

1. How many battens will be there for a Drawing board?
  - a) 1
  - b) 2
  - c) 3
  - d) 4
  
2. The part that doesn't belong to T-square is \_\_\_\_\_
  - a) Working edge
  - b) Blade
  - c) Stock
  - d) Ebony
  
3. The angle which we can't make using a single Set-square is \_\_\_\_\_
  - a) 45
  - b) 30
  - c) 60
  - d) 75
  
4. The angle which we can't make using both the Set-squares is \_\_\_\_\_
  - a) 15
  - b) 105
  - c) 165
  - d) 125
  
5. Small bow compass can draw circles less than \_\_\_\_\_ mm radius.
  - a) 25mm
  - b) 30mm
  - c) 35mm
  - d) 40mm
  
6. The cardboard scales are available in a set of \_\_\_\_\_ scales.
  - a) six
  - b) ten
  - c) eight
  - d) twelve
  
7. \_\_\_\_\_ is used to draw curves which are not circular.
  - a) Compass
  - b) Protractor
  - c) French curves
  - d) Pro circle
  
8. The areas of the two subsequent sizes of drawing sheet are in the ratio \_\_\_\_
  - a) 1:5
  - b) 1:4

- c) 1:2
- d) 1:10

9. What is the next size of 210 mm x 297 mm in drawing papers?

- a) 148 mm x 210 mm
- b) 297 mm x 420 mm
- c) 420 mm x 594 mm
- d) 105 mm x 148 mm

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10. The Grade becomes \_\_\_\_\_ according to the figure placed in front of the letter B, 2B, 3B, 4B etc.

- a) harder
- b) lighter
- c) darker
- d) softer

11. Which of the following tools is used to draw horizontal lines?

- a) Mini – drafter
- b) Protractor
- c) T – square
- d) French curve

12. Which of the following instrument can be used to draw accurate perpendicular lines, parallel lines and angular lines?

- a) Mini – drafter
- b) T – square
- c) Protractor
- d) Set square

13. According to the Indian Standard Institute (ISI), which among the following designation has the size 1000 x 700 (in mm)?

- a) B0
- b) B1
- c) B2
- d) B3

14. Which is the most common tool used for drawing circles?
- French curve
  - Mini – drafter
  - Divider
  - Compass
15. For drawing circles with a large radius, which of the following tool is used?
- Bow compass
  - Lengthening bar compass
  - Divider
  - Protractors
16. Which of the following drawing tools is used by architects for making blueprints?
- Drawing Pencils
  - Dusters
  - Ink Pen
  - Erasers
17. Which of the following drawing tool is not used to set the drawing sheet onto the drawing board?
- Drawing clips
  - Drawing pins
  - Divider
  - Adhesive Tape
18. According to the Indian Standard Institution (ISI), what is the size of the designation A3 in mm?
- 420 x 297
  - 841 x 594
  - 1189 x 841
  - 297 x 210
19. Which of the following drawing tool is used to transfer dimensions when there is a repetition of the dimensions?
- Compass
  - Protractor
  - Divider
  - Mini – Drafter
20. Which of the following grades of leads is the hardest?
- 6B
  - 5H
  - 4B
  - 6H

1. b
2. d
3. d
4. d
5. a
6. c
7. c
8. c
9. b
10. d
11. c
12. a
13. b
14. d
15. b
16. c
17. c
18. a
19. c
20. d

1. The preferred size of the drawing sheets is recommended by the \_\_\_\_\_

- a) B.I.S.
- b) ASME
- c) ASTM
- d) NIST

2. The untrimmed size for \_\_\_\_\_ sheet is 240 mm x 330 mm.

- a) A1
- b) A3
- c) A4
- d) A5

3. SP: 46 (2003) recommends the borders of \_\_\_\_\_ mm width for the sheet sizes A0 and A1, and \_\_\_\_\_ mm for the sizes A2, A3, A4 and A5.

- a) 10, 20
- b) 15, 20
- c) 20, 10
- d) 15, 10

4. The false statement regarding orientation mark.

- a) The orientation mark coincides with one of the centering marks
- b) Represents the direction to which sheet is placed
- c) Orientation mark can be used for the orientation of drawing sheet on the drawing board
- d) Facilitate positioning of the drawing for reproduction purpose

5. The size of the title block is \_\_\_\_\_ mm x \_\_\_\_\_ mm.
- 25 x 10
  - 100 x 25
  - 65 x 185
  - 185 x 65
6. The number of folding methods for folding of various sizes of drawing sheets is \_\_\_\_\_
- 1
  - 2
  - 3
  - 4
7. Which of the following is reducing scale?
- 10:1
  - 10:2
  - 0.5:1
  - 2:1
8. 1:10000 is enlarging scale.
- True
  - False
9. \_\_\_\_\_ is not an essential thing for free-hand sketching.
- A soft-grade pencil
  - French curves
  - A soft rubber-eraser
  - A paper in form of a sketch-book or a pad
10. Which statement is false?
- Drawing for instruction manual: This is assembly drawing without dimensions. This is also used for explaining the working principle of each part
  - Exploded assembly drawing: This type of assembly drawing is used for explaining the working principle of any machine
  - Drawing for catalogue: Special assembly drawings are prepared for catalogues, with overall and principal dimensions
  - Patent drawing: It is generally assembly drawing either in pictorial form or principal view of orthographic projection of a machine
11. Arrange the statements. Given statements refers to free-hand sketching of straight lines.
- Then begin to draw the line with short and light strokes.
  - Hold the pencil at about 30 mm distance from the lead point.
  - Finish finally with a dark and firm line.
  - Swing it from left to right and backward, between the two points.
- i), ii), iii) and iv)
  - ii), iii), iv) and i)

