



INDIAN SCHOOL AL WADI AL KABIR

First Rehearsal Examination 2022-23

SUB: Engineering Graphics (046)

Date: 29/11/2022

Time Allowed :3 hours

Class: XII

Maximum Marks: 70

GENERAL INSTRUCTIONS:

- (i) Attempt all the questions.
- (ii) Use both sides of the drawing sheet, if necessary.
- (iii) All dimensions are in millimetres.
- (iv) Missing and mismatching dimensions, if any, may be suitably assumed.
- (v) Follow the SP: 46 – 2003 revised codes. (with first angle method of projection)
- (vi) In question 21, hidden edges or lines required.
- (vii) In question 23, hidden edges or lines are to be shown in views without section.

SECTION – A

Q 1 to Q 8 – Answer the following multiple-choice questions. Print the correct choice on your drawing sheet:

1. Name the projection with multiple views.

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

2. The isometric length of 70 mm is _____.

- a) Equal to true 70 mm
- b) Less than true 70 mm

- c) More than true 70 mm
- d) Equal to true 100 mm.

3. The angle between the main scale and isometric scale is _____.

- a) 15 degree
- b) 30 degree
- c) 45 degree
- d) 90 degree

4. Knuckle thread is a modified form of a _____ screw thread.

- a) Square
- b) BSW
- c) Metric
- d) V – thread

5. A machine element which supports and guides a rotating shaft is called:

- a) Pulley
- b) Cotter
- c) Bearing
- d) Coupling

6. Which joint is used for rods of square cross section?

- a) Knuckle joint
- b) Sleeve and cotter joint
- c) Gib and cotter joint
- d) Socket and spigot joint

7. In pipe joints, the hollow cylindrical pipes with a projected circular flared rim on the ends is known as -----

- a) Gasket
- b) Flange

c) Bolt

d) Nut

8.----- consists of an elongated metal tube which is cylindrical in shape and has tapered ends.

a) Bearing

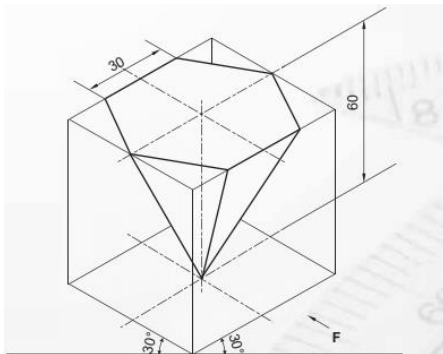
b) Cotter joint

c) Pipe joint

d) Turnbuckle

Q 9 to Q 14 – Select the correct option corresponding to the orientation of the given Isometric Projection:

9.



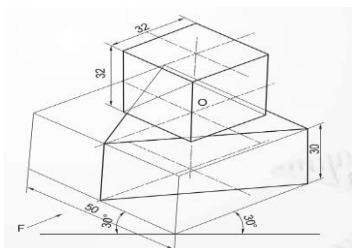
a) The axis is inclined to H.P.

b) The axis is inclined to V.P.

c) The axis is perpendicular to H.P. and parallel to V.P.

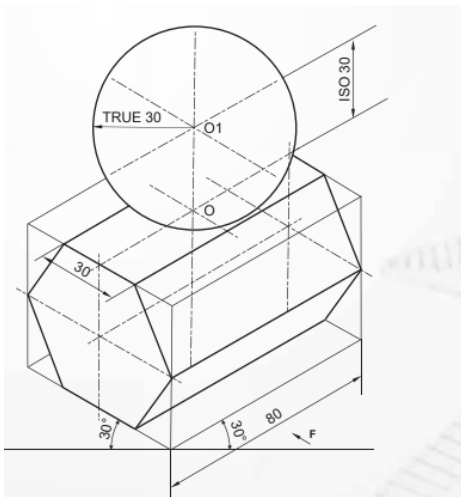
d) The axis is perpendicular to V.P. and parallel to H.P

10.



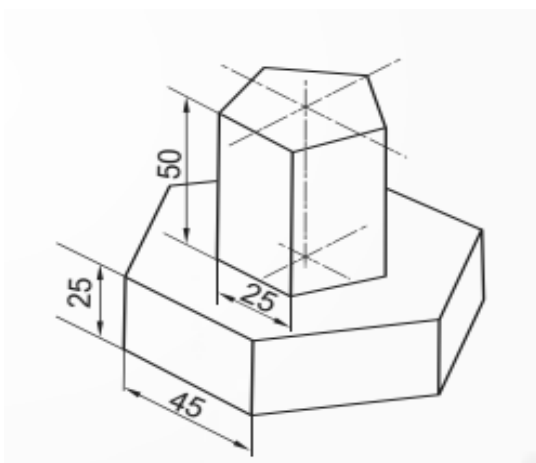
- a) The top solid is square prism and the bottom solid is triangular prism.
- b) The top solid is cube and the bottom solid is triangular prism
- c) Both the solids are square prisms.
- d) Both the solids are triangular prisms.

11.



