COMMON PRE-BOARD EXAMINATION 2024-25

Subject: ENGINEERING GRAPHICS (046)

Date:

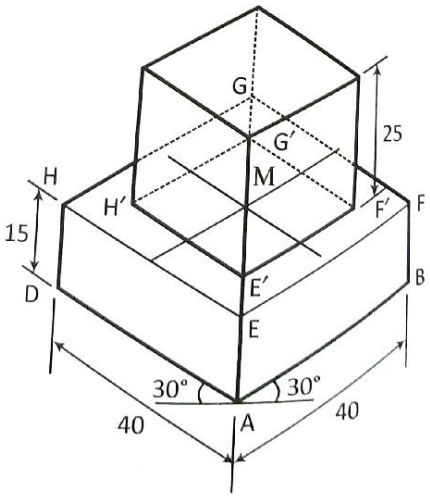
General Instructions:

1. Attempt all the questions.
2. Use both sides of the drawing sheet, if necessary.
3. All dimensions are in millimetres.
4. Missing and mismatching dimensions, if any, may be suitably assumed
5. Follow the SP: 46 – 2003 revised codes. (with first angle method of projection
6. In question 23, hidden edges or lines are to be shown in views without section.
7. In no view of question 24, are hidden edges or lines required.

SECTION – A

Q.1 to Q.14 : Answer the following Multiple Choice Questions. Print the correctchoice on your drawing sheet. **14 X 1 = 14**

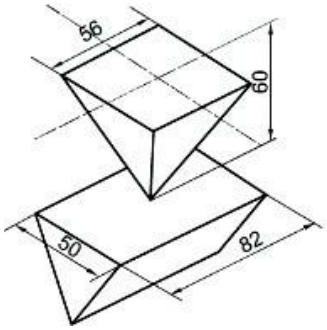
S. No	Questions	Marks
1.	Name the projection with multiple views. a. Perspective projection b. Isometric projection c. Orthographic projection d. Oblique projection	1
2.	When an object is kept in the third quadrant we assume the object to be situated _____VP and _____HP a. Infront of , below b. Behind , below c. Infront of , above d. Behind , above	1
3.	You are given the following isometric projection of a combination of solids. In this	1

	what is true? a. The dimensions are measured on true scale b. The dimensions are measured on isometric scale c. The dimensions are not measured on isometric scale d. The dimensions can be on either of the two scales  	
4.	How is a non-isometric lines located and drawn? a. They are drawn parallel to the isometric axis b. They are measured using the angle from the orthographic/ helping view c. They are located by determining its endpoints d. They are measured directly using the given angle	1
5.	Which of the following is a V –thread? a. Metric thread b. square thread c. Knuckle thread d. None of these	1
6.	For a single start thread , Lead (L) =? a. L= Pitch b. L= 2*Pitch c. L= 3 *Pitch d. None of the above	1
7.	If ‘d’ is the nominal diameter of a nut , then what is the diameter of the root circle ? a. d b. 1.5d c. 0.85d d. 2d+6	1

8.	Strap is a part of which of the following machine joint? a. Flange pipe Joint b. Gib and cotter joint c. Tie rod joint d. Sleeve and cotter joint	1
9.	Identify the fastener from the given image  a. Snap head rivet b. Roundhead screw c.. cheese head screw d. pan head rivet	1
10.	Match the LIST I with LIST II	1

LIST I	LIST II
1. GIB & COTTER JOINT	(i) Used for joining two circular rods
2. SLEEVE & COTTER JOINT	(ii) used for linear and zigzag shafts, which rotate at slow speeds
3. OPEN BEARING	(iii) used for higher loads at medium speed.
4. BUSHED BEARING	(iv) used for joining two square rods.

a. 1-iv, 2-i, 3-ii, 4-iii
b . 1-i, 2-ii, 3-iii, 4-iv
c . 1-iv, 2-iii, 3-ii, 4-I
d. 1-i, 2-iii, 3-iv, 4-ii

11.	Choose the correct statements for the given figure:  i. The square pyramid is resting on its apex on a triangular pyramid. ii. An inverted square pyramid is centrally placed on the rectangular face of a prism. iii. The triangular prism is lying on its long edge on HP iv The triangular pyramid is lying on its rectangular face on HP a. . (i) & (iii) b. . (i) & (iv) c. . (ii) & (iv) d. . (ii) & (iii)	1
12.	Which among the following assemblies has a mechanism of lubrication? a. Bushed bearing b. Open bearing c. Flanged pipe d. Sleeve and cotter	1
13.	Identify the fastener  a. Plain stud b. Grub screw c. stud with collar d. stud with square neck	1
14	What type of force is experienced by the cotter in a sleeve and cotter joint? a. Axial force b. Shearing force c. Twisting force d. Bending force	1

SECTION – B

Q.15 to Q.18 : Read the following paragraph and answer the questions givenbelow: 4 X 1 = 4

In a practical assignment , you are given a screw, a stud and a rivet. You are aware of their uses. Now use this knowledge to answer the specific needs of the customers who wish to purchase them for their homes.

