6	Pin	MBC	1
7	Washer	C	1
8	Clamp screw	MBC	1
9	Pin	MBC	1
10	Washer	C	1

c)



d)

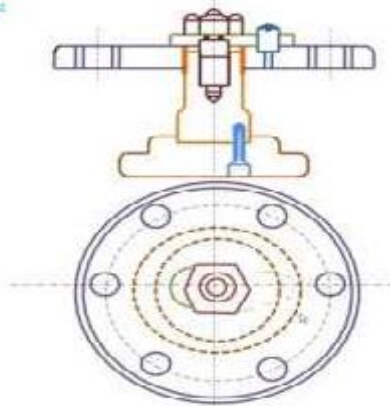
19. Assembly of Tails stock _____



Part No.	Name	Matl	Qty
1	Body	MBC	1
2	Clamp screw	MBC	1
3	Washers	C	1
4	Nut	MBC	1
5	Adjuster block	MBC	1

a)

Solution:



b)

3] ASSEMBLY OF LATHE TAIL-STOCK

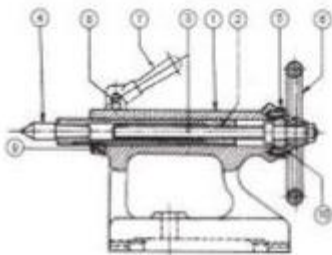
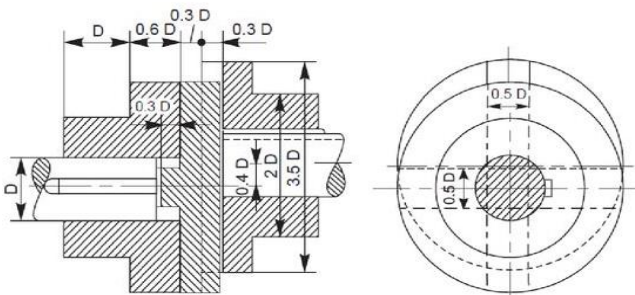


Fig. 15.15A Lathe tail-stock

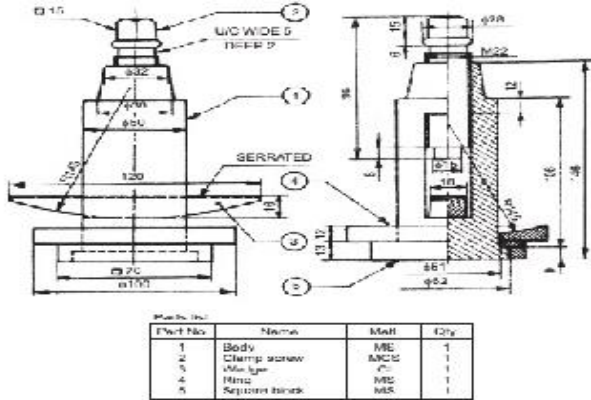
Part No.	Name	Matl	Qty
1	Body	MBC	1
2	Adjuster block	MBC	1
3	Adjuster screw	MBC	1
4	Lock	MBC	1
5	Spring	MBC	1
6	Washer	C	1
7	Clamp screw	MBC	1
8	Lock	MBC	1
9	Washer	C	1
10	Body	MBC	1

c)



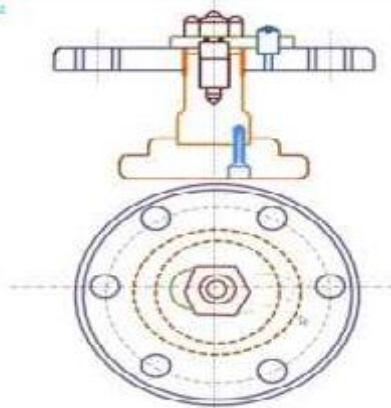
d)

20. Assembly of Oldham's Coupling _____



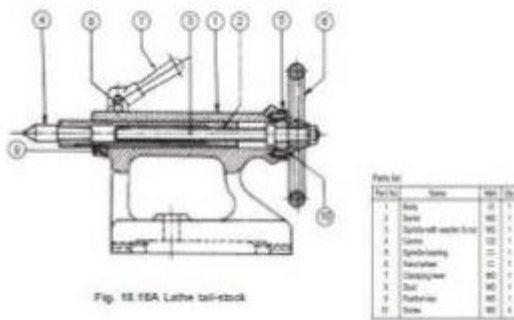
a)

Solution:

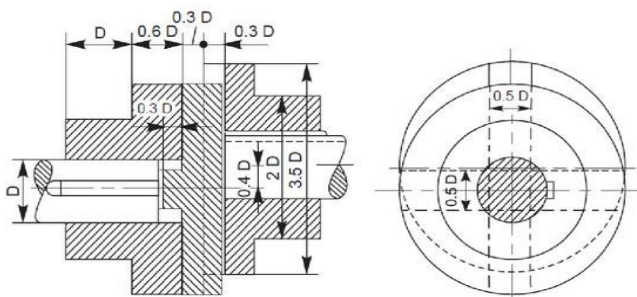


b)

3] ASSEMBLY OF LATHE TAIL-STOCK

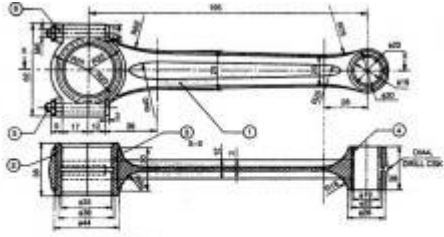


c)



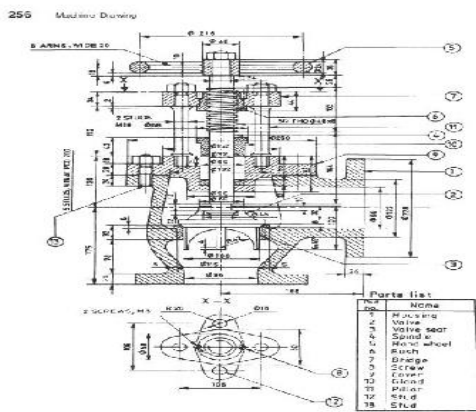
d)

21. Assembly of Piston & connecting rod _____

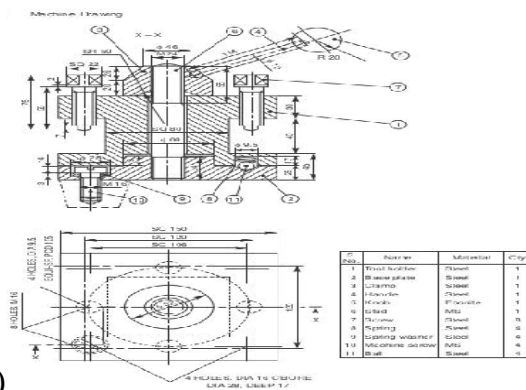


Part No.	Name	Matl.	Qty.
1	Rod	FG	1
2	Cap	FG	1
3	Bearing Inlet	GM	2
4	Bearing Inlet	P. Bronze	1
5	Nut	MCS	2

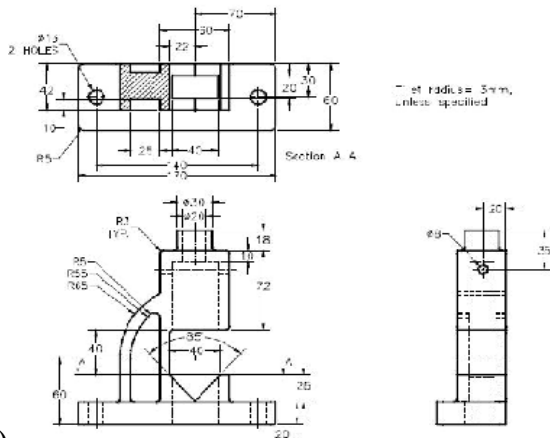
a)



b)

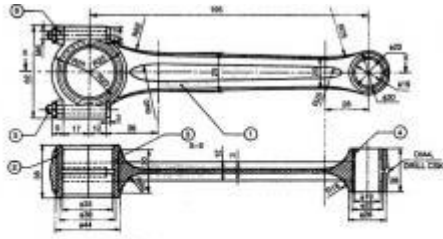


c)



d)

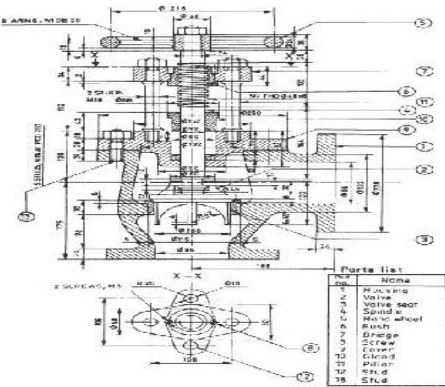
22. Assembly of Steam Stop Valve



Part No.	Name	Matk.	Qty.
1	Flange	FG	1
2	Cap	FG	1
3	Sealing washer	GM	2
4	Sealing washer	P. Bronze	1
5	Ball	MCS	2

a)

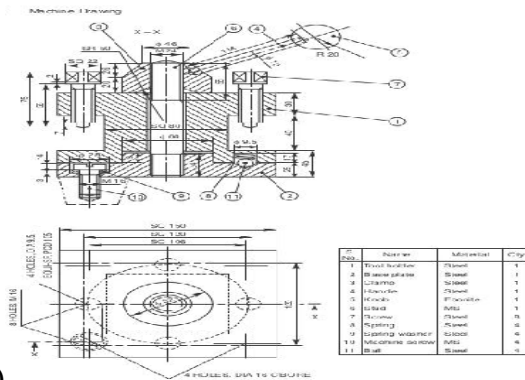
256 Machine Drawing



Sl. No.	Name	Material	Qty.
1	Flange	FG	1
2	Cap	FG	1
3	Sealing washer	GM	2
4	Sealing washer	P. Bronze	1
5	Ball	MCS	2

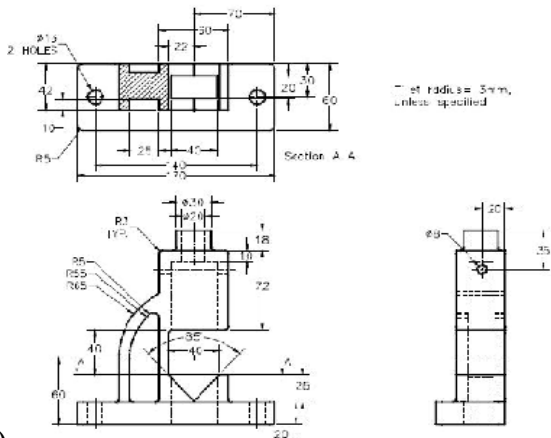
Fig. 17.4 Steam stop valve

b)



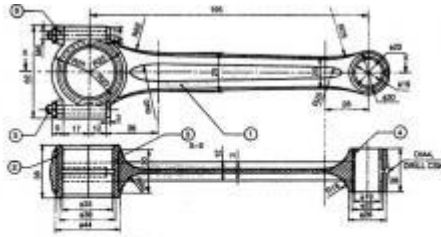
Sl. No.	Name	Material	Qty.
1	Flange	FG	1
2	Cap	FG	1
3	Sealing washer	GM	2
4	Sealing washer	P. Bronze	1
5	Ball	MCS	2

c)