- c) iv), iii), i) and ii)
- d) ii), iv), i) and iii)

12. Arrange the statements. Given statements refers to free-hand sketching of a circle.

- i) Add four radial lines between them.
  - ii) Make the center and through it, draw horizontal and vertical center lines.
  - iii) The paper may be revolved after about each quarter-circle for easy wrist motion while drawing.
  - iv) Mark points on these lines at radius distance from the center.
- a) ii), i), iv) and iii)
  - b) ii), iii), iv) and i)
  - c) iv), iii), i) and ii)
  - d) ii), iv), i) and iii)

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Answers:

1. a

Explanation: Bureau of Indian Standards (B.I.S.), American Society of Mechanical Engineering (ASME), American Society for Testing and Materials (ASTM), U.S. National Institute of Standards and Technology (NIST).

2. c

Explanation: The untrimmed size of any sheet will be slightly larger than trimmed size. The untrimmed size for an A4 sheet is 240 mm x 330 mm where trimmed size is 210 mm x 297mm. The space between the trimmed sheet and the frame is called a border.

3. c

Explanation: SP: 46 (2003) recommends the borders of 20 mm width for the sheet sizes A0 and A1, and 10 mm for the sizes A2, A3, A4 and A5. The BIS-SP 46 is the standard used in the educational institution for engineering drawing.

4. b

Explanation: The sheet may be placed in any direction but within the sheet, the drawing should be specified particularly for reproduction purpose, the main purpose is to facilitate positioning of the drawing and parts in it.

5. d

Explanation: The size of the title block is 185mm x 65 mm which is recommended by B.I.S. (Bureau of Indian Standards), where 25mm x 10mm is for scale in drawing sheet. Within the title box, there will be so many sections divided like Name of the firm, Drawing No, Title, etc.

6. b

Explanation: The final size of the folded print in method 1 will be 297 x 190, while that in method 2 will be 297 x 210. In either case, the title block is visible at the top of the folded print. When prints are to be stored and preserved in cabinets they are folded by method 2.

7. c

Explanation: 0.5:1 is reducing scale which we can also be written as 1:2. In the remaining options, the antecedent is more than the consequent. So we can say if the antecedent is a decimal and consequent is the whole number then the ratio is said to be reducing scale.

8. b

Explanation: 1:10000 is reducing scale since antecedent is less than consequent. The ratio represents the object should be drawn 1/10000th of the original one. Usually, this much ratios will be used only when the machine parts are too big.

9. b

Explanation: French curves are used for drawing curves which cannot be drawn with a compass. Since we are just making a rough sketch of our drawing beforehand, for the actual drawing there is no need for French curves. The remaining are primary requirements to sketch any drawing.

10. b

Explanation: The correct statements are schematic assembly drawing: This type of assembly drawing is used for explaining the working principle of any machine. Exploded assembly drawing: It represents the details of a machine in a pictorial form as it is assembled. It helps the mechanics for dismantling machine for repairing purpose.

11. d

Explanation: Holding the pencil should be primary thing, getting a clear view on the drawing is next after we have to just draw with a light sketch so that we can understand how the sketch will be, and finishing with a dark sketch.

12. a

Explanation: For drawing, circle center should be the primary thing. Make the circle and through it draw horizontal and vertical center lines. Later we add four radial lines between them and then the paper maybe revolved for easy wrist motion to enable drawing.

1. Medium thickness, line-group of 2mm are not used for \_\_\_\_\_

- a) out lines
- b) dotted lines
- c) cutting plane -lines
- d) dimension lines

2. Initial work and construction lines are drawn using \_\_\_ pencil.

- a) 3H
- b) 4H
- c) H
- d) 2H

3. Centre lines, section lines are drawn using \_\_\_ pencil.

- a) H
- b) 2H

- c) 3H or 4H
- d) HB

4. Drawing pencils are graded according to increase in relative \_\_\_\_\_

- a) diameter
- b) sharpness
- c) length
- d) hardness

5. In engineering drawing, which type of line indicates that there is a change of plane?

- a) Continuous thin wavy
- b) Long chain thin
- c) Continuous thick
- d) Medium thick short dashes

6. Which of the following lines are used to show that the object is cut and then viewed?

- a) Hidden lines
- b) Leader lines
- c) Centre lines
- d) Hatching Lines

7. What do hidden lines in orthographic projections denote?

- a) Holes or slots
- b) Change of Plane
- c) Position of cut
- d) Centre of a circle or cylinder

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8. The axis of the cylinder or sphere is denoted by which of the following line?

- a) Section line
- b) Centre line
- c) Hidden line
- d) Leader line

9. What is the standard length and width of the arrowhead of dimension lines?

- a) 2mm and 2mm
- b) 3mm and 1mm

- c) 4mm and 2mm
- d) 3mm and 2mm

10. What is the length of the short dashes of the centre lines?

- a) 5mm
- b) 2mm
- c) 1mm
- d) 3mm

Answers:

- 1. d
- 2. c
- 3. c
- 4. d
- 5. c
- 6. d
- 7. a
- 8. b
- 9. b
- 10. b

1. The straight lines which are drawn from various points on the contour of an object to meet a plane are called as \_\_\_\_\_

- a) connecting lines
- b) projectors
- c) perpendicular lines
- d) hidden lines.