15.	Customer A wants to assemble a folding wooden chair that was lying unused for years. What would you suggest him on how to put it together? a. Screws b. rivets c. studs d. welds	1
16	Customer B wants to assemble the tin roofs together on a store room on the rooftop. The joint should be water tight . What would you suggest him.? a. Screws b. rivets c. studs d. welds	1
17	Which screw cannot be ordinarily unscrewed by a normal screw driver? a. Round b. cheese c. hexagonal socket d. grub	1
18	Which type of threads are there on a stud? a. Internal threads b. External threads c. Both external and internal threads d. No threads	1

Q.19 to Q.22 : Read the following paragraph and answer the questions givenbelow: 4 X 1 = 4

You are in charge of a supply store that stocks various types of fasteners. There are all sorts and sizes of washers, nuts and bolts in your custody. A new person who joined you who in his inquisitiveness asks questions about a washer that has an internal diameter of 25mm.

19	What will be the nominal diameter of the bolt or the nut where this washer is used? a. 56mm b. 24mm c. 25mm d. 26mm	1
20	What will be the thickness of the washer? a. 3mm b. 4mm c. 5mm d. 6mm	1
21	What will be the external diameter of the washer? a. 24mm b.25mm c. 51mm d.. 53mm	1
22	What is an optional third part used with a screw pair? a. Stud b. nut c bolt d. washer	1