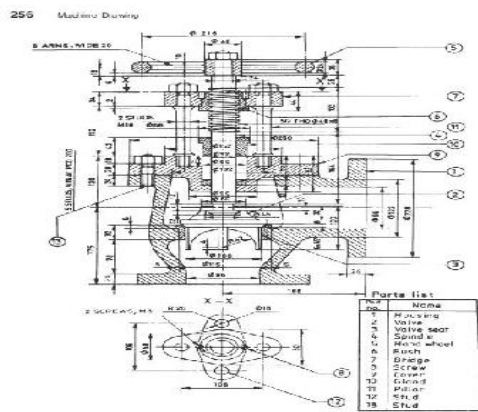
d)

23. Assembly of Drilling Jig



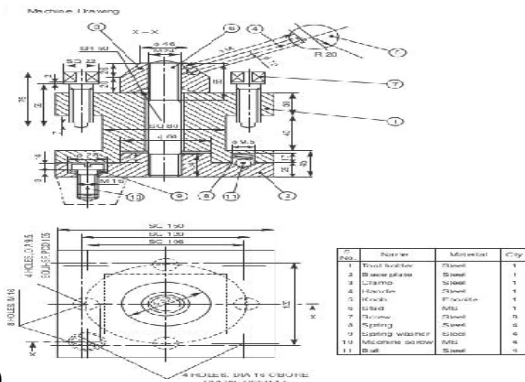
Part No.	Name	Matl.	Qty.
1	Body	FG	1
2	Cap	FG	1
3	Bushing brass	BM	2
4	Bushing brass	P.Brass	1
5	Roll	MCS	2
6	Nut	MCS	2

a)



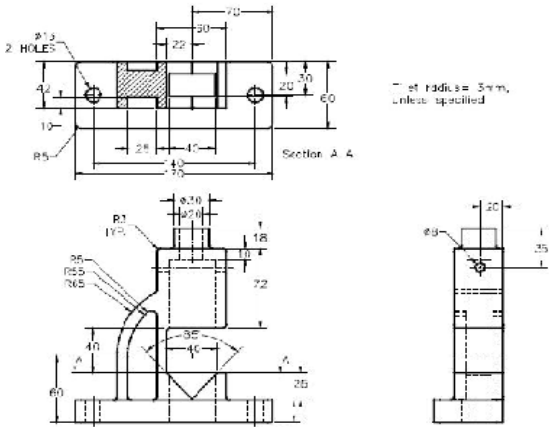
Part No.	Name	Matl.	Qty.
1	Valve	FG	1
2	Valve seat	FG	1
3	Spring	FG	1
4	Roller wheel	FG	1
5	Roller	FG	1
6	Bridge	FG	1
7	Spring	FG	1
8	Cover	FG	1
9	Roller	FG	1
10	Roller	FG	1
11	Roller	FG	1
12	Roller	FG	1
13	Roller	FG	1
14	Roller	FG	1
15	Roller	FG	1
16	Roller	FG	1
17	Roller	FG	1
18	Roller	FG	1
19	Roller	FG	1
20	Roller	FG	1
21	Roller	FG	1
22	Roller	FG	1
23	Roller	FG	1
24	Roller	FG	1
25	Roller	FG	1
26	Roller	FG	1
27	Roller	FG	1
28	Roller	FG	1
29	Roller	FG	1
30	Roller	FG	1
31	Roller	FG	1
32	Roller	FG	1
33	Roller	FG	1
34	Roller	FG	1
35	Roller	FG	1
36	Roller	FG	1
37	Roller	FG	1
38	Roller	FG	1
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99	Roller	FG	1
100	Roller	FG	1

b)



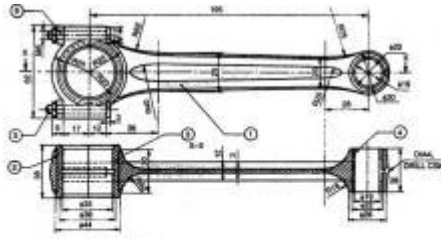
Part No.	Name	Material	Qty.
1	Roller	FG	1
2	Roller	FG	1
3	Roller	FG	1
4	Roller	FG	1
5	Roller	FG	1
6	Roller	FG	1
7	Roller	FG	1
8	Roller	FG	1
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100	Roller	FG	1

c)



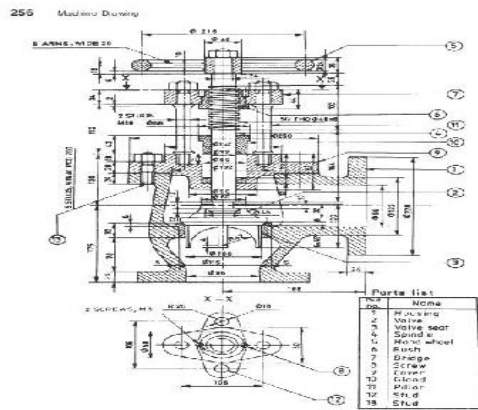
d)

24. Assembly of Pipe Vice



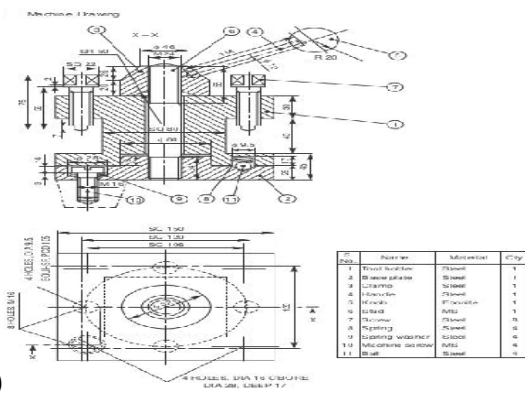
Part No.	Name	Matl.	Qty.
1	Flood	FG	1
2	Cap	FG	1
3	Bearing brass	GM	2
4	Bearing brass	P.Brass	1
5	Roll	MCS	2
6	Nut	MCS	2

a)



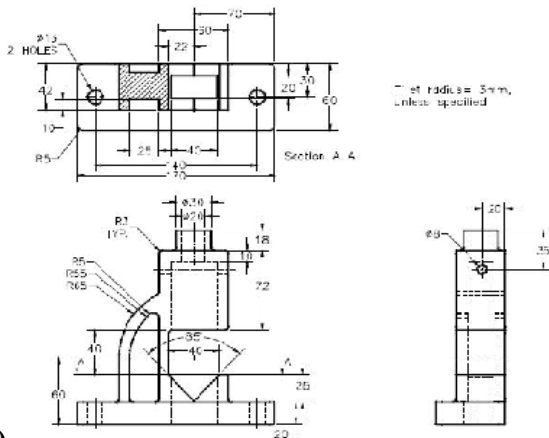
Part No.	Name	Matl.	Qty.
1	Valve	FG	1
2	Valve seat	FG	1
3	Spindle	FG	1
4	Roller wheel	FG	1
5	Roller	FG	1
6	Bridge	FG	1
7	SCREW	FG	1
8	Cover	FG	1
9	Roller	FG	1
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100	Roller	FG	1

b)



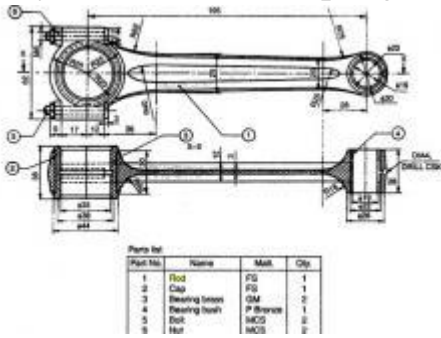
Part No.	Name	Material	Qty.
1	Roller wheel	Steel	1
2	Roller wheel	Steel	1
3	Roller wheel	Steel	1
4	Roller wheel	Steel	1
5	Roller wheel	Steel	1
6	Roller wheel	Steel	1
7	Roller wheel	Steel	1
8	Roller wheel	Steel	1
9	Roller wheel	Steel	1
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11	Roller wheel	Steel	1
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99	Roller wheel	Steel	1
100	Roller wheel	Steel	1

c)

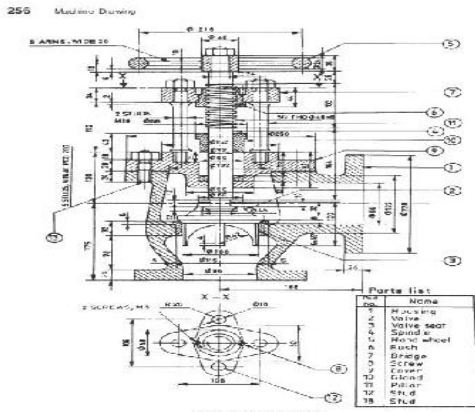


d)

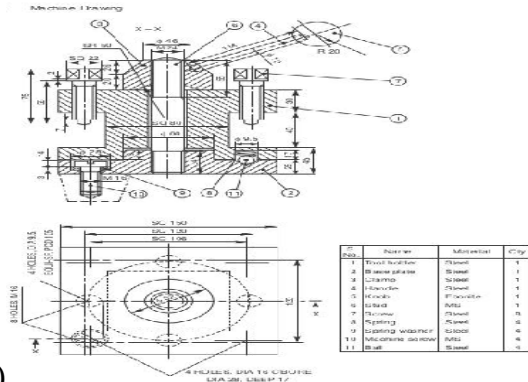
25. Assembly of Universal Coupling _____



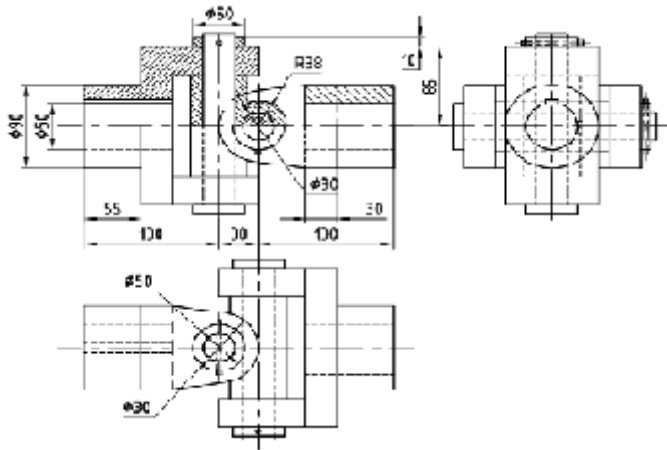
a)



b)



c)



d)