2. When the projectors are parallel to each other and also perpendicular to the plane, the projection is called \_\_\_\_\_

- a) Perspective projection
- b) Oblique projection
- c) Isometric projection
- d) Orthographic projection

3. In the Oblique projection an object is represented by how many views?

- a) one view
- b) two views
- c) three views
- d) four views

4. The object we see in our surrounding usually without drawing came under which projection?

- a) Perspective projection
- b) Oblique projection
- c) Isometric projection
- d) Orthographic projection

5. In orthographic projection, each projection view represents how many dimensions of an object?

- a) 1
- b) 2
- c) 3
- d) 0

6. In orthographic projection an object is represented by two or three views on different planes which \_\_\_\_\_

- a) gives views from different angles from different directions
- b) are mutually perpendicular projection planes
- c) are parallel along one direction but at different cross-section
- d) are obtained by taking prints from 2 or 3 sides of object

7. To represent the object on paper by orthographic projection the horizontal plane (H.P) should be placed in which way?

- a) The H.P is turned in a clockwise direction up to 90 degrees
- b) The H.P is turned in anti-clockwise direction up to 90 degrees
- c) H.P plane is placed to left side of vertical plane parallel to it
- d) H.P plane is placed to right side of vertical plane parallel to it

8. The hidden parts inside or back side of object while represented in orthographic projection are represented by which line?

- a) Continuous thick line
- b) Continuous thin line
- c) Dashed thin line
- d) Long-break line

9. Orthographic projection is the representation of two or more views on the mutual perpendicular projection planes.

- a) True
- b) False

10. In perspective projection and oblique projection, the projectors are not parallel to each other.

- a) True
- b) False

11. What is additional 3rd view on orthographic projection in general for simple objects?

- a) Front view
- b) Top view
- c) Side view
- d) View at 45 degrees perpendicular to horizontal plane

12. The front view of an object is shown on which plane?

- a) Profile plane
- b) Vertical plane

- c) Horizontal plane
- d) Parallel plane

13. In 1st angle projection the object is kept in \_\_\_\_\_

- a) 1st quadrant
- b) 2nd quadrant
- c) 3rd quadrant
- d) 4th quadrant

14. 1st angle projection is recommended by \_\_\_\_\_

- a) USA
- b) ISI
- c) Bureau of Indian Standards
- d) ASME

15. In 1st angle projection the \_\_\_\_\_ lies between \_\_\_\_\_ and \_\_\_\_\_

- a) object, projection plane, observer
- b) projection plane, object, observer
- c) reference line, side view, front view
- d) reference line, left side view, right side view

16. In 1st angle projection the positions of front and top views are \_\_\_\_\_

- a) top view lies above the front view
- b) front view lies above the top view
- c) front view lie left side to top view
- d) top view lie left side to front view

17. The positions of right side view and front view of an object kept in 1st quadrant and projection are drawn?

- a) Right side view is right side of front view
- b) Right side view is left side of front view
- c) Right side view is above the front view
- d) Right side view is below the front view

18. The positions of reference line and top view in 1st angle projection are \_\_\_\_\_

- a) reference line lies above the top view
- b) reference line lies below the top view
- c) reference line lie left side to top view
- d) reference line lie right side to top view

19. If an object is placed in 1st quadrant such that one of the surfaces of object is coinciding with vertical plane, what is the correct position of views from the following?

- a) The front view touches the reference line
- b) The side view touches the reference line
- c) The top view touches the reference line
- d) The bottom view touches the reference line

20. If an object is placed in 1st quadrant such that one of the surfaces of object is coinciding with horizontal plane, what is the correct position of views from the following?

- a) The front view touches the reference line
- b) The side view touches the reference line
- c) The top view touches the reference line
- d) The bottom view touches the reference line

Answers:

- 1. b
- 2. d
- 3. a
- 4. a
- 5. b
- 6. b
- 7. a
- 8. c
- 9. a
- 10. b
- 11. c
- 12. b
- 13. a
- 14. c
- 15. a
- 16. b
- 17. b
- 18. a
- 19. c
- 20. a

1. If a client of yours is having difficulty visualizing a design, what type of drawing would be the easiest to understand?

- A. axonometric
- B. three-view orthographic
- C. one-view orthographic
- D. bimetric

Answer: A

2. Which of the following is not a pictorial drawing?

- A. isometric
- B. multiview
- C. perspective
- D. axonometric

Answer: B

3. Which of the following projection methods does not use projectors perpendicular to the projection plane?

- A. isometric

- B. orthographic
- C. oblique
- D. axonometric

Answer: C

4. A circle will appear on an isometric drawing as a(n) \_\_\_\_\_ .

- A. ellipse
- B. cycloid
- C. circle
- D. parabola

Answer: A

5. An axonometric drawing which has two axes divided by equal angles is:

- A. dimetric
- B. trimetric
- C. orthographic
- D. isometric

Answer: A

6. An axonometric drawing which has all three axes divided by equal angles is:

- A. dimetric
- B. trimetric
- C. orthographic
- D. isometric

Answer: D

7. In a trimetric drawing, the relationship of the angle between axes to each other is:

- A. three are equal
- B. two are equal
- C. three are unequal
- D. none of the above

Answer: D

8. In an isometric sketch of a cube:

- A. the frontal face appears in its true shape
- B. the receding axes are at 45 degrees to the horizontal
- C. all faces are equally distorted
- D. only the depth distances must be reduced

ANS : C

9. In isometric drawings:

- A. Two axes are perpendicular
- B. True measurements can be made only along or parallel to the isometric axes
- C. All faces are unequally distorted
- D. None of the above

Answer: B

10. In an axonometric drawing, the projection rays are drawn \_\_\_\_\_ to each other and \_\_\_\_\_ to the plane of projection.

