

**SUR - Technical Drawing**

**T031**

**Thursday, 17/11/2016**

**08:30 – 11:30**

**WORKFORCE DEVELOPMENT AUTHORITY**



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**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2016,  
TECHNICAL AND PROFESSIONAL STUDIES**

**EXAM TITLE: Technical Drawing**

**OPTION: Surveying (SUR)**

**DURATION: 3hours**

**INSTRUCTIONS:**

The paper is composed of **three (3) main Sections** as follows:

**Section I: Twelve (12) compulsory questions. 55 marks**

**Section II: Attempt any three (3) out of five questions. 30 marks**

**Section III: Attempt any one (1) out of three questions. 15 marks**

**Note:**

***Every candidate is required to carefully comply with the above instructions. Penalty measures will be applied on their strict consideration.***

**Section I. Twelve (12) Compulsory questions****55marks**

- 01.** What is a “contour line” in drawing? **2marks**
- 02.** Outline Six (6) elements to be shown on the title block. **6marks**
- 03.** Write the letters “E, F and R” in uppercase block letters. **3marks**
- 04.** What do you understand by enlarging scale? **2marks**
- 05.** (a) The system used for showing the relief on a topographic map must fulfill two purposes. Try to list them.
- (b) What is the primary unit system of measurement for civil engineering drawing and design? **4marks**
- 06.** Outline five (5) requirements of a good drawing? **5marks**
- 07.** Give the standard size of drawing board according to the Indian Standard Institution. **6marks**
- 08.** Distinguish the correct from the false statements. **6marks**
- ◆ A tetrahedron has 4 faces, 6 edges and 4 corners
  - ◆ Development of tetrahedron consists of three numbers of triangular faces
  - ◆ Perspective projection gives the true shape of the object
  - ◆ All the projections converge at a point known as Station Point in perspective view
  - ◆ Two views are sufficient for showing the details of any object
  - ◆ A plane surface has no thickness
- 09.** Fill in the blanks with appropriate word (write the whole sentence). **6marks**
- a. The front view is obtained when an object is projected on .....plane
  - b. The line joining the top view and front view of a point is always perpendicular to XY and is called.....
  - c. The abbreviation BIS stands for.....
  - d. A line is generated as.....of a moving point
  - e. The horizontal distance between points on the consecutive contour is known as....., and the constant vertical distance between adjacent contour lines is known as .....
- 10.** Show by drawing the circle and its terminology. **5marks**
- 11.** Define the drawing instruments below: **5marks**
- |                 |                |
|-----------------|----------------|
| a. T-Square     | d. The compass |
| b. Set-square   | e. Erasers     |
| c. Drawing pins |                |
- 12.** Choose and outline five (5) types of polygons according to the number of sides. **5marks**

**Section II. Choose and answer any three (3) questions.**

**30marks**

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- 13.** After defining a Triangle, give the types of triangles you know and draw a triangle to show all its parts (Use the geometrical terminology). **10marks**
- 14.** Illustrate with the help of a drawing the following circle terminology and precise the meaning of the circle and each of the following elements:  
**“Tangent; Normal; Diameter; Chord; Radius; Circumference; Arc”** **10marks**
- 15. (A)** The art of writing alphabets without the use of instruments is called freehand lettering. Give the styles of this art and their sub-types?  
**(B)** Spacing is the distance which is to be left between two adjacent letters in types of lettering. What are the rules for the space between two lines? **10marks**
- 16. (A)** Name the types of the following scaling: (a) 1:50; (b) 1:1; (c) 5:1  
**(B)** What do you understand by arc? Give the process followed to find the center of an arc. **10marks**
- 17.** Drawing is the way of communication between the person who draws and the interpreter of the drawing. Highlight the careers where we need drawings and give the name of the drawings related.  
Give the main uses of scales in engineering practices. **10marks**