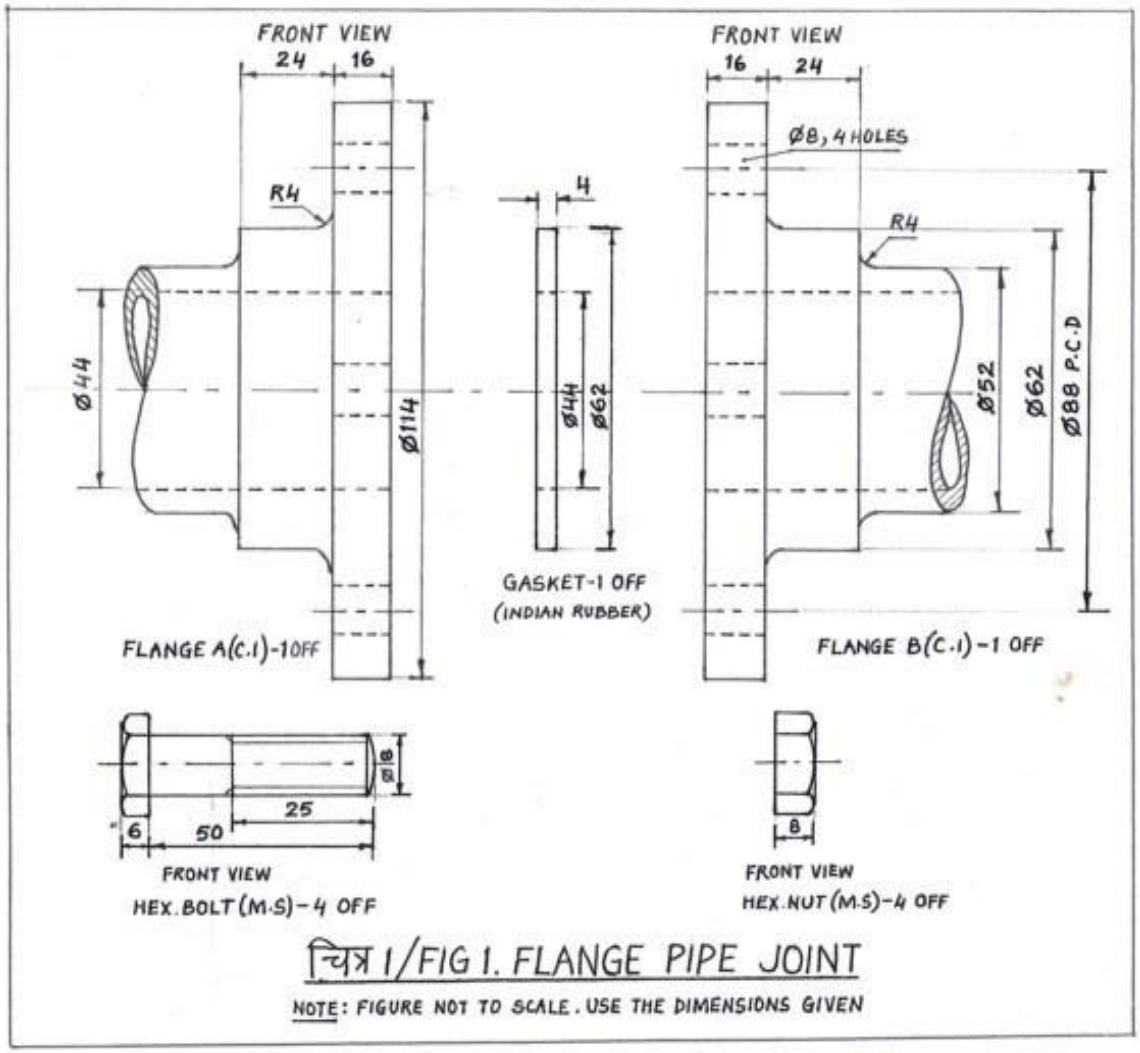
23		27

(**A**) Figure 1 shows the details of parts of a **Flange Pipe Joint**. Assemble all these parts correctly and then draw to scale 1:1; it's following views:

(a) Front View, upper half in section 13

(b) Right Side View 8

Print the title and scale used. Draw projection symbol. Give six important dimensions. 6

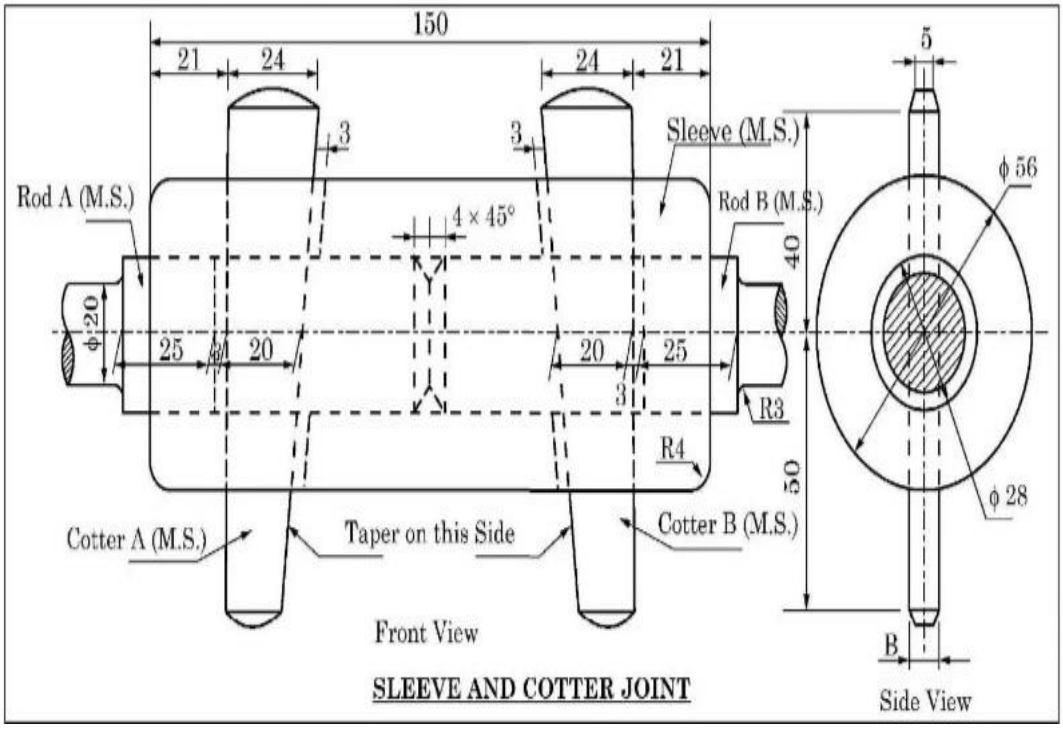


चित्र 1/FIG 1. FLANGE PIPE JOINT

NOTE: FIGURE NOT TO SCALE. USE THE DIMENSIONS GIVEN

OR

23	(**B)** Figure 2 shows the assembly of an **sleeve and cotter joint**. Disassemble the parts correctly and then draw to scale 1:1 its following views of the following components. Keeping the same position of both sleeve, cotter and rods with respect to H.P and V.P. as given: (a) SLEEVE (i) Sectional front View 8 (ii) Top view 6 (b) ROD A (i) Front View upper half in section 4 (ii) Left side View 3 Print the titles of both and scale used. Draw the projection symbol. Give six important dimensions. 6	27



SLEEVE AND COTTER JOINT

SECTION – C

24.	(a) Construct an isometric scale. (b) Draw the isometric projection of a triangular prism (base edge 40 mm, axial length 60mm) resting on its rectangular face on H.P. Its axis is perpendicular to V.P. Indicate the direction of viewing. Give all the dimensions.	4 9
25.	(A) Draw to scale 1:1 the standard profile of a **Metric thread external** , taking enlarged pitch as 50mm. Give the standard dimensions. **OR** (B) Draw to scale 1:1 the front view and the side view of a **hexagonal headed bolt** of diameter 30mm , keeping the axis horizontal and parallel to both HP and VP. Give the standard dimensions.	8 8