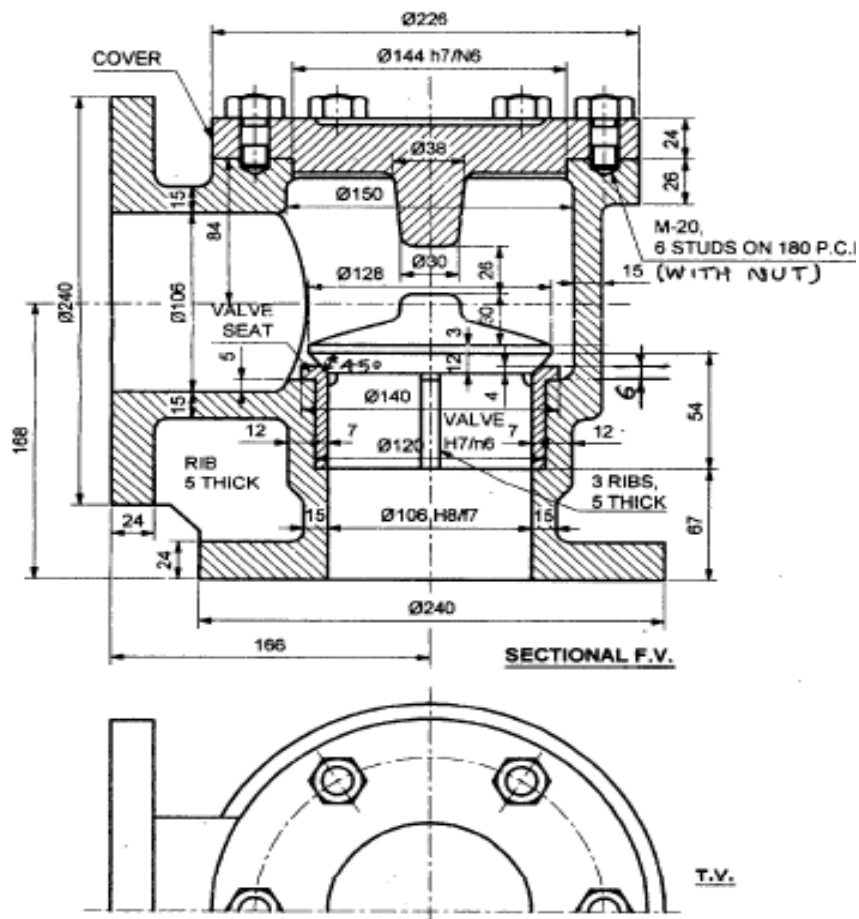
6. Assembly to Details (Total Marks =16)

Position in Question Paper
 Q.5. a) 16-Marks.

Total Marks- 16

Descriptive Question

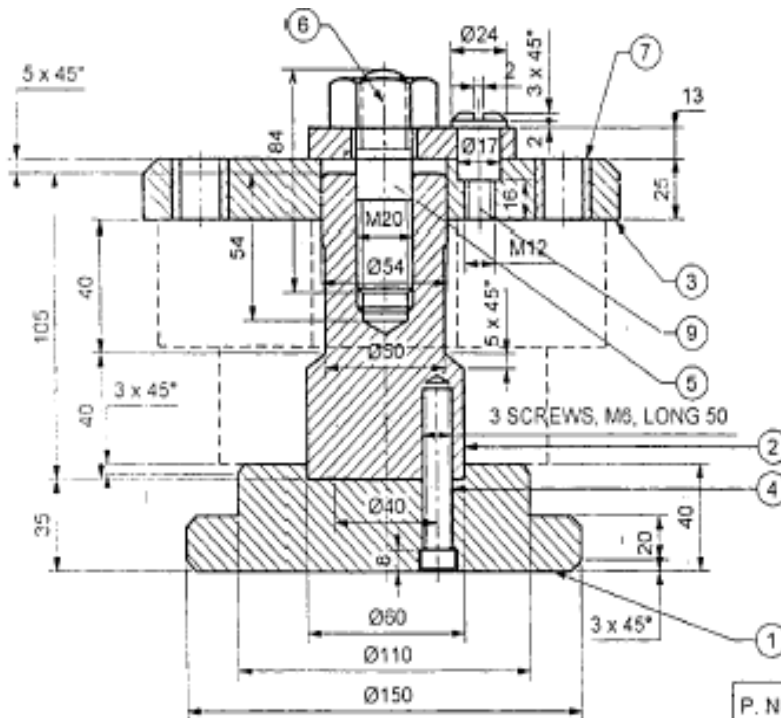
1. Fig. shows the assembly of Non-Return Valve, Attempt any two of the following
- (1) Draw the Sectional Front View and Top View of body.
 - (2) Draw the Front View and Top View of Valve.
 - (3) Draw the Sectional Front View and Top View of Cover.



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.	6

2. Fig. shows assembly of a Drill Jig. Attempt any TWO of the following :
- Draw sectional front view and top view of Base plate and stem.
 - Draw sectional front view and Top view of Jig Plate and Washer.
 - Draw Front view and side view of Stud, Nut, Bush and screw (Part No. – 9).

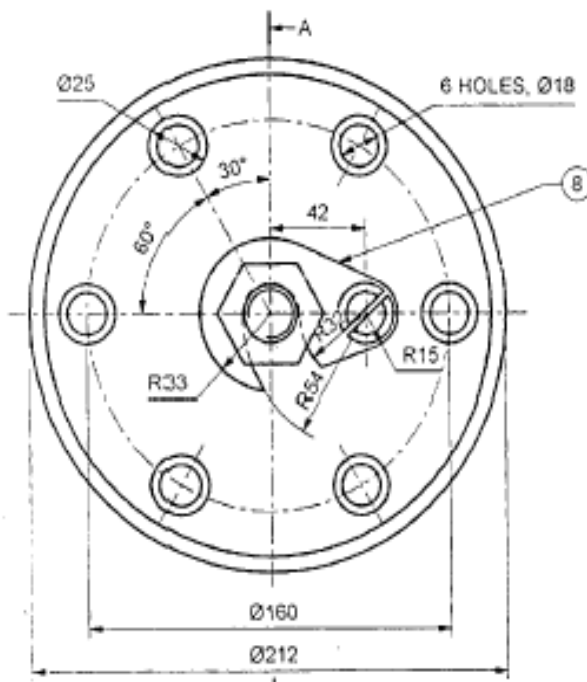


PART LIST

P. NO.	PART NAME	MAT.	QTY.
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 (JIG)	STEEL	6
8	WASHER	M.S.	1
9	SCREW	M.S.	1

TOLERANCE CHART

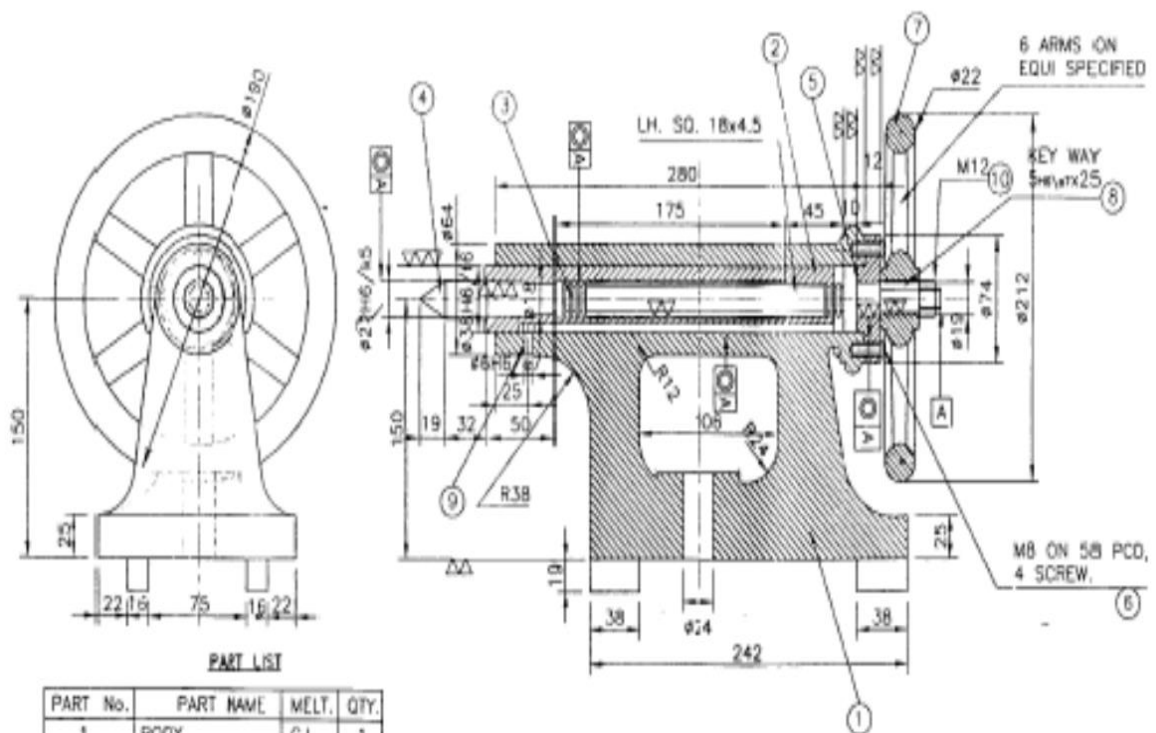
60H7 = +0.030 +0.000	60f7 = -0.030 -0.049
54H7 = +0.030 +0.000	54F7 = -0.030 -0.049
25H7 = +0.021 +0.000	25n6 = +0.028 +0.015



3. Shows Assembly of Lathe tail stock

Draw detail drawing of the following parts :

- (1) Body sect F.V. & S.V.
- (2) Barrel sect F.V. & S.V.
- (3) Spindle Bearing sect F.V. & S.V.