- A. parallel.....oblique
- B. oblique.....parallel
- C. parallel.....perpendicular
- D. parallel....parallel

Answer: C

11. One method of drawing an ellipse that represents an isometric pictorial circle is known as:

- A. the box construction method
- B. the coordinate construction method
- C. the four-center approximation method
- D. the offset construction method

Answer: A

12. Non-isometric lines are located and sketched how?

- A. They are drawn parallel to the isometric axis.
- B. They are measured using the angle from the multiview.
- C. They are measured using a non-isometric template.
- D. They are located by determining the endpoints of the non-isometric line.

Answer: D

13. In an oblique sketch of a cube:

- A. the frontal face appears in its true shape
- B. both receding axes are at 30 degrees to the horizontal
- C. all faces are equally distorted
- D. the depth distances must be reduced

Answer: A

14. In an oblique drawing, all of the following angles are commonly used for drawing the depth axis, except:

- A. 30°
- B. 45°
- C. 60°
- D. 90°

ANS : D

15. In an oblique drawing, the projection rays are drawn \_\_\_\_\_ to each other and \_\_\_\_\_ to the plane of projection.

- A. oblique.....oblique
- B. oblique.....parallel
- C. parallel.....oblique
- D. parallel....parallel

Answer: C

16. All of the following are processes (as opposed to input or output. in a manufacturing business except:

- A. Material
- B. Planning
- C. Documenting
- D. Designing

Answer: A

17. Following operations can make use of the CAD database, except:

- A. Designing
- B. Marketing
- C. Producing
- D. None of the above

Answer: D

18. Which of the following is the responsibility of the production manager?

- A. people
- B. plants
- C. processes
- D. all of the above

Answer: D

19. Which of the following would be a typical use for Product Data Management?

- A. tracking potential clients by Marketing
- B. generating variations of a preliminary design
- C. searching for how many designs used a particular fastener
- D. evaluating the strength of a rib support on a cast piece

Answer: C

20. Which design process involves responding to the emotional needs of the consumer?

- A. aesthetic design
- B. functional design
- C. systems design
- D. e-business

Answer: A

21. Which network system gives outside vendors access to a company's internal network?

- A. Intranet
- B. Extranet
- C. Internet
- D. Outernet

Answer: B

22. All of the following are part of a typical design team, except:

- A. vendors
- B. quality control specialists
- C. manufacturing engineers
- D. accountants

Answer: D

23. Which of the following input devices does not translate hand movements into instructions for the computer?

- A. Scanner
- B. Mouse
- C. Keyboard
- D. 3D Mouse

Answer: A

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24. Which type of output device creates images which look and feel like photographs?

- A. Electrostatic plotter
- B. Laser printer
- C. Dye-sublimation printer
- D. Inkjet plotter

Answer: C

25. Which tool can be used to draw a 90 degree angle?

- A. 30/60 triangle
- B. protractor
- C. drafting machine
- D. all of the above

Answer: D

26. Which set of lead grades has a grade out of sequence?

- A. H, HB, B, 3B
- B. 7B, H, F, 3H
- C. 6B, B, H, 4H
- D. 9H, HB, B, 2B

Answer: B

27. Which type of line is part of a dimension?

- A. break lines
- B. phantom lines
- C. extension lines
- D. cutting plane lines

Answer: C

28. Which type of line is particular to section drawings?

- A. break lines
- B. phantom lines
- C. extension lines
- D. cutting plane lines

Answer: D

29. Which angle cannot be made with either a 45 or 30/60 triangle or a combination of the two?

- A. 90
- B. 70
- C. 30
- D. 15

Answer: B

30. A drawing instrument set usually contains all of the following, except:

- A. bow compass
- B. scale
- C. dividers
- D. extra leads

Answer: B

31. Which of the following operating systems is used with CAD systems?

- A. DOS
- B. UNIX
- C. Linux

D. all of the above

Answer: D

32. Which line type is thin and light?

A. visible lines

B. center lines

C. construction lines

D. all of the above

Answer: C

33. Which line type is thick and black?

A. visible lines

B. center lines

C. construction lines

D. all of the above

Answer: A

34. What type of sketches are typically used in the refinement stage of the design process?

A. isometric

B. document

C. oblique

D. ideation

Answer: B

35. What type of sketch incorporates convergence?

A. isometric

B. perspective

C. oblique

D. multiview

Answer: B

36. What type of sketch shows the front in true shape?

A. isometric

B. perspective

C. oblique

D. axonometric

Answer: C

37. What is the major difference(s) between perspective and parallel projection?

A. Parallel projection can only be used with objects containing parallel edges.

B. Perspective projection gives a more realistic representation of an object.

C. Parallel projection is equivalent to a perspective projection where the viewer is standing infinitely far away.

D. Perspective projection can only be used for creating oblique and not isometric pictorials.

E. b and c

Answer: E

38. What type of sketch uses a miter line?

A. a two-view multiview

B. an isometric pictorial

C. a three-point perspective pictorial

D. a three-view multiview

Answer: D

39. Which type of line has precedence over all other types of lines?

- A. a hidden line
- B. a center line
- C. a visible line
- D. none of the above

Answer: C

40. Which statement(s) is true about the precedence of lines?

- A. a hidden line has precedence over a center line
- B. a center line has precedence over a visible line
- C. a visible line has precedence over a miter line
- D. all of the above

