Class XII
Engineering Graphics (046)
Sample Question Paper 2018-19

Time allowed: 3 Hours   **Max. 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 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) *Number your answers according to questions.*

Section-A

1.	Answer the following Multiple Choice questions. Print the correct choice on your drawing sheet.	**5**
	(i) An inclined edge in isometric projection is drawn by a) Using angle of inclination b) Drawing a line at 90^0 to the vertical c) Drawing a line at 30^0 to the horizontal d) Using the co-ordinates	
	(ii) Which one of the following is used to join shaft and hub? a) Gib b) Key c) Cotter d) Rivet	
	(iii) The angle between the flanks of a BSW thread profile is a) 55^0 b) 60^0 c) 30^0 d) 45^0	
	(iv) cut on the outer surface of a circular rod are called a) The threads Crest thread b) Root thread c) Internal thread d) External thread	

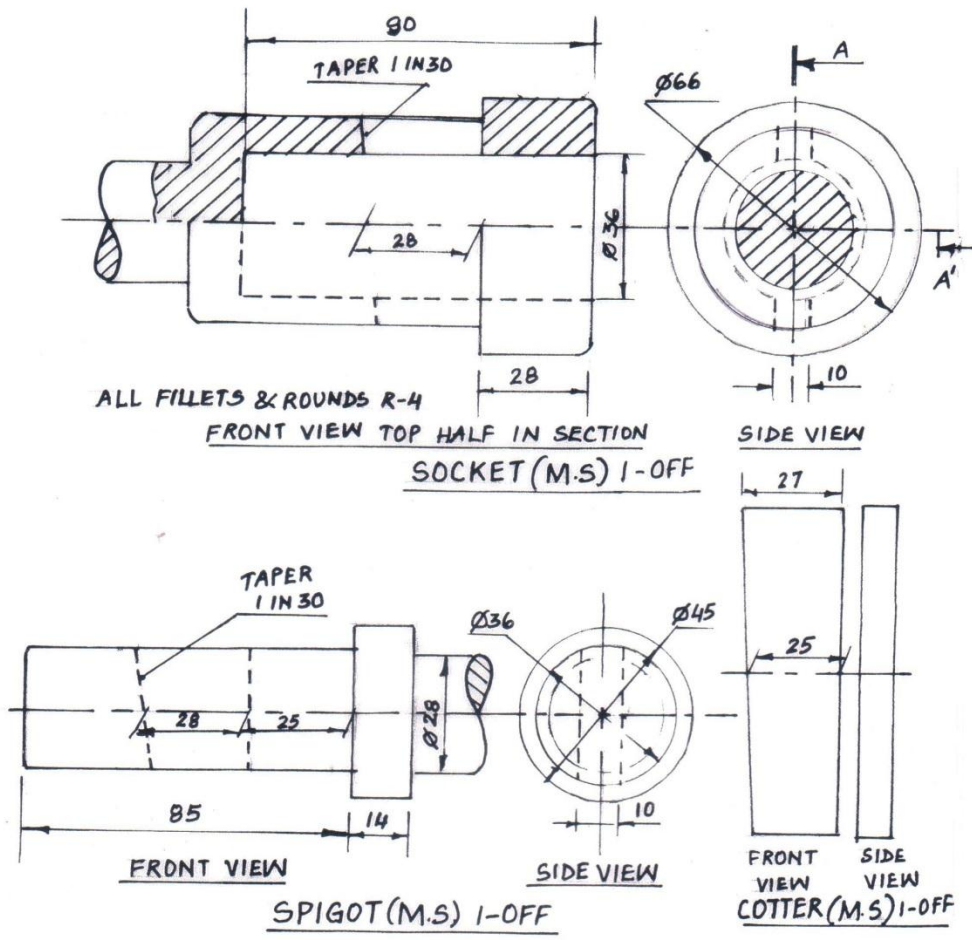|		

	(v) Which one of the following is represented by thin continuous lines?
	
	      a) Centre lines
	      b) Visible lines
	      c) Extension lines
	      d) Hidden lines	

2.	**(i)** Construct an isometric scale.	**4**
	(ii) An inverted frustum of a square pyramid (base edges 40mm and 50mm, height 35mm) is resting on H.P with two of its base edges perpendicular to V.P. Draw its isometric projection. Show the axis and indicate the direction of viewing. Give all the dimensions.	**7**
	(ii) A sphere (diameter 70mm) is placed centrally on the top hexagonal face of a hexagonal prism (base edge 25mm, height 50mm). Two of the base edges of the prism are parallel to V.P. The common axis is perpendicular to H.P. Draw the isometric projection of the combination of solids. Show the common axis and indicate the direction of viewing. Give all the dimensions.	**13**
3.	**(i)** Draw to scale 1:1, the standard profile of a **Knuckle Thread**, taking enlarged pitch as 50mm. Give standard dimensions.	**8**
	OR	
	(i) Draw to scale 1:1, the front view and top view of a **Square Headed Nut** of diameter 30mm, keeping the axis vertical. Give standard dimensions.	
	(ii) Sketch freehand the front view and top view of a **Pan Head Rivet** of size M20, keeping the axis vertical. Give standard dimensions.	**5**
	OR	
	(ii) Sketch freehand the front view and side view of a **Collar Stud** of size M20, keeping the horizontal. Give standard dimensions.	
4.	**Figure 1** shows the details of the parts of an **SOCKET AND SPIGOT COTTER JOINT**. Assemble these parts correctly, and then draw the following views using scale 1:1. **(i)** Front view, upper half in section. **(ii)** Left side view. Print the title and the scale used. Draw the projection symbol. Give 6 important dimensions.	 **14** **8** **6**
	OR	