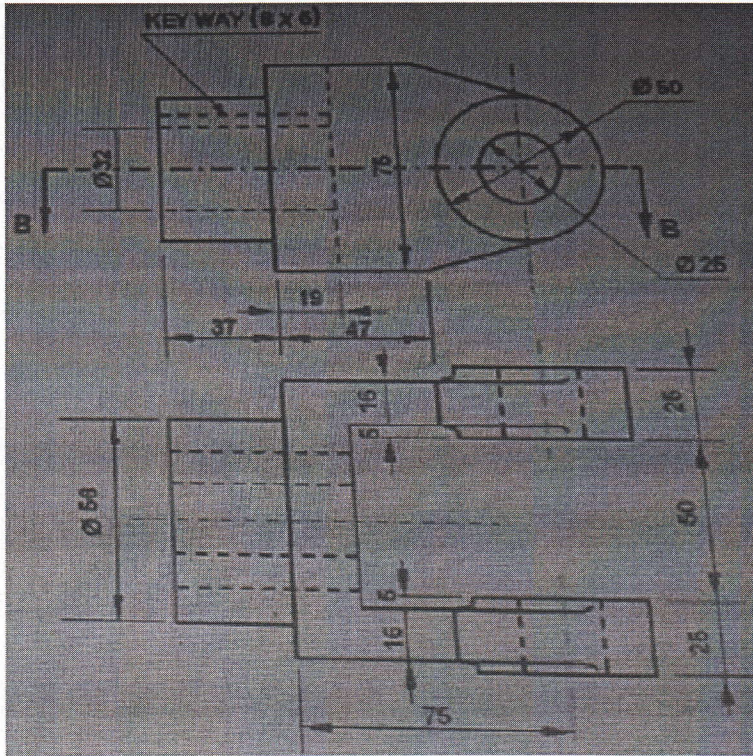
**Section III. Choose and answer any one (1) question.**

**15marks**

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- 18.** (A) In drawing the selection of a paper and pencil are the important things which help you to have a proper drawing. Classify the types of papers according to their measurements in mm. (B) Give the difference between a photo and a map. (C) Give the process to draw a circle or an arc of given radius to touch to given converging lines. **15marks**



19. Front view and top view of an object are given on a figure below.

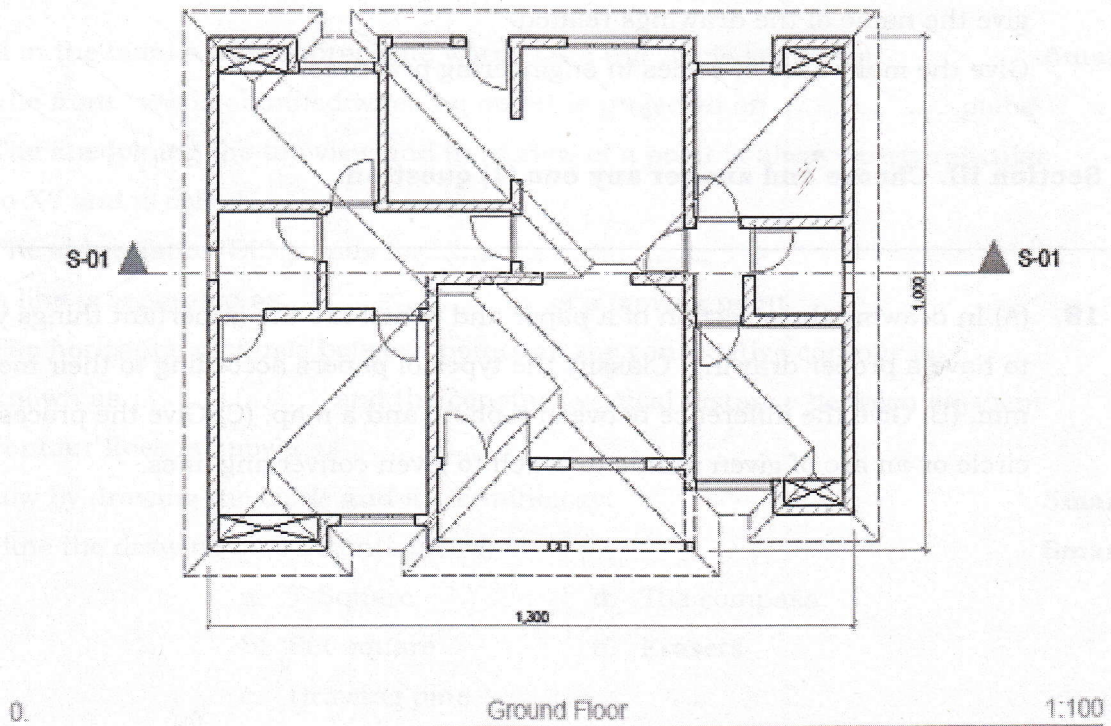


Redraw the front view.

15marks

20. Observe the following plan and make the section S01.

15marks



the roof is starting at 3000 mm and has 25% as the slope, the main lintel is at 2400mm height, the foundation is 800mm deep.