Answer: A

41. Where do the projection lines converge in a perspective sketch?

- A. the vanishing point
- B. the ground line
- C. the horizon line
- D. the eye point

Answer: A

42. When you want to make the letters of a line of text narrower, you would set its:

- A. aspect
- B. scale
- C. alignment
- D. font

Answer: A

43. When you want to make sure that all of the text stays to the right of a given point on the drawing, you would set its:

- A. aspect
- B. scale
- C. alignment
- D. font

Answer: C

44. Which of the following is typically represented in a drawing but does not have a true physical counterpart on the object?

- A. edge of planar surface
- B. edge of a circular face
- C. corner of a rectangle
- D. limiting element of a curved surface

Answer: D

45. A cutting plane normal to a face of a cube has to be \_\_\_\_\_ in order to cut an oblique face.

- A. rotated about one axis
- B. rotated about one axis and translated
- C. rotated about two axes
- D. rotated about two axes and translated

Answer: C

46. All of the following are variables involved in the use of image planes, except:

- A. the object being viewed
- B. the size of the object
- C. the eye of the viewer
- D. the image plane

Answer: B

47. In a VR system, all of the following statements about immersiveness are true, except:

- A. response time is an important factor
- B. both display resolution and display size can affect it
- C. the visual sense is the only sense to affect it
- D. tracking body movement is an important factor

Answer: C

48. Imagine a "L" shaped face extruded into three dimensions. How many faces does it contain?

- A. seven
- B. eight
- C. ten
- D. six

Answer: B

49. Which type of variable is the following list: Texas, Utah, California, Delaware?

- A. Nominal
- B. Ordinal
- C. Scalar
- D. Vector

Answer: A

50. Which type of variable is the following list: Thinnest, Thin, Medium, Fat, Fattest?

- A. Nominal
- B. Ordinal
- C. Scalar
- D. Vector

Answer: B

51. Drafters should use a \_\_\_\_\_ in a section view of a mechanical part that includes the cylindrical view of a threaded hole.

- A. Center line
- B. Hatch line
- C. Poly line
- D. Dimension line

Answer: A

52. The section view drawing in which one fourth of an object has been marked for removal is known as a \_\_\_\_\_ section.

- A. Full
- B. Half
- C. Quarter
- D. none of the above

Answer: B

53. In offset sections, offsets or bends in the cutting plane are all:

- A. 90 degrees
- B. 180 degrees

- C. Either 90 or 180 degrees
- D. 30, 60, or 90 degrees

Answer: A

54. When filling an area with a hatch pattern in AutoCAD the drafter needs to be able to

- \_\_\_\_\_.
- A. see the entire bounding area to hatch
- B. set Ortho on
- C. turn ISO grid off
- D. set the layer to Defpoints

Answer: A

55. To avoid having to dimension to a hidden feature the drafter can utilize a \_\_\_\_\_ section.

- A. Whole.
- B. Half
- C. broken out
- D. all of the above

Answer: D

56. Objects that are symmetric can be shown effectively using this type of section:

- A. Quarter section
- B. Half section
- C. Full section
- D. Symmetric section

Answer: B

57. This type of section is not in direct projection from the view containing the cutting plane:

- A. Revolved section
- B. Removed section
- C. Broken-out section
- D. Full section

Answer: B

58. By using a \_\_\_\_\_ section of a cylindrical mechanical part the drafter should be able to show only one view of the part.

- A. Half
- B. Whole
- C. Revolved
- D. broken out

Answer: C

59. The following is not included in title block of drawing sheet.

- A. Sheet No
- B. Scale
- C. Method of Projection
- D. Size of sheet

Answer: D

60. Which of the following represent reducing scale?

- A. 1:1
- B. 1:2
- C. 2:1
- D. 10:1

Answer: B

1. The angle between the isometric axes is \_\_\_\_\_

- a) 180 degrees
- b) 60 degrees
- c) 90 degrees
- d) 120 degrees

Answer: d

Explanation: Isometric projection is a type of projection in which the three dimensions of a solid are not only shown in one view but also their actual sizes can be measured directly from it. So it is needed that there exist equal angle between the axes for easy measurement so  $360/3=120$  degrees is chosen.

2. The value of the ratio of isometric length to true length is \_\_\_\_\_

- a) 0.141
- b) 0.372
- c) 0.815
- d) 0.642

Answer: c

Explanation: If we represent a cube in isometric view the diagonal of upper face of cube is equal to the true length of the diagonal. From it by drawing an actual square around it and then calculating it gives  $(1/\cos 30)/(1/\cos 45) = \text{isometric}/\text{true} = 0.815$ .

