BHARTIYA SKILL DEVELOPMENT UNIVERSITY

RAC

Registration No.: .....

School of General Education

Session: 2020-21 (Summer Semester)

B. Voc. 3rd Semester

End-Sem. Examination

Course Code: GEN 1305 **Time: 2 Hours**

Course Name: Elementary Drawing **Max. Marks: 50**

Instruction: In section A, Write options as well as answer

Set-A

Section – A

10X01 = 10 Marks

1. Orthographic projection represents three dimensional objects in?

   (A) One dimension (B) Two dimension

   (C)Three dimension (D) All of the above

2. In orthographic projection, the projection lines are _____ to the projection plane?

   A) Parallel B) Orthogonal

   C) Inclined D) Any of the above

3. The point, from which the observer is assumed to view the object, is called?

   A) Center of projection B) Point of projection

   C) Point of observer D) View point

4. In orthographic projection, the object is placed with one of its faces ___to the picture plane?

   A) Inclined B) Perpendicular

   C) Parallel D) Any of the above

5. The two ways of drawing orthographic projection are?

   A) First angle, second angle B) First angle, third angle

   C) Second angle, third angle D) Second angle, fourth angle

6. Orthographic projection is also known as?

   A) Single view projection B) Two view projection

   C) Multi view projection D) All of the above

7. In third angle projection method, the object is supposed to be in

   A) First quadrant B) Second quadrant

   C) Third quadrant D) Fourth quadrant

8. Projection line is?

A) Continuous thick line B) Continuous thin line

C) Chain thin line D) Dashed line

9. Visible outline or edge is?

A) Continuous thick line B) Continuous thin line

C) Chain thin line D) Dashed line

10. The orthographic projection, projection lines are ____ to each other.

A) Parallel B) Perpendicular

C) Inclined D) Any of the above

Section – B

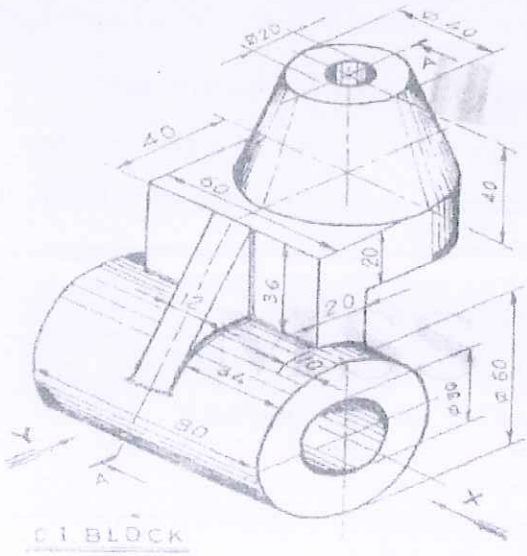
04X04 = 16 Marks

1. What are factors which effect tolerance?
2. Write the difference between first angle and third angle views?
3. What are different types of errors which make measuring inaccurate
4. Write a short note on set square.

Section – C

04X06 = 24 Marks

1. What are different types of Instruments used to draw technical drawing explain with sketch.
2. Write a short note on micrometer.
3. Write a short note on classification of Fit.
4. Draw first or third angle projection of following isometric view.



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Answer key

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Section – A

10X01 = 10 Marks

1. Orthographic projection represents three dimensional objects in?

   (B) Two dimension

2. In orthographic projection, the projection lines are _____ to the projection plane?

   B) Orthogonal

3. The point, from which the observer is assumed to view the object, is called?

   A) Center of projection

4. In orthographic projection, the object is placed with one of its faces ___to the picture plane?

   C) Parallel

5. The two ways of drawing orthographic projection are?

   B) First angle, third angle

6. Orthographic projection is also known as?

   C) Multi view projection

7. In third angle projection method, the object is supposed to be in

   C) Third quadrant

8. Projection line is?

   B) Continuous thin line

9. Visible outline or edge is?

   A) Continuous thick line

10. The orthographic projection, projection lines are ____ to each other.

A) Parallel

Section – B

04X04 = 16 Marks

1. What are factors which effect tolerance?

Answer:

factors which effect tolerance:

- Improperly adjusted machines
- Operator error
- Tool wear
- Defective raw materials etc.

