

PRE-BOARD EXAMINATION, JAN 2020

Subject - Engineering Graphics

Class: XII

Maximum Marks: 70

Date: 09/01/2020

Duration: 3 Hrs

General Instructions:-

- i) Attempt all the questions.
 - ii) Use both sides of drawing sheets, 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) Accuracy, quality of construction and neatness will be duly rewarded.
 - vii) Number your answers according to your questions.
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Q.1. Answer the following multiple choice questions. Print the correct choice on your drawing sheet (1*5 = 5)

i. Which of the following describes the theory of Orthographic Projection?

- a) Projectors parallel to each other and perpendicular to the plane of projection
- b) Projectors parallel to each other and parallel to the plane of projection
- c) Projectors parallel to each other and oblique to the plane of projection
- d) Projectors perpendicular to each other and parallel to the plane of projection

ii. This joint is connecting two roads in such a way that it can transfer axial compression or tensile load.

- a) Sleeve and Cotter Joint
- b) Socket and Spigot Joint
- c) Knuckle Joint
- d) Gib and Cotter Joint

iii. It is used in railway carriage coupling screws and the neck of glass bottles

- a) Square Thread
- b) BSW Thread
- c) Knuckle Thread
- d) Metric Thread

iv.Joint is an adjustable temporary joint, which connects the ends of two rods axially when they are subjected to push/pull (tensile) forces.

a) gib and cotter joint

b) turnbuckle joint

c) Socket and spigot joint

d) pipe joint

v. thread can also be called as unified thread.

a) BIS thread /metric thread

b) square thread

c) BSW thread

d) knuckle thread

Q.2. ISOMETRIC PROJECTION

(a) Construct an isometric scale of length 90 mm. (4)

(b) A frustum of an inverted hexagonal pyramid of shorter base side 20 mm and longer base side 40 mm and axial height of 65 mm resting on its shorter end on H.P. with two of its base sides perpendicular to the V.P. Draw its isometric projection. (7)

(c) A sphere of diameter 80 mm is resting centrally on its curved surface on top of a vertical pentagonal prism, having its base edge = 40 mm and height = 80 mm, keeping one of its rectangular face, in front, parallel to the V.P. Draw an isometric projection of the combination of solids. Draw the common axis and indicate the direction of viewing. Give all the dimensions. (13)

Q.3. MACHINE DRAWING

(a) Draw to scale 1:1, the front view and side view of a T-Headed bolt of diameter 20mm. Keep the axis parallel to V.P and H.P. (8)

OR

Draw to scale 1:1, the front view, top view and side view of a hexagonal nut of size M30, keeping the axis perpendicular to H.P. Give standard dimensions.

(b) Sketch freehand the front view, side view and plan of a double-head gib key for a shaft of diameter 60mm. Give standard dimensions. (5)

OR

Sketch free hand the Front view and Side view of a collar stud with diameter 20mm, when its axis is parallel to V.P and H.P. Give standard dimensions.

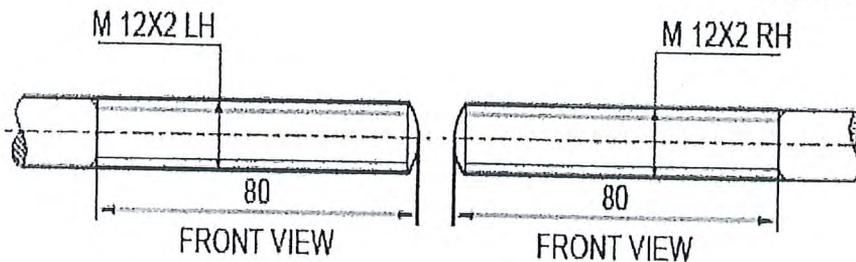
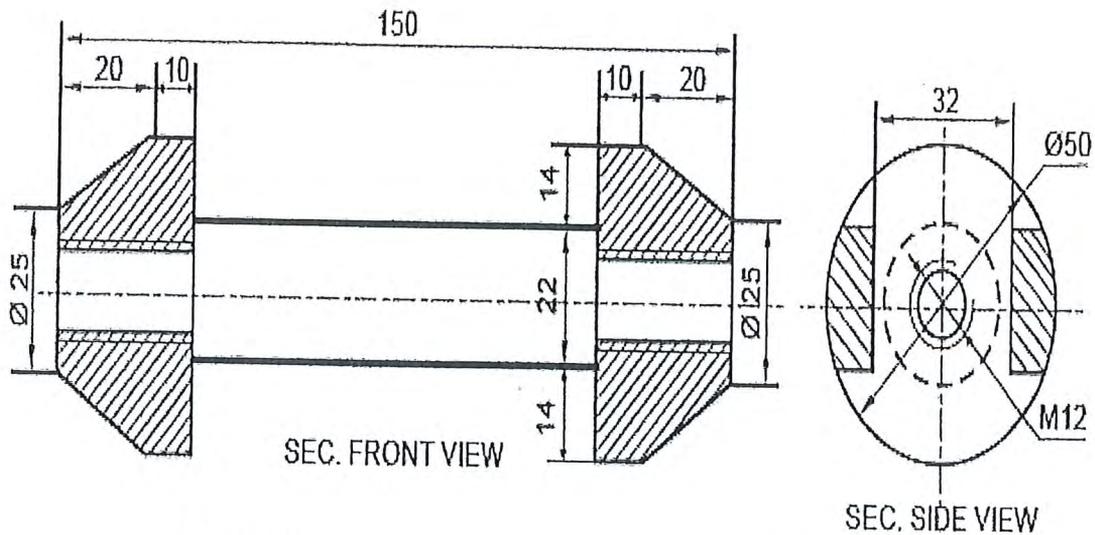
Q.4.The figure shows details of the parts of a Turnbuckle. Assemble these parts correctly and then draw its following views to scale 1:1, inserting 50mm threaded portion of each rod inside the body of Turnbuckle.