PART LIST

PART No.	PART NAME	MELT.	QTY.
1	BODY	C.I.	1
2	BARREL	M.S.	1
3	SPINDLE	M.S.	1
4	CENTER	C.S.	1
5	SPINDLE BEARING	C.I.	1
6	SCREW	M.S.	1
7	HAND WHEEL	C.I.	1
8	KEY	M.S.	1
9	FEATHER	M.S.	1
10	NUT	M.S.	1

ASSEMBLY OF
TAIL STOCK

FIT CHART

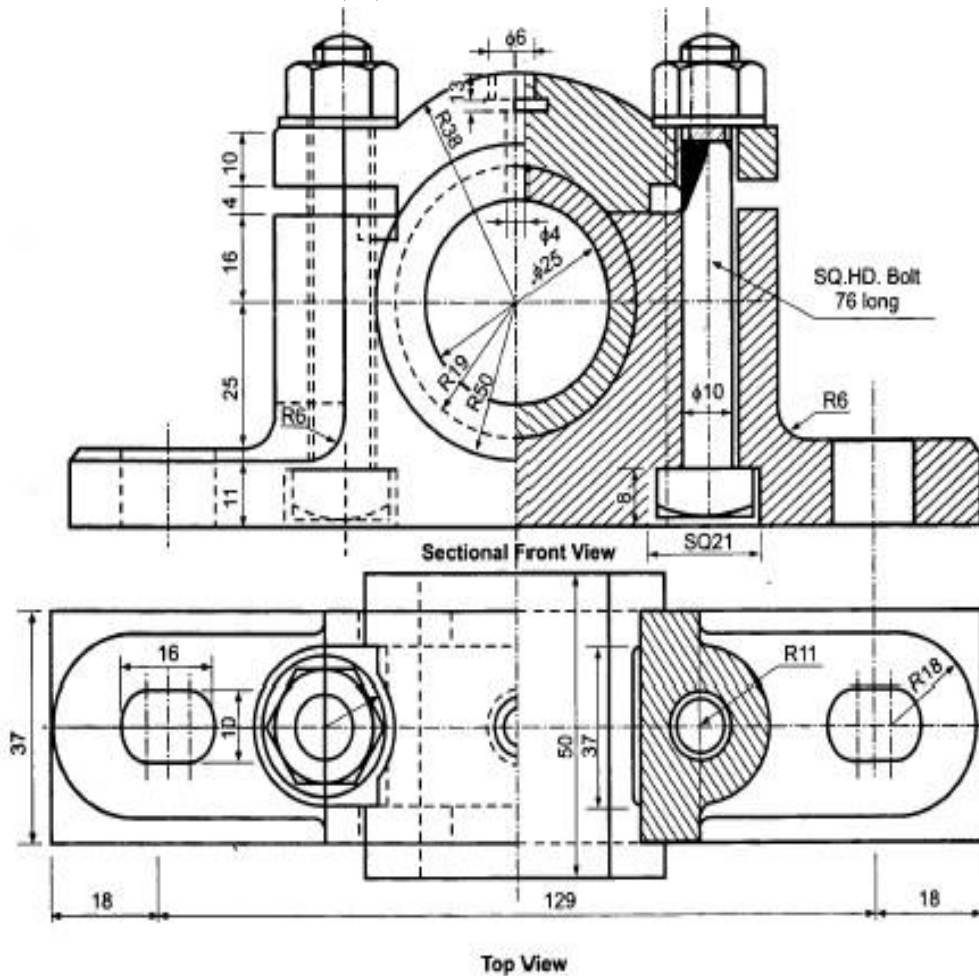
21H6/k5 = TRANSITION FIT
5H6/e7 = CLEARANCE FIT
38H6/16 = CLEARANCE FIT
6H6/e7 = CLEARANCE FIT

TOLERANCE CHART

38H6 +0.016	21H6 +0.013
+0.000	+0.000
38f6 -0.025	21k5 +0.011
-0.040	+0.002
6H6 +0.08	5H6 +0.008
+0.000	+0.000
6e7 -0.020	5e7 -0.020
-0.032	-0.032

4. shows the assembly of Plummer block. Draw half sectional orthographic views of the following :

- (i) Body – F.V. & T.V.
- (ii) Brass – F.V. & T.V.
- (iii) Cap – F.V. & T.V.
- (iv) Bolt – F.V. & T.V.



Bill of Material

Sr. No.	Part Name	Material	Quantity
1	Body	C.I.	1
2	Cap	G.M.	1
3	Brasses	G.M.	1
4	Nut	M.S.	2
5	Nut	M.S.	2
6	Bolt	M.S.	2

Assembly of plummer block

5. Shows the assembly of Oldham's coupling. Draw the sectional views of the following :

- (i) Flange – F.V. & T.V.
- (ii) Central Disc – F.V. & T.V.
- (iii) Shaft – F.V. & T.V.
- (iv) Taper key

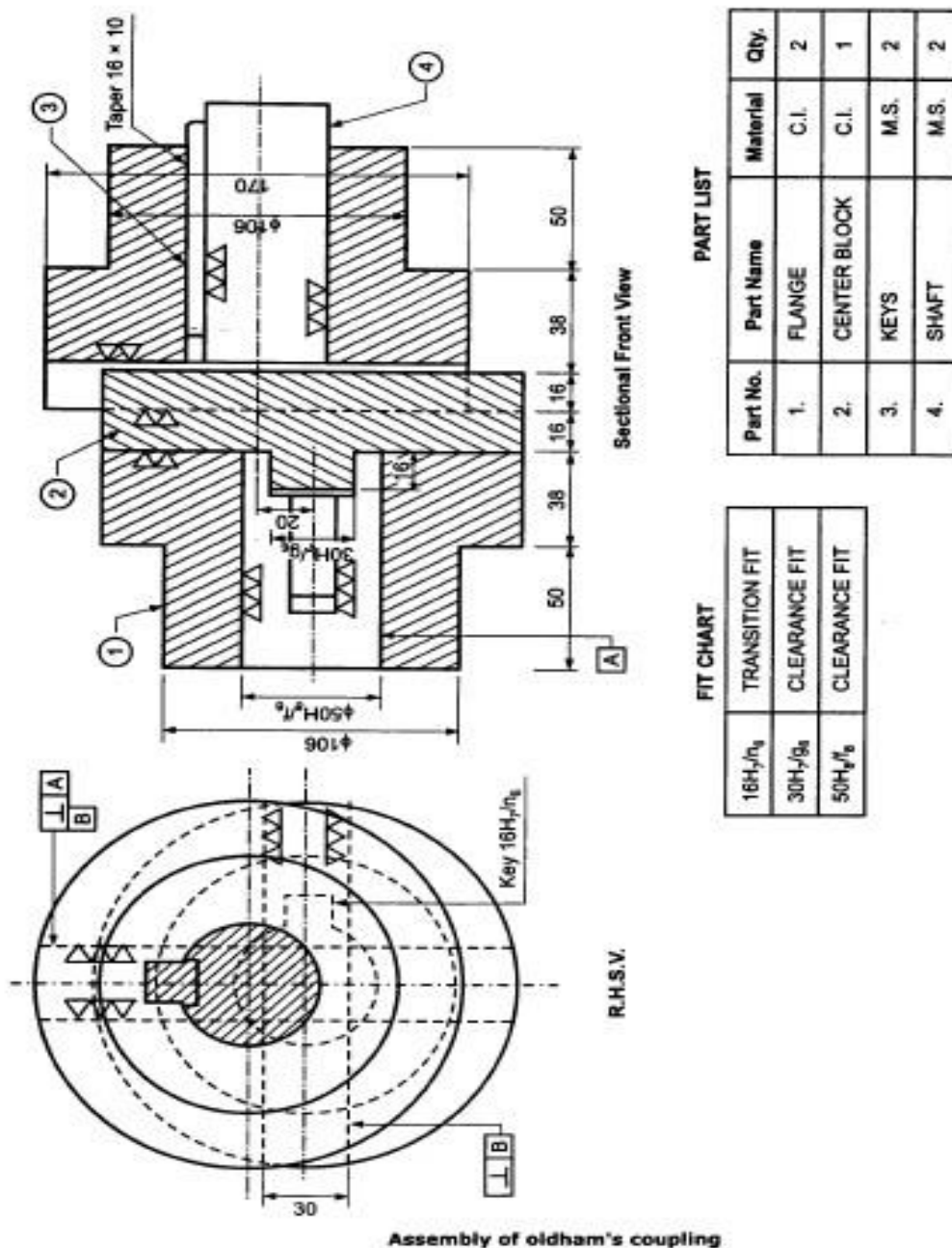
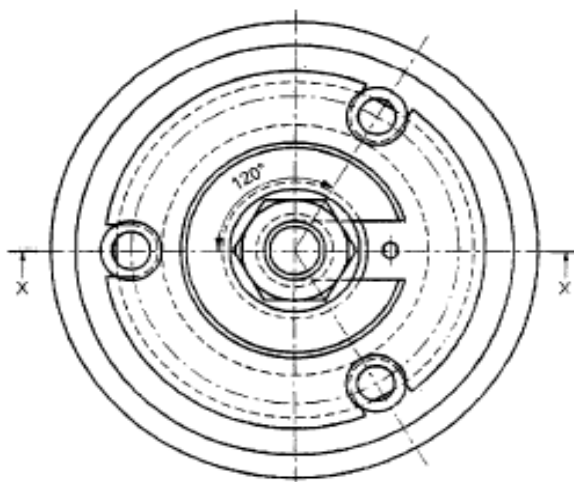
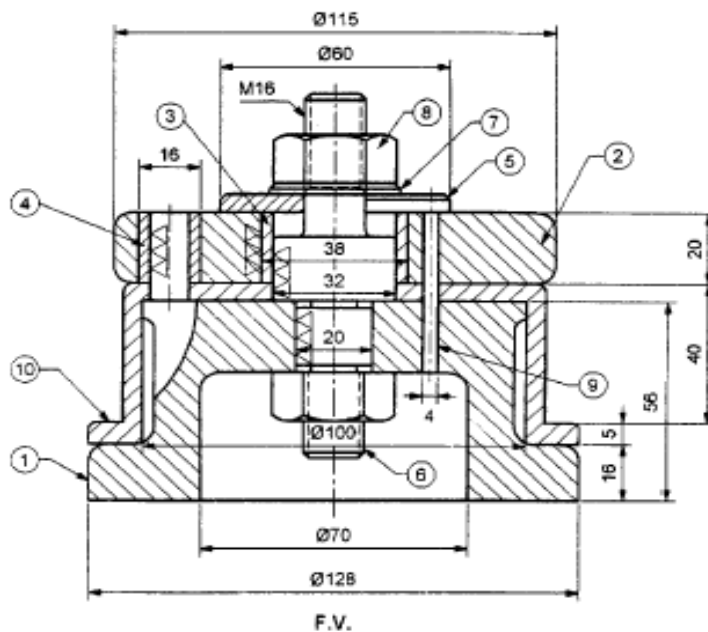


Fig. - 7

6. Fig. shows assembly of drill jig. Draw details :

- (i) Body (two views)
- (ii) Component (two views)
- (iii) Plate
- (iv) Also show type of fit used



Part No.	Part Name	Matl.	Qty.
1	Body	C.I.	1
2	Plate	C.I.	1
3	Bush	G.M.	1
4	Bush	G.M.	3
5	Washer	M.S.	1
6	Stud	M.S.	1
7	Washer	M.S.	1
8	Nut	M.S.	1
9	Pin	Steel	1
10	Workpiece	C.I.	1

Assembly of Drilling Jig



MCQ Question

1. In order to create an accurate assembly drawing the drafter should create the _____ drawings first
 - A. **Detail**
 - C. parts list
 - a. title block
 - d. isometric
2. The thread note for a typical bolt will include the _____.
 - A. **major diameter of the thread**
 - C. center line
 - b. material
 - d. offset distance
3. The text used on a typical detail sheet should be _____.
 - a. **placed horizontally**
 - c. in an architectural text style
 - b. in bold text
 - d. none of the above
4. The typical parts list should include the _____.
 - a. part number
 - c. number of parts needed
 - b. manufacturing material
 - d. **all of the above**
5. A typical set of mechanical working drawings includes _____.
 - a. exploded assembly
 - c. parts list
 - b. part details
 - d. **all of the above**
6. The title block used on working drawings should include the _____.
 - a. **sheet number**
 - c. layer set
 - b. line type
 - d. all of the above
7. In the mechanical design process the first step is to _____.
 - a. brainstorm solutions
 - c. prepare a budget
 - b. prepare rough sketches
 - d. **identify the problem**
8. This type of drawing shows two lines representing the pipe diameter:
 - a. Single-line
 - c. Standard piping
 - b. **Double-line**
 - d. Centerline piping
9. Once a drawing is determined to be complete, the title block is used to document the change from:
 - a. **A draft to a finished drawing**
 - c. An assembly to a finished drawing
 - b. A finished to a working drawing
 - d. A working drawing to a draft