2. Write the difference between first angle and third angle views?

Answer:

First angle projection	Third-angle projection
Object is kept in the first quadrant.	Object is assumed to be kept in the third quadrant.
Object lies between observer and the plane of projection.	Plane of projection lies between the observer and the object.
The plane of projection is assumed to be non-transparent.	The plane of projection is assumed to be transparent.
Front (elevation) view is drawn above the XY line	Front (elevation) view is drawn below the XY line
Top (plan) view is drawn below the XY line	Top (plan) view is drawn above the XY line
Left view is projected on the right plane and vice versa	Left view is projected on the left plane itself.
Followed in India, European countries	Followed in USA

3. What are different types of errors which make measuring inaccurate

Answer:

- Parallax Error
- Tilt Error
- Cocking Error
- Dirt and burrs on work piece
- Dirt and burrs on Measurement

4. Write a short note on set square.

Answer:

Set squares are used to draw lines with an angle between them. In most of the structures, 30, 45, 60 and 90-degree lines are most common. Generally, set squares are of two types:

One is 45 degrees set square and another is 30 – 60 degree set square. Both are required in the drawing. 45 set square has a side of 25 cm while 30-60 set square has 25 cm length on one side.

Section – C

04X06 = 24 Marks

1. **What are different types of Instruments used to draw technical drawing explain with sketch.**

Answer:

These are very common used drawing instruments in technical drawing: -

a) Drawing sheet: To draw lines and shapes.

b) Drawing board: it is used as a base for drawing sheet.

c) Mini drafter: It is used to draw parallel and inclined lines.

d) Eraser: it is used to erase drawing made by pencil, if there is any error

e) Pencils: it is used to draw lines and shapes.

f) Protractor it is used to draw Angles.

g) French curves: It is used to make different curves which are hard to make by free hands

h) Templates: To make circle or shapes of very small diameter

i) Paper Holders: To hold to paper on drawing board

j) Set squares: To make angles ad triangles

k) Compass: To make circles

l) Divider: To make curves

2. **Write a short note on micrometer.**

Answer:

As we know the micrometer has wide application in all fields of science during different scientific experiments and in engineering to measure the values of finest objects up to higher precision and accuracy so for better understanding and to ensure the appropriate use of micrometer, firstly we must have to know its mechanism and basic parts, construction and main function.

Parts of Micrometer:

(1) Zero adjust screw

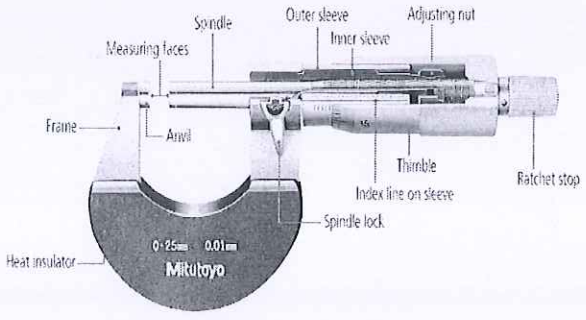
(2) Anvil

(3) Spindle

(4) Anvil Face and Spindle Face

(5) micrometer screw gauge Construction

(6) Lock nut



(7) Sleeve

(8) Thimble

(9) Ratchet

(10)C-Frame

3. Write a short note on classification of Fit.

Answer

Fit:

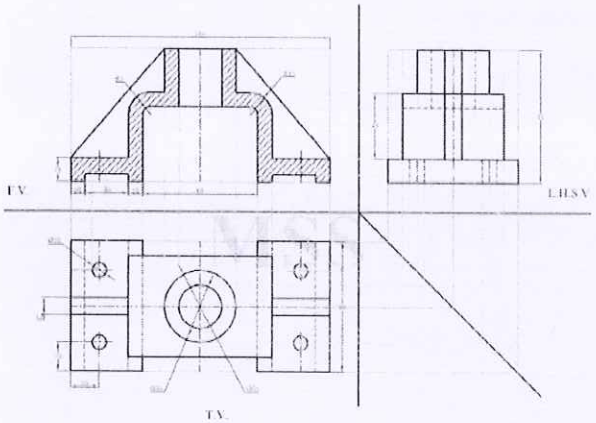
The degree of tightness and or looseness between the two mating parts. Three basic types of fits can be identified, depending on the actual limits of the hole or shaft.