(a) Front view, upper half in section (8)

(b) Top view(8)

(c) Side view as viewed from left. (6)

Write heading and scale used. Draw projection symbol. Give important Dimensions.(6)



DETAILS OF A TURNBUCKLE

OR

The two views of a Gib and Cotter Joint are given. Disassemble the parts as give below:

(a) FORK END

(i) Front view upper half in section and top view without section.

(b) EYE END

(i) Front lower half in section and top view.

(c) GIB

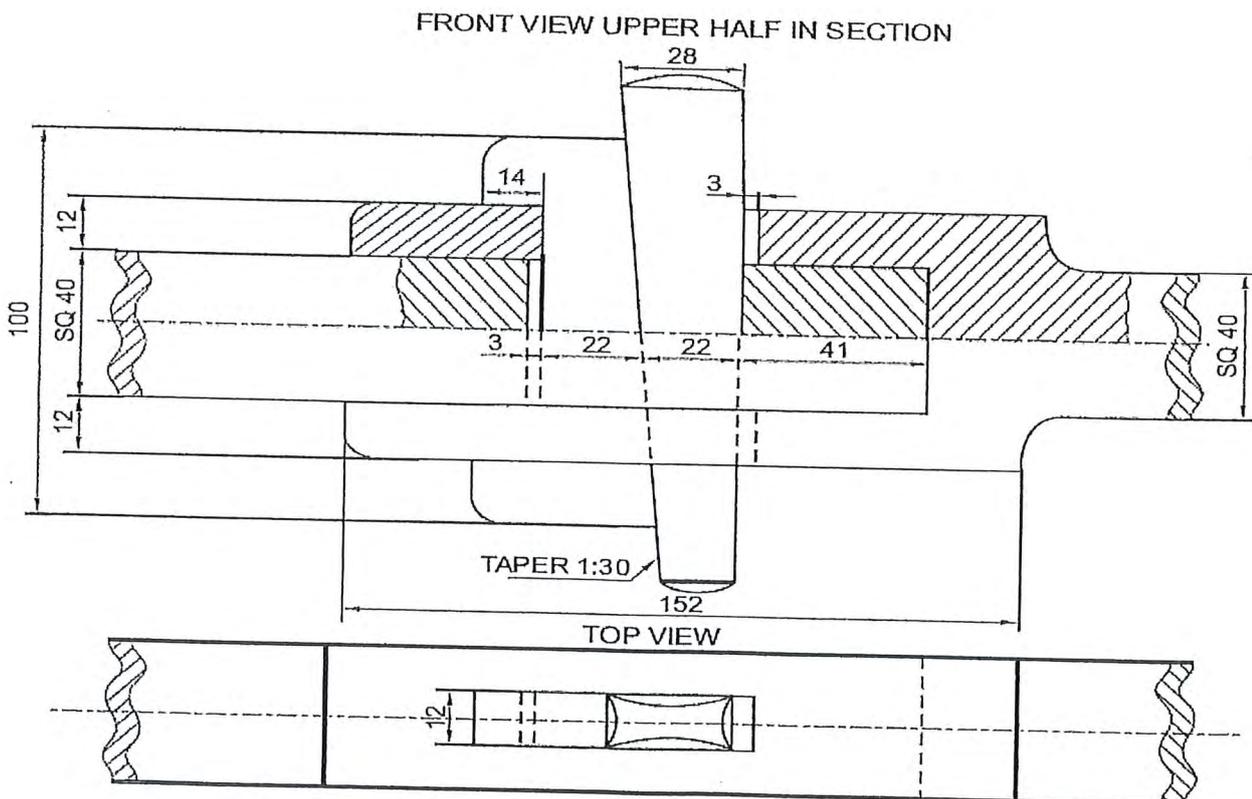
(i) Front view and top view

(d) COTTER

(i) Front and top view.

Print headings of the above views and scale used. Draw projection symbol. Give six

important dimensions.



GIB AND COTTER JOINT