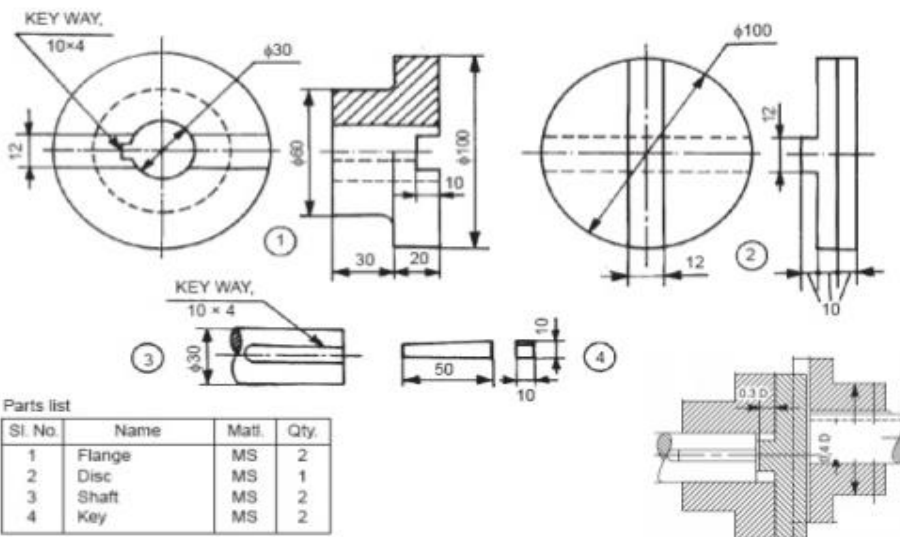
10. In these drawings it is necessary to show cut surfaces and distinguish between adjacent parts:

- a. Assembly
- b. 3D drawings
- c. Working drawings
- d. Skeleton assemblie

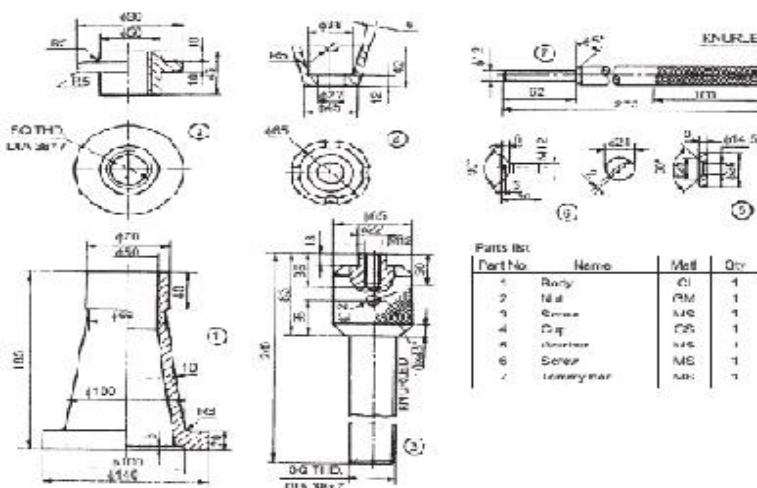
11. These drawings are given to contractors to perform work or manufacture individual parts:

- a. Assembly details
- b. 3D drawings
- c. Working drawings
- d. Skeleton assemblies

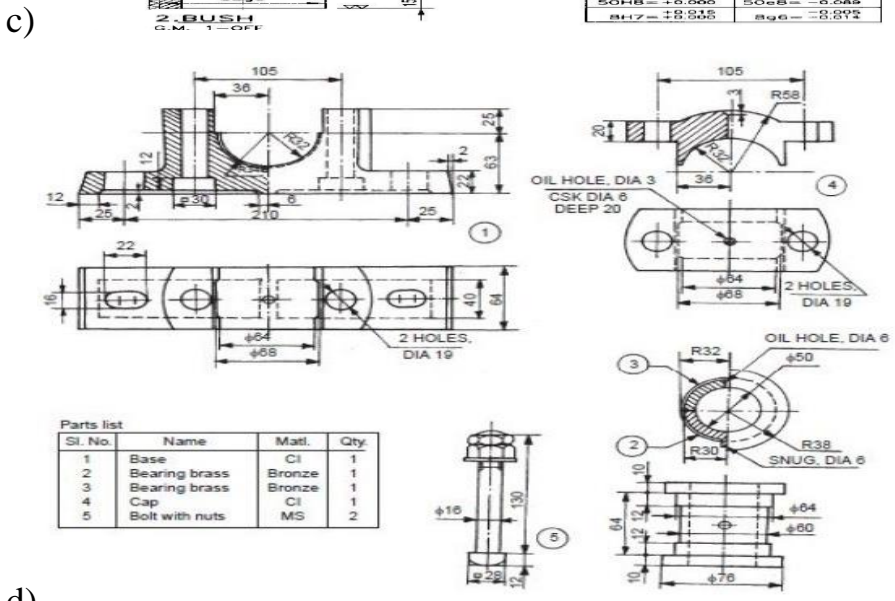
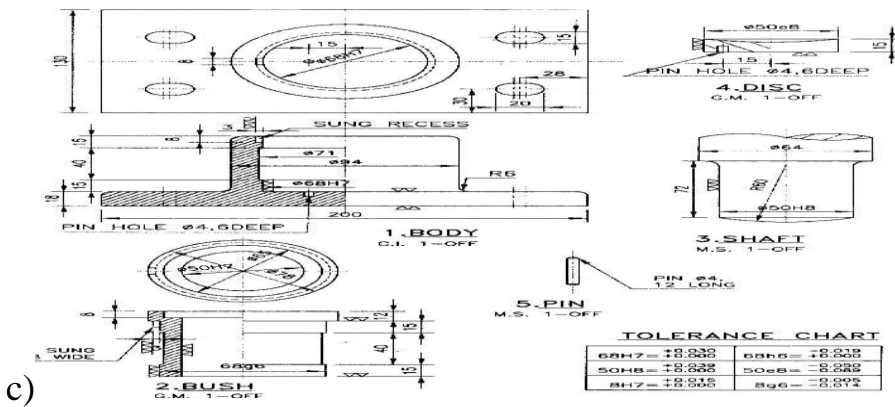
12. Details of of screw jack _____



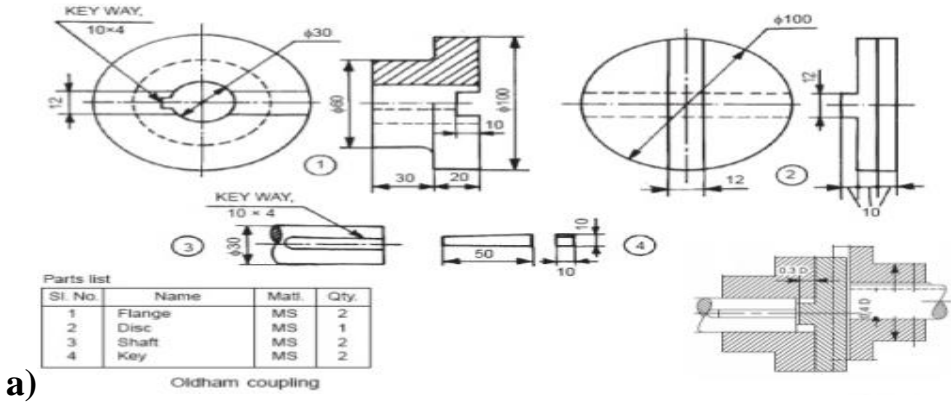
a) Oldham coupling

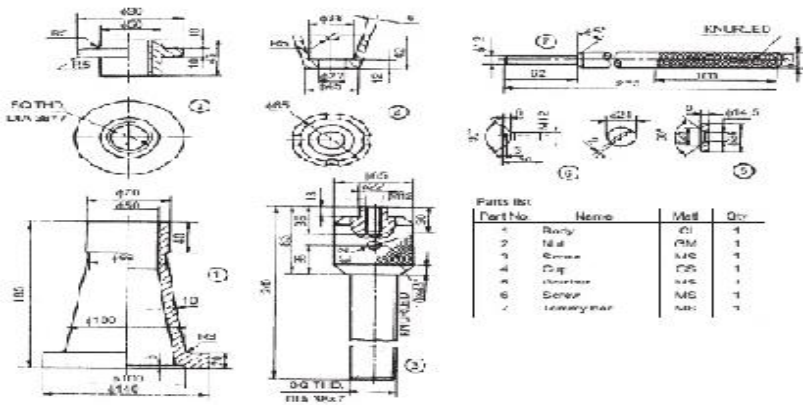


b)

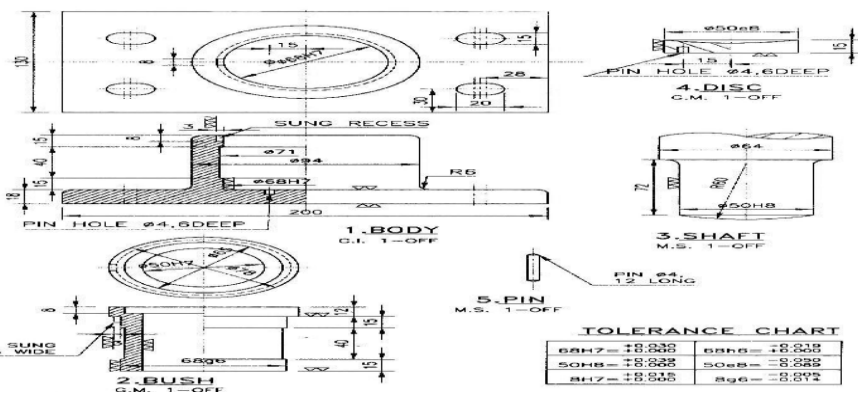


13. Details of Oldham's coupling _____

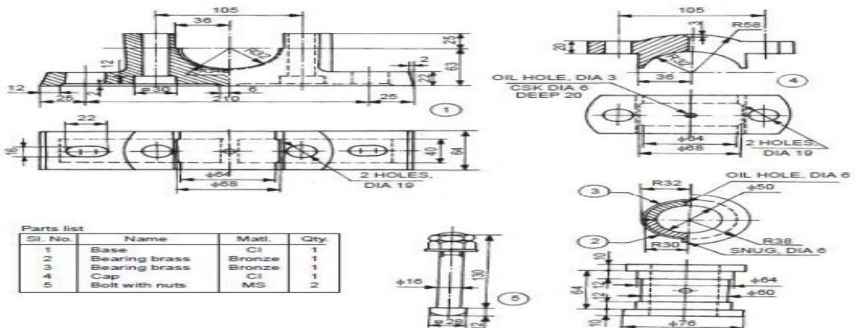




b)