3. The length in isometric drawing of line is 20 cm. What is the true length of it?

- a) 24.53 cm
- b) 15.46 cm
- c) 19.31 cm
- d) 23.09 cm

Answer: a

Explanation: The ratio of isometric length to true length is 0.815 so here it is given isometric length of 20 cm.  $0.815 = 20 \text{ cm} / \text{true length} \Rightarrow \text{true length} = 20 \text{ cm} / 0.815 = 24.53 \text{ cm}$ . Every time the true length is more than isometric length.

4. The true length of edge of cube is 15 cm what will be the isometric length?

- a) 17.78 cm
- b) 14.48 cm
- c) 12.99 cm
- d) 12.22 cm

Answer: d

Explanation: The ratio of isometric length to true length is 0.815 so here it is given true length of 15 cm.  $0.815 = \text{isometric length} / 15 \text{ cm} \Rightarrow \text{isometric length} = 15 \text{ cm} \times 0.815 = 12.22 \text{ cm}$ . Every time the true length is more than isometric length.

5. The lines parallel to isometric axes are called \_\_\_\_\_ lines.

- a) parallel
- b) auxiliary

- c) isometric
- d) oblique

Answer: c

Explanation: The angle between the isometric axes is 120 degrees if any line is parallel to it then those are called isometric lines. Auxiliary lines may make any angle with horizontal and oblique is not related here.

6. The planes parallel to any of the two isometric lines are called \_\_\_\_\_ planes.

- a) parallel
- b) auxiliary
- c) isometric
- d) oblique

Answer: c

Explanation: The planes on which the faces of cube lie if it is placed in isometric view can be consider as the isometric planes which are parallel to two axes of isometric view which are x, y, z axes of isometric view.

7. Isometric view of cube is drawn the angle between the edge of cube and horizontal will be \_\_\_\_\_

- a) 15 degrees
- b) 120 degrees
- c) 45 degrees
- d) 30 degrees

Answer: d

Explanation: Isometric view of cube is drawn the angle between the edge of cube and horizontal will be 30 degrees because as the angle between the base and axis lower to will be 90 degrees the angle between the axes is 120 degrees.  $120 - 90 = 30$  degrees.

8. Isometric view of cube is drawn the angle between the edge of cube and vertical will be \_\_\_\_\_

- a) 15 degrees
- b) 120 degrees
- c) 60 degrees
- d) 30 degrees

Answer: c

Explanation: Isometric view of cube is drawn the angle between the edge of cube and vertical will be 60 degrees because the angle between the edge and horizontal is 30 and so angle between vertical and horizontal is 90.  $90 - 30 = 60$  degrees.

9. The true length of line is 40 cm and isometric view of it is drawn the length would decrease to \_\_\_\_\_

- a) 28.28 cm
- b) 32.6 cm
- c) 34.6 c
- d) 38.63 cm

Answer: b

Explanation: The ratio of isometric length to true length is 0.815 so here it is given true length of 40 cm.  $0.815 = \text{isometric length} / 40 \text{ cm} \Rightarrow \text{isometric length} = 40 \text{ cm} \times 0.815 = 32.6 \text{ cm}$ . Every time the true length is more than isometric length.

10. The true length of the line is 30 cm and isometric view is drawn. How much length is reduced?

- a) 24.45 cm
- b) 25.98 cm
- c) 4.01 cm
- d) 5.55 cm

Answer: d

Explanation: The ratio of isometric length to true length is 0.815 so here it is given true length of 30 cm.  $0.815 = \text{isometric length} / 30 \text{ cm} \Rightarrow \text{isometric length} = 30 \text{ cm} \times 0.815 = 24.45 \text{ cm}$ .  $30 \text{ cm} - 24.45 \text{ cm} = 5.55 \text{ cm}$ .

11. The objects we see in nature will be in Isometric view.

- a) True
- b) False

Answer: b

Explanation: The objects we watch in our surrounds are not isometric view they are perspective view. Isometric view is imaginary view in which lines of sight are perpendicular to picture plane and are parallel to each other.

12. Isometric view of cube is drawn the angle between the adjacent edges is \_\_\_\_\_

- a) 90 degrees, 120 degrees
- b) 60 degrees, 120 degrees
- c) 120 degrees, 120 degrees
- d) 90 degrees, 30 degrees

Answer: b

Explanation: Given is a cube in which the adjacent angle are all equal and equal to 90 degrees and if isometric view is drawn then it show front faces with angles bet between them as 120 degrees and if take angles between the back and front faces we get the 60 degrees.

13. Isometric view of cube is drawn and faces of cube are seen as \_\_\_\_\_

- a) square
- b) rectangle
- c) rhombus
- d) parallelogram

Answer: c

Explanation: It is given isometric view of cube is drawn and it shows regular hexagon in which any of the faces represent rhombus which have diagonals cutting each other at 90 degrees any other adjacent edges have angles between them as 60 and 120 degrees.

1. Oblique projections are useful for making an assembly.

- a) True
- b) False

Answer: a

Explanation: The oblique projection represents three dimensional objects on the projection plane by one view only. This type of drawing is useful for making an assembly of an object and provides directly a production drawing of the object for manufacturing purpose.

2. Lines of sights (projectors) for oblique projection will be \_\_\_\_\_

- a) Parallel to each other and perpendicular to projection plane
- b) Not parallel to each other and perpendicular to projection plane
- c) Parallel to each other and inclined to projection plane
- d) Not parallel to each other and inclined to projection plane

Answer: c

Explanation: When an observer looks towards an object from infinity, the lines of sight will be parallel to each other and inclined to the projection plane in oblique projection, but the lines of sight will be parallel to each other and perpendicular to projection plane in orthographic projection.

