Class: XII

ENGINEERING GRAPHICS (46)

Sample Question Paper 2020-21

General Instructions:

 (i) Attempt all the questions.

(ii) Use both sides of the drawing sheet, if necessary.

(iii) All dimensions are in millimeters.

(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 no view of question2, are hidden edges or lines required.

(vii) In question 4, hidden edges or lines are to be shown in views without section.

(viii) Give your answers according to questions.

Time allowed: 3 Hours   **Max. Marks: 70**

	Answer the following Multiple Choice questions. Print the correct choice on your drawing sheet.	*1×5=5*
1 (i)	Name the projection system used by artists and architects to show "one plane" drawings. (a) Oblique projection (b) Perspective projection. (c) Isometric projection (d) Orthographic projection	1
(ii)	Name the thread profile used on the neck of glass bottles etc. (a) Metric thread (b) BSW thread (c) Knuckle thread (d) Square thread	1
(iii)	The value of diameter of the collar in collar stud in terms of diameter 'd' is: (a) 1.5d (b) 1.5d+3 (c) 2d	1

		(d) 2d+6	
(iv)		Name the material of the bush in the bush-bearing. (a) Cast iron (b) Mild steel (c) High carbon steel (d) Gun metal	1
(v)		Cotter joint is used to connect two _____. (a) Square rods (b) Elliptical rods (c) Round rods (d) Hollow rods	1
2 (i)		Construct an isometric scale.	4
(ii)		Draw the isometric projection of a pentagonal prism (base edge 25 mm, axial length 55mm) resting on its face with its axis parallel to H.P. and V.P. both. Indicate the direction of viewing. Give all the dimensions.	8
(iii)		Draw an Isometric Projection of a hemisphere (diameter 60 mm) placed centrally on the top horizontal rectangular face of an equilateral triangular prism (base edge = 50 mm, height = 70 mm) keeping both triangular ends parallel to V.P. Show the axis of both solids. Give all the dimensions and indicate the direction of viewing.	12
3 (i)		Draw to scale 1:1, the standard profile of the **Square thread (External) taking** pitch 60mm. Give standard dimensions. **OR** Draw to scale 1:1, the Front View and Side View of a **Hexagonal headed bolt** with diameter 30mm. Keep its axis parallel to both V.P and H.P. Give standard dimensions.	8
(ii)		Sketch free hand the front View and top View of a **60° Counter Sunk Head Rivet** of diameter 20 mm. Keep its axis vertical. Give standard dimensions. .**OR** Sketch free hand the front view and side view of a **Square-neck Stud** of size M20, keeping its axis horizontal. Give	5

	standard dimensions.	
4	Figure1 shows the details of different parts of a '**Turnbuckle**'. Assemble these parts correctly and then draw the following views to scale 1:1, inserting 50mm threaded portion of each rod inside the body of Turnbuckle. (a) Front View, upper half in section. (b) Left side View. (c) Print the title and the scale used. Draw the projection symbol. Give 6 important dimensions.	12 10 6

SEC. FRONT VIEW

BODY

SEC. SIDE VIEW

M 12X2 LH

M 12X2 RH

FRONT VIEW
ROD A

FRONT VIEW
ROD B

DETAILS OF A TURNBUCKLE

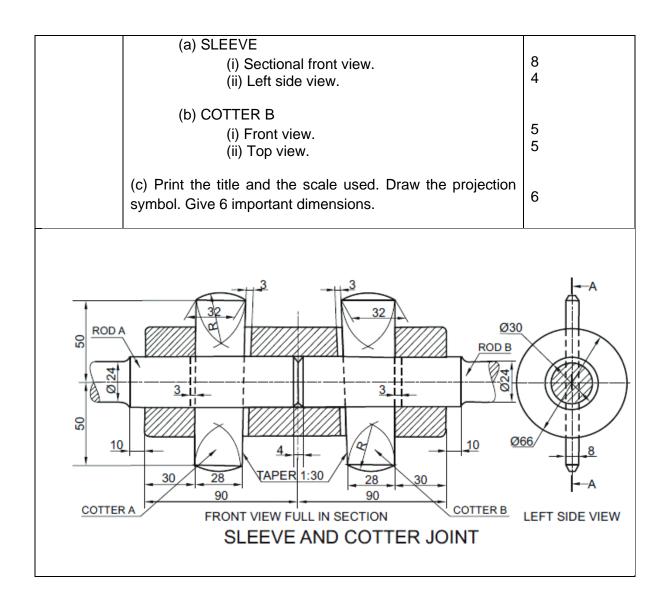|		
	Figure 1 **OR** Ffigure 2 shows the assembly of a '**Sleeve and Cotter Joint**'. Disassemble the parts correctly and then draw to its following views of the components to scale 1:1. Keep the position of components same with respect to H.P and V.P. both;	

	(a) SLEEVE	
	(i) Sectional front view.	8
	(ii) Left side view.	4
	(b) COTTER B	
	(i) Front view.	5
	(ii) Top view.	5
	(c) Print the title and the scale used. Draw the projection symbol. Give 6 important dimensions.	6

SLEEVE AND COTTER JOINT

Figure 2