	Figure 2 shows the assembly of a **BUSHED BEARING**. Disassemble the parts and then draw the following views of the following components to scale 1:1, keeping their position same with respect to H.P. and V.P.
	 (i) BODY
	      a) Front view, left half in section.
	      b) Side view.
	 (ii) BUSH
	      a) Front view.
	      b) Side view in section
	 Print the titles and the scale used. Draw the projection symbol. Give 6 important dimensions.
		
		 9
		 7
		
		 3
		 3
		 6

SOCKET (M.S) 1-OFF

90

TAPER 1 IN30

Ø66

Ø36

28

28

10

ALL FILLETS & ROUNDS R-4

FRONT VIEW TOP HALF IN SECTION

SIDE VIEW

SPIGOT (M.S) 1-OFF

TAPER 1 IN 30

Ø36

Ø45

Ø28

28

25

85

14

10

27

25

FRONT VIEW

SIDE VIEW

FRONT VIEW SIDE VIEW

COTTER (M.S) 1-OFF

FIG 1. SPIGOT AND SOCKET JOINT

NOTE: FIGURE NOT TO SCALE. USE THE GIVEN
DIMENSIONS FOR SOLUTIONS.

FRONT VIEW

OIL HOLE
Ø8 FOR A DEPTH OF 4,
THEN Ø4

Ø36

Ø44

Ø62

BUSH (G.M)

BODY (C.I)

R4

4

14

8

3

B

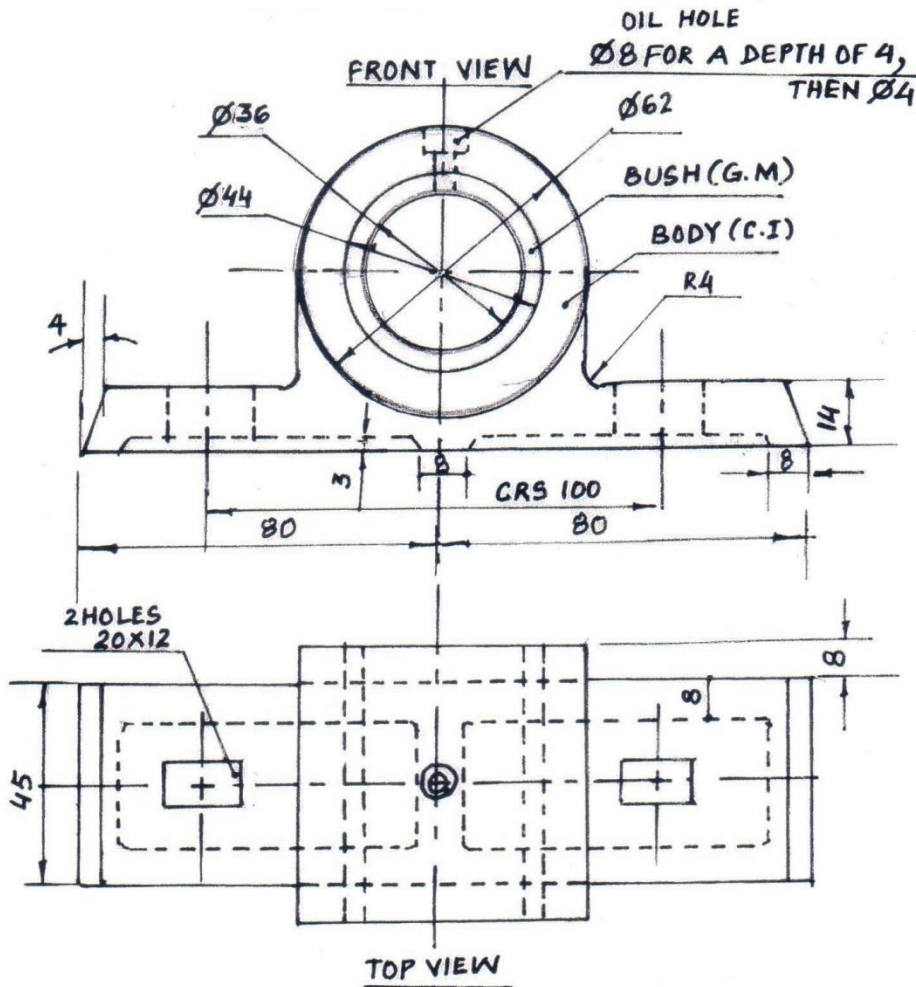CRS 100

80

80

2 HOLES
20×12

45

8

8

TOP VIEW

FIG.2 BUSHED BEARING

FILLETS & ROUNDS = 4 MM

NOTE: FIGURE NOT TO SCALE. USE THE GIVEN
DIMENSIONS FOR SOLUTIONS