3. All the faces of the object are distorted in the shape and size.

- a) True
- b) False

Answer: b

Explanation: In oblique projection the faces of object which are perpendicular to the plane of projection will be distorted and all the faces of the object are distorted in the shape and size in isometric projection.

4. Which of the following statement is wrong in case of oblique projection?

- a) The object is drawn with the reduced dimensions
- b) Projectors are parallel to each other and inclined to projection plane
- c) The choice of the position of the object depends upon the shape and size
- d) The faces of object which are perpendicular to the plane of projection will be distorted

Answer: a

Explanation: In isometric projection the object is drawn with the reduced dimensions for about 82% but in oblique projection the object is drawn with the actual dimensions. The choice of the position of the object depends upon the shape and size.

5. When the receding lines are drawn to full size scale then the oblique projection is \_\_\_\_\_

- a) Cabinet projection
- b) Isometric projection
- c) Orthographic projection
- d) Cavalier projection

Answer: d

Explanation: When the receding lines are drawn to half size scale then the oblique projection is cabinet projection. When the receding lines are drawn to full size scale then the oblique projection is cavalier projection.

6. When the receding lines are drawn to half size scale then the oblique projection is \_\_\_\_\_

- a) Cabinet projection
- b) Isometric projection
- c) Orthographic projection
- d) Cavalier projection

Answer: a

Explanation: When the receding lines are drawn to half size scale then the oblique projection is cabinet projection. When the receding lines are drawn to full size scale then the oblique projection is cavalier projection.

7. Which are not usually used as angle between the projection plane and receding lines for oblique projection?

- a) 30 degrees
- b) 50 degrees
- c) 45 degrees
- d) 60 degrees

Answer: b

Explanation: Usually used as angles are 30, 45, 60 degrees which are between the projection plane and receding lines for oblique projection. But if needed any angle can be taken as per requirement of the view.

8. The appearance of the distortion of an object can be improved by \_\_\_\_\_ the length of the receding lines.

- a) increasing
- b) doubling
- c) shortening
- d) dividing

Answer: c

Explanation: The appearance of the distortion of an object can be improved by shortening the length of the receding lines. The receding lines may be inclined either upwards or downwards, or to the left or right depending upon the necessity to show the details.

9. In oblique projection, the object is assumed to be placed with one face \_\_\_\_\_

- a) parallel to plane of projection
- b) parallel to adjacent edge
- c) perpendicular to plane of projection
- d) perpendicular to adjacent edge

Answer: a

Explanation: In oblique projection, the object is assumed to be placed with one face parallel to plane of projection and receding lines are drawn from the faces parallel to projection plane and other parallel face.

10. The perpendicular edges of planes parallel to projection plane are drawn at an angle of 30, 45, 60 degrees with the horizontal. The inclined lines are called \_\_\_\_\_

- a) projectors
- b) slanting edges
- c) contour lines

d) receding lines

Answer: d

Explanation: Projectors are the imaginary lines drawn from object to projection planes. Slanting edges can be used for edges of pyramid etc. The perpendicular edges of planes parallel to projection plane are drawn at an angle of 30, 45, 60 degrees with the horizontal. The inclined lines are called receding lines.

11. The faces parallel to projection plane are having \_\_\_\_\_ size and shape in oblique projection.

- a) actual
- b) double
- c) half
- d) increased

Answer: a

Explanation: Oblique projection is a specified projection which is used for making an assembly of an object and provides directly a production drawing of the object for manufacturing purpose.

12. In cavalier projection the receding lines are drawn \_\_\_\_\_

- a) half of its actual size
- b) double of its actual size
- c) full size
- d) increased or decreased to a particular ratio

Answer: c

Explanation: Cavalier projection is one of the type of oblique projection in which the receding lines are drawn to full size scale and projectors are inclined at 30 degrees, 45 degrees, 60 degrees to the plane of projection.

1. When a plane is perpendicular to one plane and inclined to other reference planes then the projections are obtained in 2 stages.

- a) True
- b) False

Answer: a

Explanation: When a plane is inclined to a reference plane, its projections may be obtained in 2 stages. In the initial stage, the plane is assumed to be parallel to that reference plane to which it has to be made inclined. It is then tilted to the required inclination in the second stage.

2. A Square is placed perpendicular to vertical plane and inclined to horizontal which of the following is true?

- a) Front view-line, top view- square
- b) Front view- line, top view- rectangle
- c) Front view –line, top view-line
- d) Top view-line, side view- rectangle

Answer: b

Explanation: When a plane is perpendicular to one of the reference planes and inclined to the other, its inclination is shown by an angle which its projection on the plane to which it is

perpendicular, makes with  $xy$ . Its projection on the plane to which it is inclined, is smaller than the plane itself.

3. A circle is placed perpendicular to vertical plane and inclined to horizontal which of the following is true?

- a) Front view-line, top view- circle
- b) Front view- circle, top view- circle
- c) Front view –line, top view-line
- d) Top view- ellipse, side view- ellipse

Answer: d

Explanation: When a plane is perpendicular to one of the reference planes and inclined to the other, its inclination is shown by an angle which its projection on the plane to which it is perpendicular, makes with  $xy$ . Its projection on the plane to which it is inclined, is smaller than the plane itself.