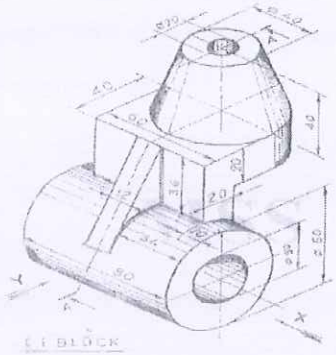
1. Clearance fit: Upper limit of shaft is less than the lower limit of the hole. The largest permissible dia. of the shaft is smaller than the dia. of the smallest hole. E.g.: Shaft rotating in a bush.

2. Interference fit: - Upper limit of the hole is less than the lower limit of shaft. No gap between the faces and intersecting of material will occur. Shaft need additional force to fit into the hole.

3. Transition fit: - Dia. of the largest permissible hole is greater than the dia. of the smallest shaft. Neither loose nor tight like clearance fit and interference fit. Tolerance zones of the shaft and the hole will be overlapped between the interference and clearance fits.

4. Draw first or third angle projection of following isometric view.





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Instruction: In section A, Write options as well as answer

Set-B

Section – A

10X01 = 10 Marks

1. Center line is

A) Continuous thick line B) Continuous thin line

C) Chain thin line D) Dashed line

2. Use of center line is

A) Circular feature on a drawing B) To indicate cutting plane

C) To show the plane D) To represent axis

3. What is purpose of technical Drawing

A) To show manufacturing drawing only B) to make one intended meaning drawing

C) To show construction drawing only D) Both A and B

4. What is purpose of artistic drawing?

A) To make attractive drawings B) To show the skill of artist

C) To make subjectively interpreted drawing D) Both A and C

5. Size of A3 sheet

A) 296 X 420mm B) 287 X 320mm

C) 287 X 420mm D) 297 X 420mm

6. In first angle front view is drawn

A) Below the XY line B) Above the XY line

C) Above the vertical plane D) Above the vertical plane

7. Technical drawing tools are used to draw

A) Traingle and circles B) Curves and circles

C) square and pentagon D)All of above

8. Use of reference grids in technical drawing

A) It has no use
B) To Position all shapes correctly
C) To Show position of object
D) It provide reference of previous drawing

9. Which pencil grade is hardest

A) 7H
B) 9H
C) 7B
D) 9B

10. H pencil is use to draw

A) Boundary lines
B) Construction lines
C) Center lines
D) None of the above

Section – B

04X04 = 16 Marks

1. Write a short note on the technical drawing.
2. What are different types of lines used to make technical drawing.
3. Write a short note on compound and geometric tolerance.
4. What is fit, what are various application of different types of fit?

Section – C

04X06 = 24 Marks

5. Write a short note on drawing templates and french curves.
6. What is tolerance? What are types are tolerance?
7. Write a short note on first angle projection and third angle projection?
8. Write a short note on vernier caliper.

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Set-B
Section – A Answer key

10X01 = 10 Marks

1. Center line is?
   C) Chain thin line

2. Use of center line is?
   D) To represent axis

3. What is purpose of technical Drawing
B) to make one intended meaning drawing

4. What is purpose of artistic drawing?
   C) To make subjectively interpreted drawing

5. Size of A3 sheet
   D) 297 X 420mm

6. In first angle front view is drawn
   B) Above the XY line

7. Technical drawing tools are used to draw
   D)All of above

8. Use of reference grids in technical drawing
   C) To Show position of object

9. Which pencil grade is hardest
B) 9H

10. H pencil is use to draw
   D) None of the above

Section – B

04X04 = 16 Marks

1. **Write a short note on the technical drawing.**

   Answer:

   It is a system of graphic representation of various types of objects or structures. Its purpose is to provide sufficient information to facilitate its design, construction, and maintenance. It is usually done today with the help of computerized media.
   This type of drawing is based on descriptive geometry and uses orthogonal projections to draw the different views of an object, plane, part, machine and others.

