

GME – Technical Drawing & DCG

T081

Thursday, 29/11/2018

08:30 – 11:30 AM

WORKFORCE DEVELOPMENT AUTHORITY



P.O. BOX 2707 Kigali, Rwanda Tel: (+250) 255113365

**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2018,
TECHNICAL AND PROFESSIONAL STUDIES**

EXAM TITLE: TECHNICAL DRAWING AND DCG

OPTION: General Mechanics (GME)

DURATION: 3 hours

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

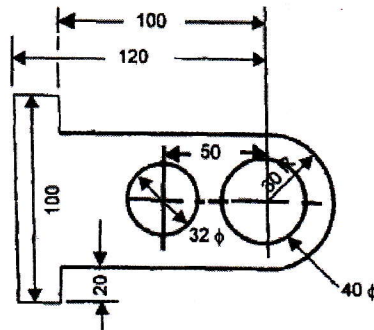
Note:

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

55 marks

- 01.** Give the application of the following drawing instruments:
 a. T – square.
 b. Protractor:
 c. French curves
 d. Drawing pins **(4 marks)**
- 02.** Without using a protractor, draw a triangle ABC having base angles on a 60 mm long line as base 75° and 30° . Let construction lines subsist. **(5 marks)**
- 03.** A point P is 25 mm from a line AB. Q is a point in AB and is 50 mm from P. Draw an arc passing through P and tangent to AB at Q. **(5 marks)**
- 04.** Explain how cylinder, cone and sphere are solid of revolution. **(3 marks)**
- 05.** Give four possible positions of a line to another line. **(4 marks)**
- 06.** On the figure below, violation of some of the principles of dimensioning is committed. Make correction. **(5 marks)**

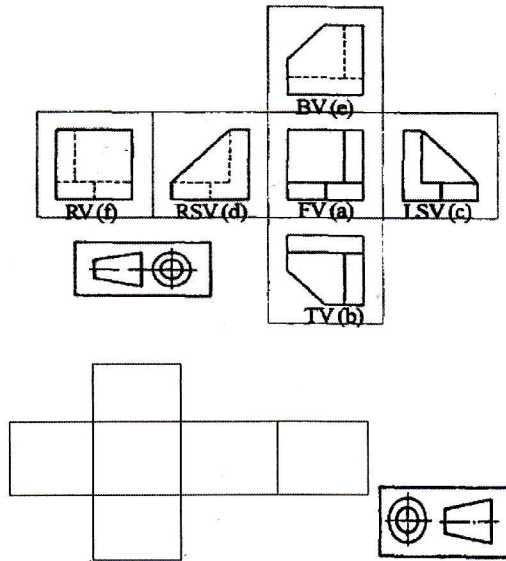


- 07.** Interpret the following symbols read on a drawing for manufacturing process.

Symbol	Meaning

(5 marks)

08. Give the possible positions of straight lines with respect to V.P and H.P in the first quadrant. (4 marks)
09. Fill the provided views of an object according to the indicated symbol of projection. (5 marks)



10. Draw the projections of a straight line CD 40 mm long, parallel to H.P. and inclined at 35° to V.P. The end C is 20 mm above H.P. and 15 mm in front of V.P. Report all the dimensions. (5 marks)
11. Complete the table with the corresponding shape —form and positional tolerance symbols.

Geometric characteristic	Symbol
Flatness	
Concentricity	
Cylindricity	
True position	
Angularity	

(5 marks)

12. Draw ΔABC , with $AB = 40$ mm, $BC = 60$ mm and $AC = 50$ mm. Construct circle circumscribing the triangle ABC. (5 marks)

Section II. Choose and Answer any three (3) questions

30 marks

13. A pentagonal prism with side of base 30 mm and axis 60 mm long is resting on its base on H.P such that one its rectangular faces is parallel to V.P and 15 mm away from it.

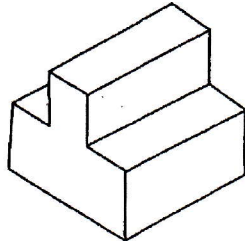
Draw the projections of the prism.

(10 marks)

- 14.** Draw the projections of a cylinder of base 30 mm diameter and axis 45 mm long when it is resting with its base on H.P and axis 20 mm in front of V.P

(10 marks)

- 15.** Give the three orthographic (Front, top and side) views of the figure below.



(10 marks)

- 16.** A hexagonal prism of base of side 30 mm and height 60 mm is resting on its base on H.P.

Draw the isometric drawing of the prism.

(10 marks)

- 17.** Draw the views of the pyramid assuming that it is resting on H.P and with an edge of the base parallel to V.P

(10 marks)

Section III. Choose and Answer any one (1) question

15 marks

- 18.** A cylinder of base diameter 40 mm and height 60 mm rests on its base on HP. It is cut by a plane perpendicular to V.P and inclined at 30° to H.P and meets the axis at a distance 30 mm from base.

Draw the front view, Sectional top view and the true shape of section.

(15 marks)

- 19.** A cone of base diameter 50 mm and axis length 75 mm, resting on H.P on its base is cut by a plane inclined at 45° to HP and perpendicular to VP and is bisecting the axis.

Draw the front view, sectional top view and the true shape of this section.

(15 marks)

- 20.** A pentagonal prism of base side 30 mm and axis length 60 mm is resting on HP on one of its rectangular faces; with its axis perpendicular to V.P. it is cut by a plane inclined at 50° to V.P and perpendicular to H.P and passing through a point 25 mm from rear base of the prim.

Draw its top view; sectional view and true shape of section

(15 marks)