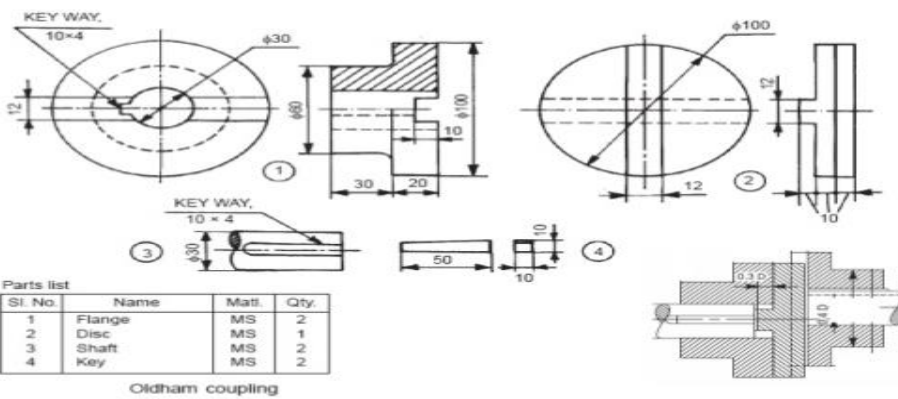


c)

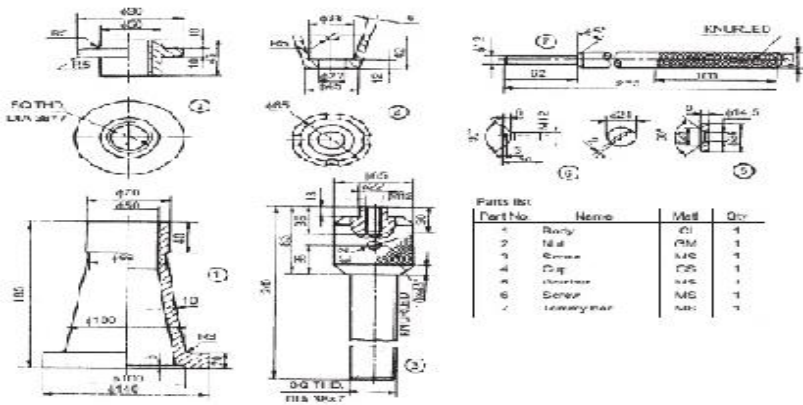


d)

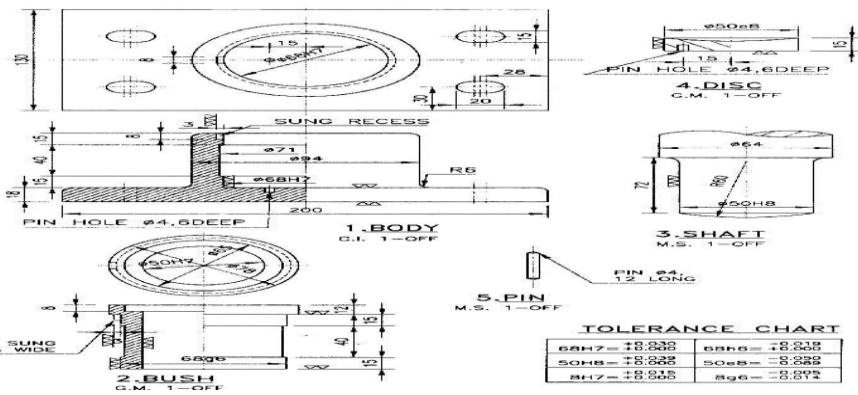
14. Details of Pedestal Bearing



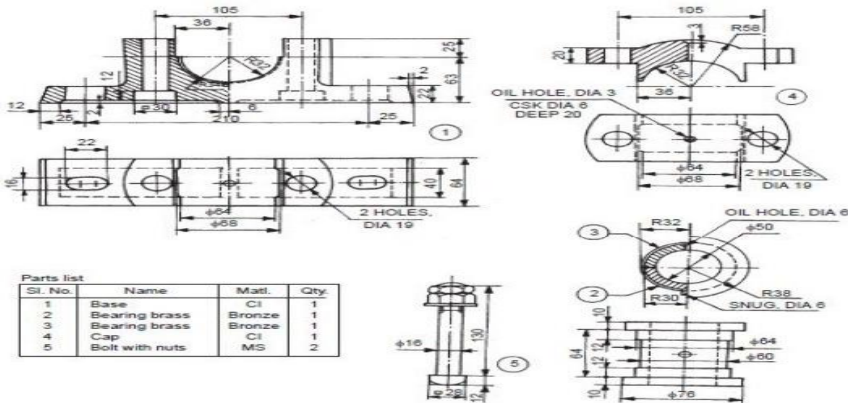
a)



b)

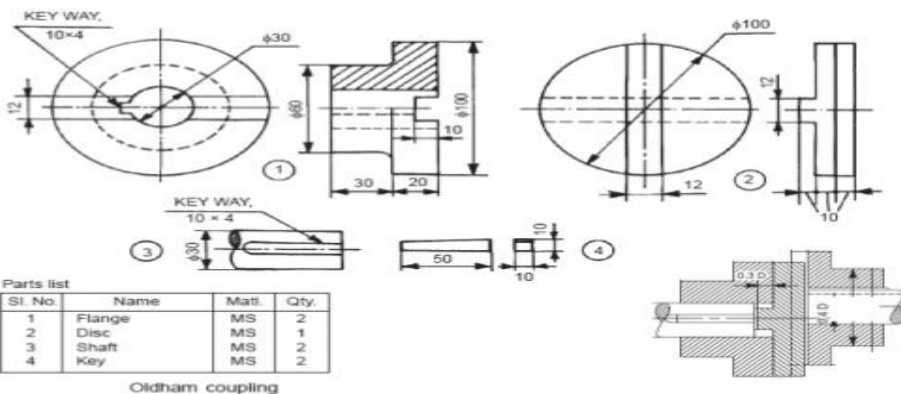


c)

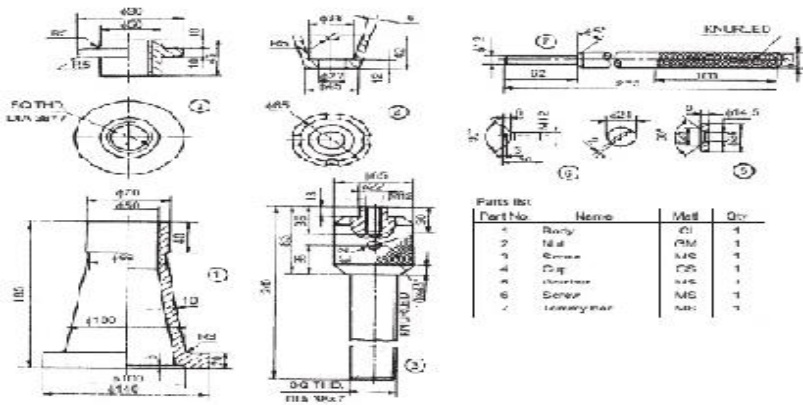


d)

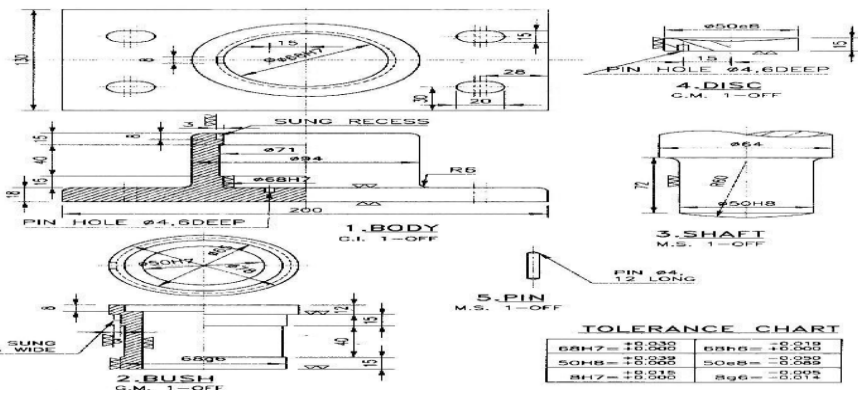
15. Details of Plummer block



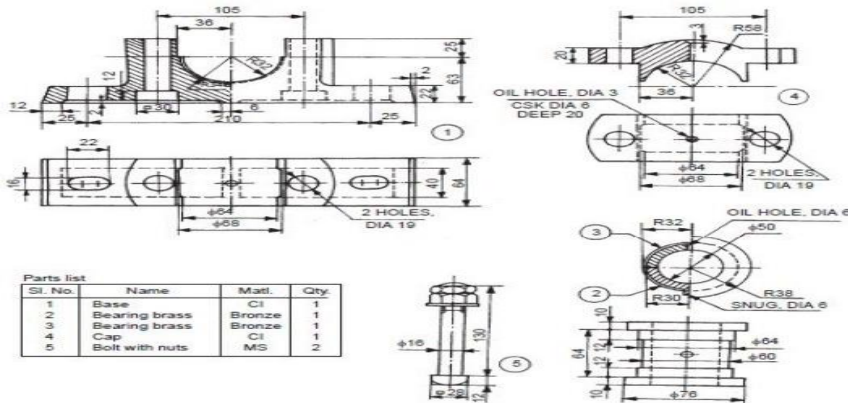
a)



b)

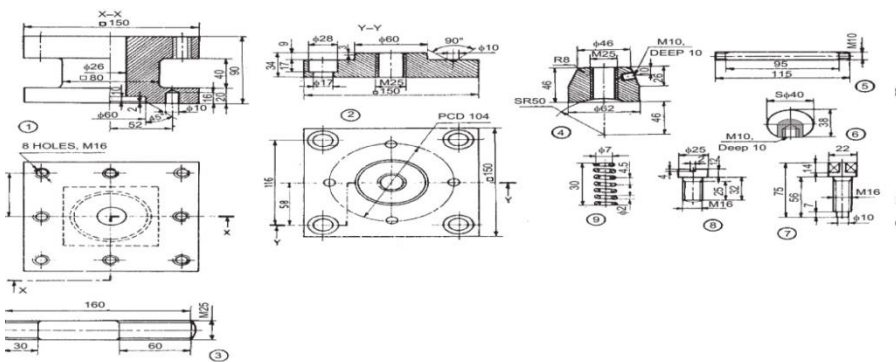


c)

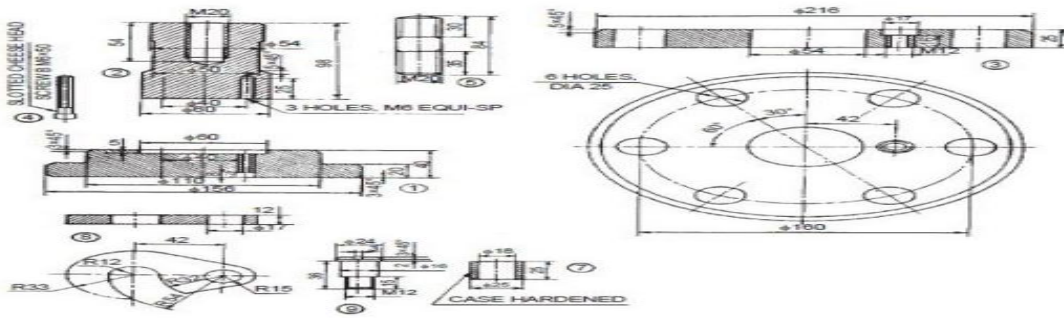


d)