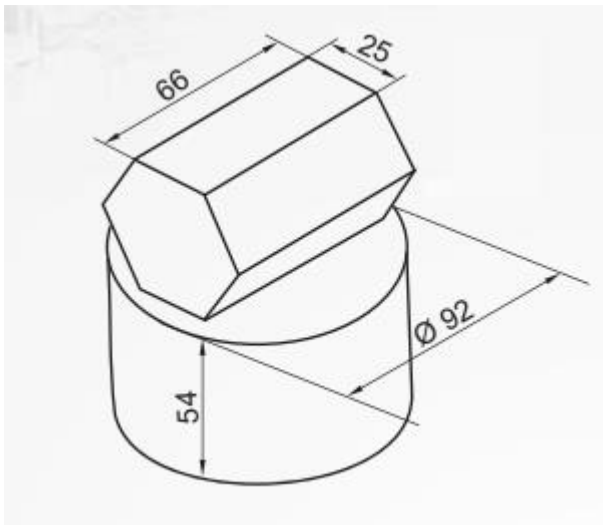
- a) A hemisphere is kept centrally on the top hexagonal surface of a hexagonal prism with its curved surface on it.
- b) A sphere is kept centrally on the top hexagonal surface of a hexagonal prism with its curved surface on it.
- c) A sphere is kept centrally on the top rectangular face of a hexagonal prism with its curved surface on it.
- d) A hemisphere is kept centrally on the top rectangular face of a hexagonal prism with its curved surface on it.

12.



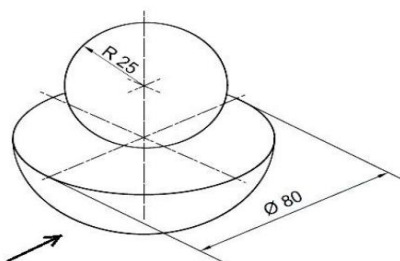
- a) The top solid is square prism and the bottom solid is triangular prism.
- b) The top solid is pentagonal prism and the bottom solid is hexagonal slab
- c) Both the solids are hexagonal prisms.
- d) Both the solids are pentagonal prisms.

13.



- a) A pentagonal prism is kept centrally on the top surface of a cylinder with rectangular faces on it.
- b) A hexagonal prism is kept centrally on the top circular surface of a cylinder with its rectangular faces on it.
- c) A hexagonal pyramid is kept centrally on the top rectangular face of a hexagonal prism with its triangular faces on it.
- d) A hexagonal prism is kept centrally on the top of a cylinder with its hexagonal face on it.

14.



- a) The length of common axis is true 65mm
- b) The length of common axis is iso 65mm
- c) The length of common axis is more than iso 65mm
- d) The length of common axis is less than iso 65mm

Q15 – Two statements are given – one labelled assertion (A) and the other labelled reason (R). Select the correct answer to the following question from the codes (a), (b), (c) and (d) as given below:

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true and R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false and R is also false.

15. A: The surface connecting crest and root is called as flank.

R: The angle between the flanks of a Metric thread is 55 degree.

Q16 to Q 20 – Answer Read the following paragraph and answer the following questions.

Varun’s mother bought a new cookware set through online shopping, and when it got delivered the cookware handles were fixed with a special type of machine part. Being an engineering graphics student Varun sent the following image of that machine part to their Engineering Graphics teacher. Then the teacher explained everything about that part, which is called as Rivet. Analyse the figure and answer the following questions.



16. Analyse the figure and identify which type of rivet head is shown in the figure?

- a) Snap head rivet
- b) Pan head rivet
- c) 60-degree CSK rivet
- 4.Flat head rivet

17. Rivet heads are which type of fasteners?

- a) Temporary fastener
- b) Permanent fastener
- c) Threaded fastener
- d) Unified fastener

18. In this type of rivet head, radius of head portion is calculated with a value of?

- a) $R = 0.7d$
- b) $R = 0.6d$
- c) $R = 1.5d$
- d) $R = 0.8d$

19. If $d = 20$ mm, find the value of the height of the head portion of rivet head?

- a) 14
- b) 16
- c) 18
- d) 32

20. A ----- is a simple round rod having head at one end.

- a) Stud
- b) Rivet
- c) Screw
- d) Nut

SECTION – B

21. (a) Construct an isometric scale. 5

(b) A hexagonal prism of base side 30 mm and height of 70 mm resting on its face on H.P. with two of its bases are parallel to V.P. Draw its isometric projection, indicate the direction of viewing and give all the dimensions. 10

22. Draw to scale 1:1, the standard profile of the Metric thread profile (Internal) with the pitch = 50mm. Give standard dimensions. 8

OR

Draw to scale 1:1 the Front view and Plan of a square head bolt when its axis is perpendicular to H.P. Take the diameter of the bolt as 24mm, and length as 110 mm. 8

23. Figure given below shows the parts of a Sleeve and Cotter Joint. Assemble the parts correctly and then draw the following views to a scale 1: 1

(a) Front view, upper half in section. 13

(b) Side view, viewing from the left. 8

(c) Print title and scale used. Draw the projection symbol. Give '8' important dimensions. 6