4. A triangle is placed perpendicular to horizontal plane and inclined to vertical which of the following is true?

- a) Front view-line, top view- triangle
- b) Front view- triangle, top view- line
- c) Front view –line, top view-line
- d) Top view-line, side view- line

Answer: b

Explanation: When a plane is perpendicular to one of the reference planes and inclined to the other, its inclination is shown by an angle which its projection on the plane to which it is perpendicular, makes with  $xy$ . Its projection on the plane to which it is inclined, is smaller than the plane itself.

5. A triangle is placed perpendicular to horizontal plane and inclined to vertical which of the following is true. H.T is horizontal trace and V.T is vertical trace?

- a) H.T- inclined to  $xy$ , V.T- inclined to  $xy$
- b) H.T- inclined to  $xy$ , V.T- perpendicular to  $xy$
- c) H.T-inclined to  $xy$ , V.T- parallel to  $xy$
- d) H.T-parallel to  $xy$ , V.T- perpendicular to  $xy$

Answer: b

Explanation: When a plane is perpendicular to one of the reference planes and inclined to the other, its inclination is shown by an angle which its projection on the plane to which it is perpendicular, makes with  $xy$ .

6. A square is placed perpendicular to vertical plane and inclined to horizontal plane which of the following is true. H.T is horizontal trace and V.T is vertical trace?

- a) H.T- inclined to  $xy$ , V.T- perpendicular to  $xy$
- b) H.T- inclined to  $xy$ , V.T- perpendicular to  $xy$
- c) H.T- perpendicular to  $xy$ , V.T- inclined to  $xy$
- d) H.T- parallel to  $xy$ , V.T- perpendicular to  $xy$

Answer: b

Explanation: When a plane is perpendicular to one of the reference planes and inclined to the other, its inclination is shown by an angle which its projection on the plane to which it is perpendicular, makes with  $xy$ .

7. If a square is placed on its base parallel to horizontal plane, and plane containing square is perpendicular to horizontal plane and inclined to vertical plane then the top view gives a line of length equal to side of square.

- a) True
- b) False

Answer: a

Explanation: As given conditions are simple there exist no complication and base is parallel to horizontal plane so the views may give line and rectangle but not parallelograms. And line of length equal to side of square.

8. If a plane is perpendicular to vertical and inclined to horizontal plane with 30 degrees then the vertical trace makes \_\_\_\_\_ degrees with  $xy$  reference.

- a) 30 degrees
- b) 60 degrees
- c) 150 degrees
- d) 90 degrees

Answer: a

Explanation: When a plane is perpendicular to one of the reference planes and inclined to the other, its inclination is shown by an angle which its projection on the plane to which it is perpendicular, makes with  $xy$ . And converse for traces.

9. If a plane is perpendicular to vertical and inclined to horizontal plane with 30 degrees then the horizontal trace makes \_\_\_\_\_ degrees with  $xy$  reference.

- a) 30 degrees
- b) 60 degrees
- c) 150 degrees
- d) 90 degrees

Answer: d

Explanation: When a plane is perpendicular to one of the reference planes and inclined to the other, its inclination is shown by an angle which its projection on the plane to which it is perpendicular, makes with  $xy$ . And converse for traces.

10. A plane is perpendicular to vertical plane and vertical trace of a plane is making 55 degrees with the  $xy$  plane. Which of the following is false?

- a) The plane is inclined 55 degrees with the horizontal plane
- b) Front view gives a line
- c) Top view gives true shape of plane
- d) Horizontal trace is perpendicular to  $xy$  plane

Answer: c

Explanation: When a plane is perpendicular to one of the reference planes and inclined to the other, its inclination is shown by an angle which its projection on the plane to which it is perpendicular, makes with  $xy$ . And converse for traces.

11. A rectangle is placed perpendicular to horizontal plane and inclined to profile plane. The traces would meet at \_\_\_\_\_

- a) xy reference line
- b) vertical reference line
- c) the line formed by intersection of profile plane and horizontal plane
- d) above the line formed by intersection of profile plane and horizontal plane

Answer: c

Explanation: Given a rectangle is perpendicular to horizontal plane and inclined to profile plane so the traces would meet on the line formed by an intersection of profile plane and horizontal plane or the point of intersection of all planes.

12. A pentagon is placed perpendicular to horizontal plane and inclined to profile plane which of the following is true.

- a) Front view-line, top view- pentagon
- b) Front view- pentagon, top view- line
- c) Front view –line, top view-line
- d) Top view-line, side view- line

Answer: b

Explanation: When a plane is perpendicular to one of the reference planes and inclined to the other, its inclination is shown by an angle which its projection on the plane to which it is perpendicular, makes with xy. Its projection on the plane to which it is inclined is smaller than the plane itself.

13. A hexagon is placed perpendicular to profile plane and inclined to horizontal plane which of the following is true.

- a) Front view-line, top view- hexagon
- b) Front view- hexagon, top view- line
- c) Front view –line, top view-line
- d) Top view-hexagon, side view- line

Answer: d

Explanation: When a plane is perpendicular to one of the reference planes and inclined to the other, its inclination is shown by an angle which its projection on the plane to which it is perpendicular, makes with xy. Its projection on the plane to which it is inclined is smaller than the plane itself.

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