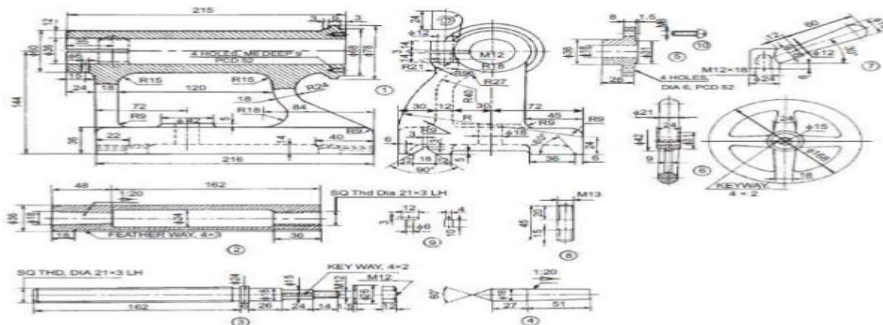
16. Details of Drilling jig



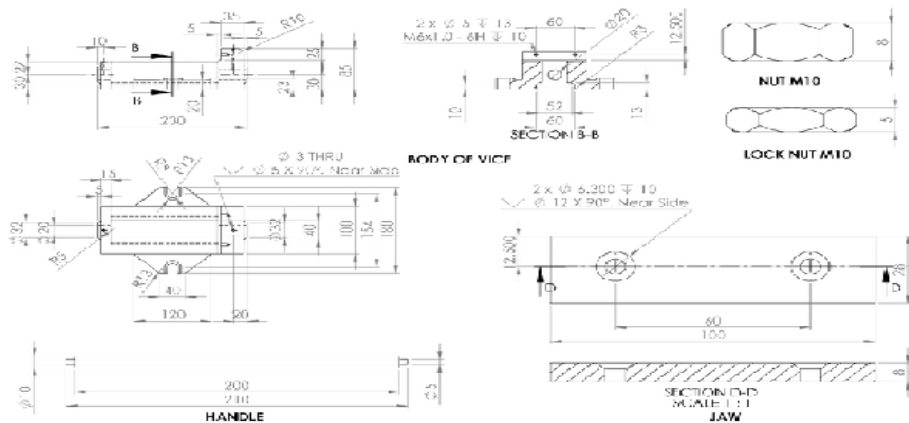
a)



b)

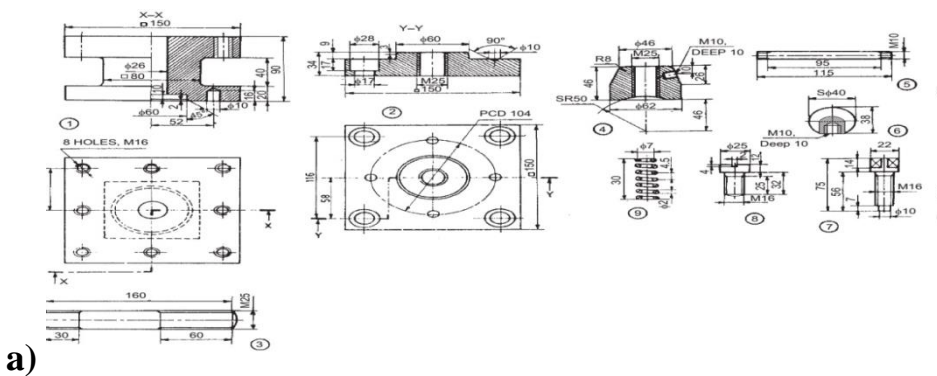


c)

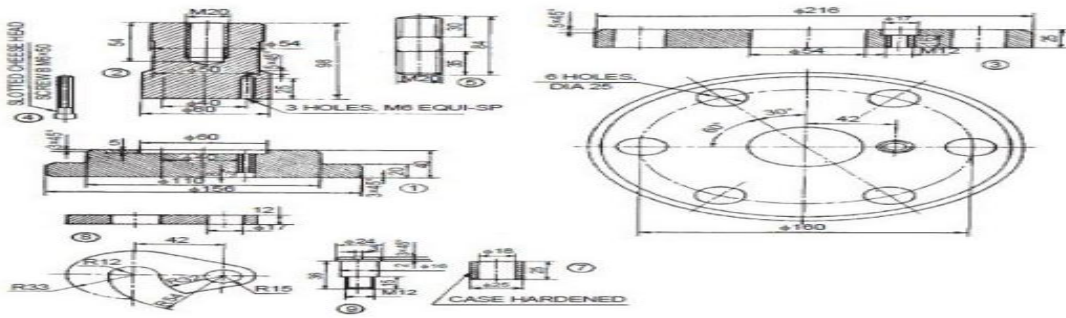


d)

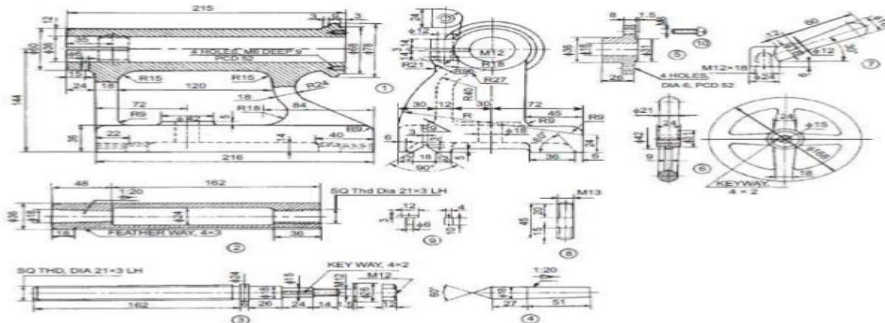
17. Details of Square tool post _____



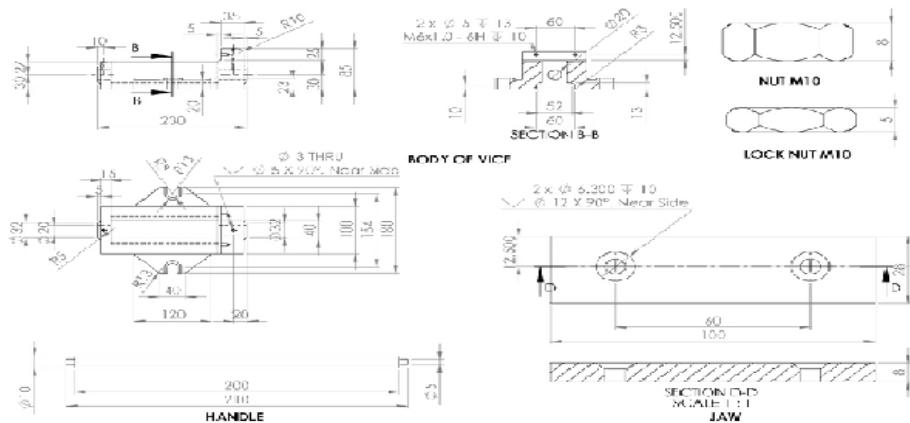
a)



b)

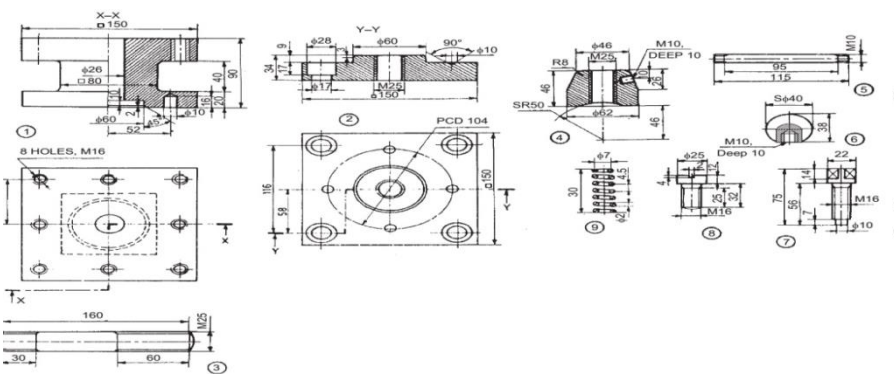


c)

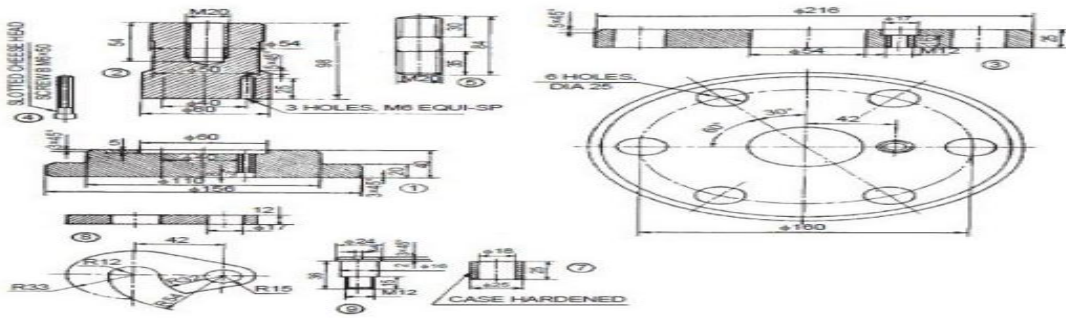


d)

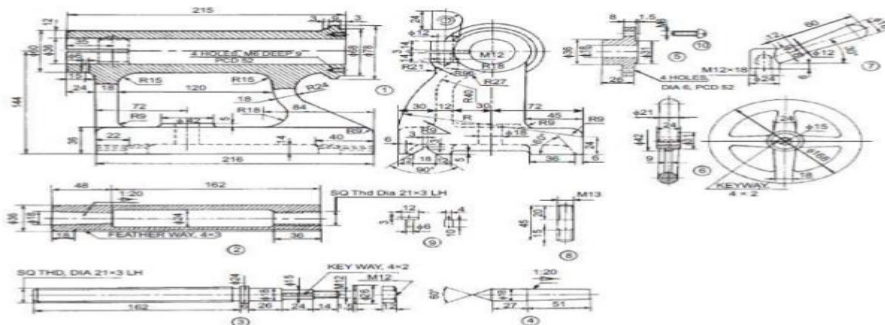
18. Details of Tails stock



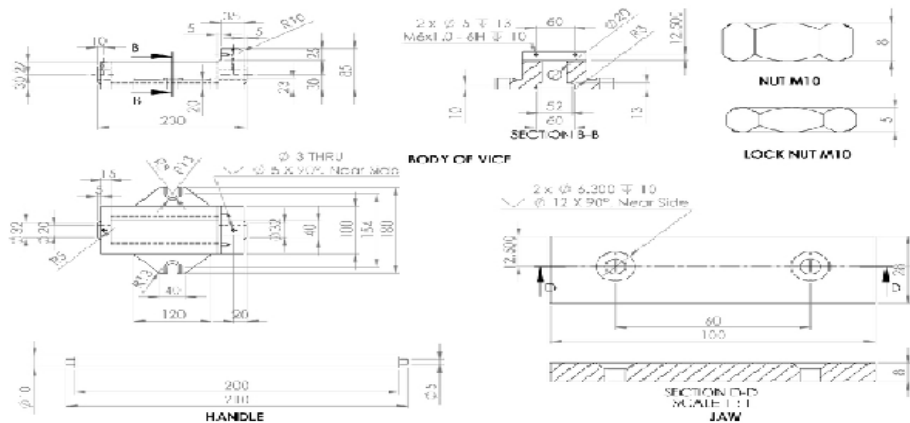
a)



b)