2. **What are different types of lines used to make technical drawing.**

Answer:

- Continuous Thick Line: Surroundings and sides of the matters (Outlines of the Edges), End of the Screws,
- Continuous Thin line: Measure lines, Backside section lines, Implied axis lines, to state the code of the planes, at diagonal lines which are used to state plane surface, Intersection, Leader, Hatching.
- Dashed Thin Lines: Invisible/Hidden Lines represents an invisible edges on the on an objects.
- Dashed Thick Lines with Dots: To state the special places/surfaces which will processed additionally like to coat, to harden etc.
- Dashed Thin Lines with Dots: Axis lines of symmetrical drawings, In front of section planes.
- Chain Thin with Thick Ends: Cutting Plane, To draw the trace at section planes,
- Continuous Thin Zigzag Line: It is used when free hand lines are drawn by tools
- Free Hand Line: Limits of partial and interrupted views and sections

3. **Write a short note on compound and geometric tolerance.**

Answer:

- Compound Tolerance:
  When tolerance of one dimension is dependent upon tolerance of other factors. For example tolerance for the dimension R is determined by the combined effects of tolerance on 40 mm dimension, on 60o , and on 20 mm dimension.
- Geometric Tolerance:
  Geometric dimensioning and tolerancing (GD&T) is a method of defining parts based on how they function, using standard symbols.

4. **What is fit, what are various application of different types of fit?**

Answer:

1. Clearance fit: Upper limit of shaft is less than the lower limit of the hole. The largest permissible dia. of the shaft is smaller than the dia. of the smallest hole. E.g.: Shaft rotating in a bush.
2. Interference fit: - Upper limit of the hole is less than the lower limit of shaft. No gap between the faces and intersecting of material will occur. Shaft need additional force to fit into the hole.
3. Transition fit: - Dia. of the largest permissible hole is greater than the dia. of the smallest shaft. Neither loose nor tight like clearance fit and interference fit. Tolerance zones of the shaft and the hole will be overlapped between the interference and clearance fits.

Section – C

04X06 = 24 Marks

5. Write a short note on drawing templates and french curves.

- French Curves

French curves are made of plastic and they are in irregular shapes. Sometimes the drawing requires irregular curves or shapes or arcs which cannot be drawn using compass. In that case French curves are suitable. Generally French curves are more suitable for small curves and for long curves splines are used.

- Drawing Templates

Templates are nothing but plastic or wooden boards which contains spaces of several shapes or letters. Non-dimensional shapes or variety font letters are drawn by using templates which makes drawing easier and perfect.

6. **What is tolerance? What are types of tolerance?**

Classification of Tolerance:

- Unilateral tolerance

When the tolerance distribution is only on one side of the basic size. Either positive or negative, but not both.
Below zero line: Negative
Above zero line: Positive

- Bilateral tolerance: When the tolerance distribution lies on either side of the basic size.

It is not necessary that the Zero line will divide the tolerance zone equally on both sides.
It may be equal or unequal

- Compound tolerance

Tolerance for the dimension R is determined by the combined effects of tolerance on 40 mm dimension, on 60, and on 20 mm dimension.

- Geometric Tolerance

Geometric dimensioning and tolerancing (GD&T) is a method of defining parts based on how they function, using standard symbols.

7. **Write a short note on first angle projection and third angle projection?**

- First Angle Projection:

In the first angle projection, the object is placed in the 1st quadrant. The object is positioned at the front of a vertical plane and top of the horizontal plane. First angle projection is widely used in India and European countries. The object is placed between the observer and projection planes. The plane of projection is taken solid in 1st angle projection.

- Third Angle Projection:

In the third angle projection, the object is placed in the third quadrant. The object is placed behind the vertical planes and bottom of the horizontal plane. Third angle projection is widely used in the United States. The projection planes come between the object and observer. The plane of projection is taken as transparent in 3rd angle projection.

8. **Write a short note on vernier caliper.**

Answer:

Parts of Vernier Caliper:

- Lower Jaws
- Upper Jaws
- Depth Rod
- Main Scale
- Vernier Scale
- Thumb Screw: The thumb screw is located at the bottom of the vernier scale. Its purpose is to provide a grip for the user to slide the jaws easily and adjust the position of the jaws and depth rod while maintaining a firm grip on the object.
- Lock Screw: The lock screw is used to fix the position of the jaws once the object is positioned properly so that readings can be taken without the fear of spoiling the position.