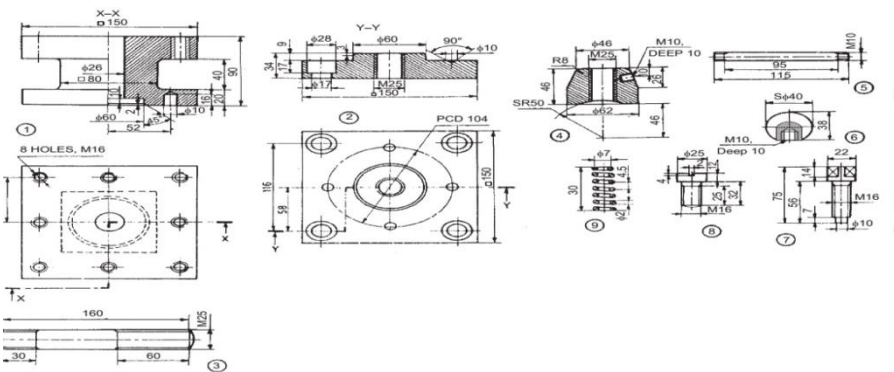


c)

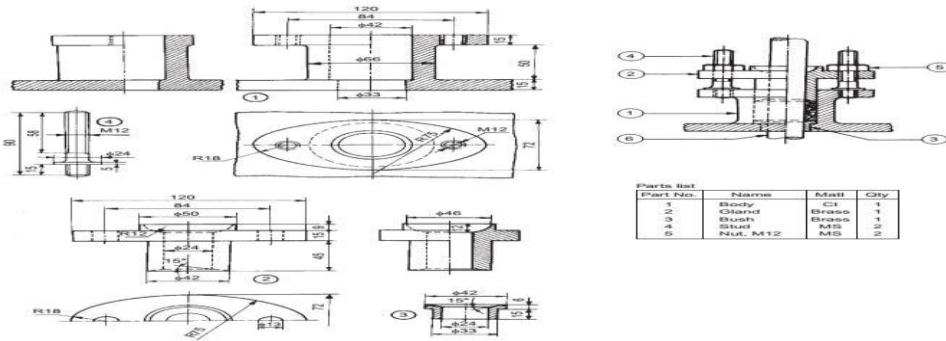


d)

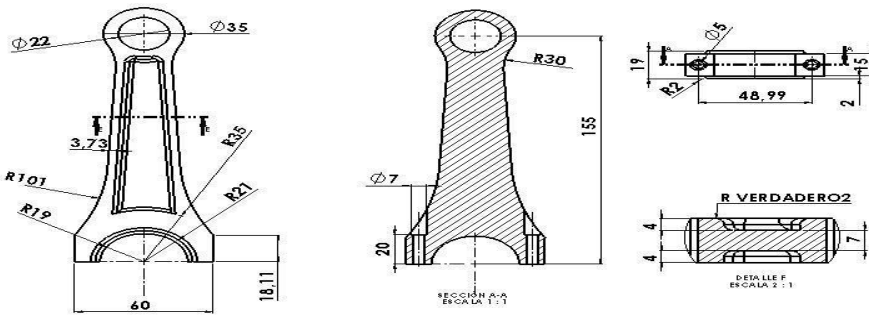
19. Details of Machine vice



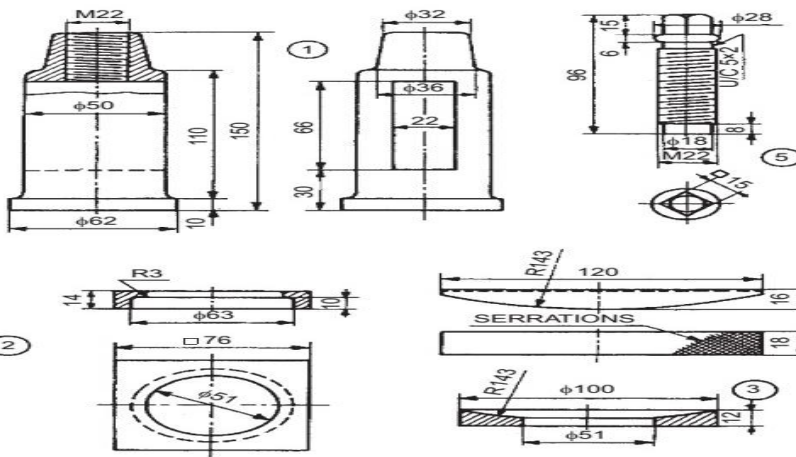
a)



b)

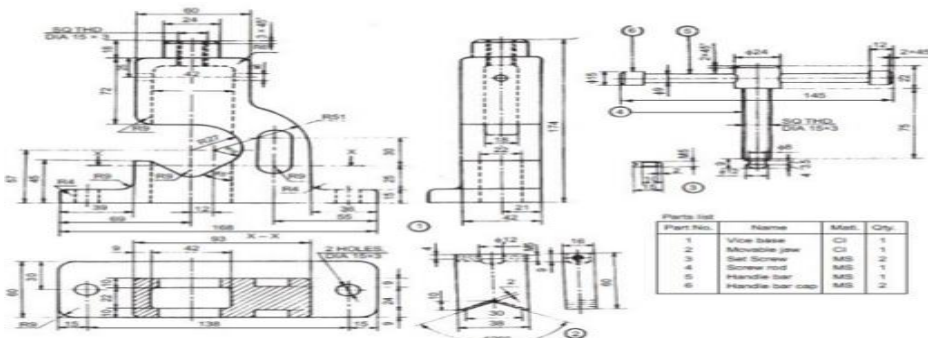


c)

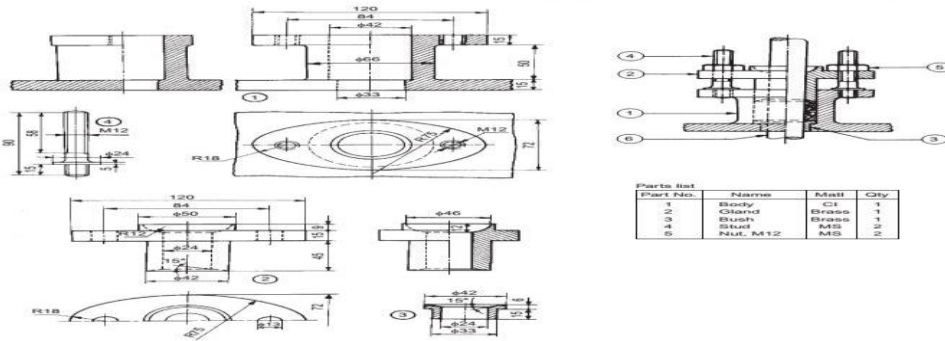


d)

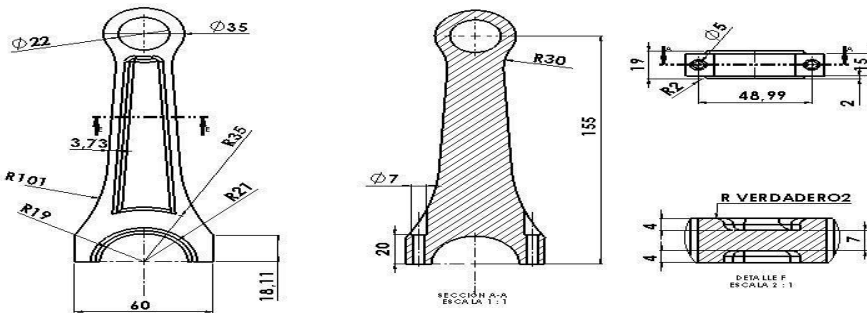
21. Details of Stuffing Box _____



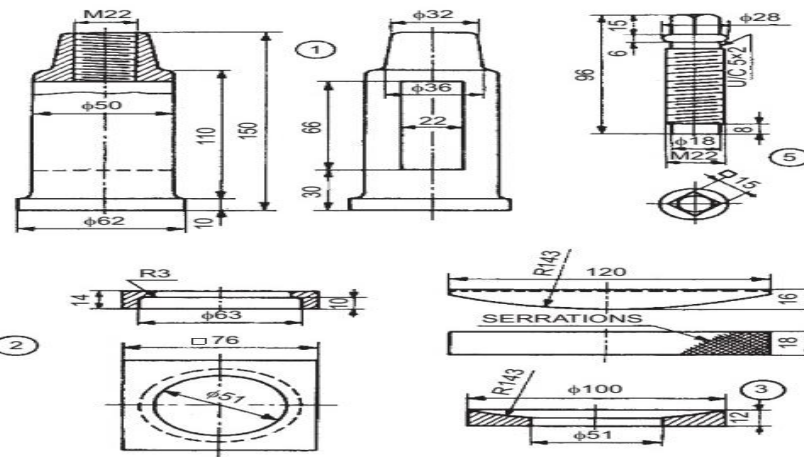
a)



b)

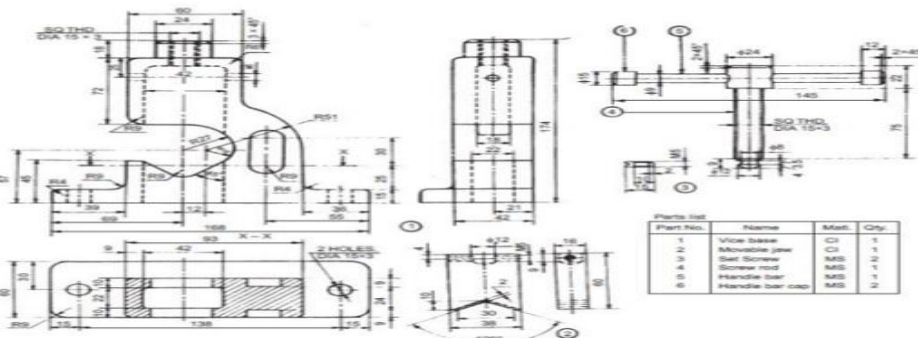


c)



d)

23. Details of Tool Post _____



a)



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