

Name _____

Index No. _____

2901/103
ENGINEERING DRAWING, WORKSHOP
TECHNOLOGY, EHS AND POLICY
FRAMEWORK

Candidate's Signature _____

June/July 2013

Date _____

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN PETROLEUM GEOSCIENCE

ENGINEERING DRAWING, WORKSHOP TECHNOLOGY,
EHS AND POLICY FRAMEWORK

3 hours

INSTRUCTIONS TO CANDIDATES

Write your name and index number in the spaces provided above.

Sign and write the date of the examination in the spaces provided above.

You should have drawing instruments for this examination.

*This paper consists of **FOUR** Sections; **A, B, C** and **D**.*

*Answer a total of **FIVE** questions - at least **ONE** question from each Section in the spaces provided in this question paper.*

Marks to each part of a question are as indicated.

*Do **NOT** remove any pages from this booklet.*

Candidates should answer the questions in English.

For Examiner's Use Only

Question	1	2	3	4	5	6	7	8	TOTAL
Marks									

This paper consists of 16 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A: ENGINEERING DRAWING

1. Figure 1 shows an isometric view of a clamp fitting. Draw full size in third angle projection, the following views:

- (i) front elevation in the direction of arrow X;
- (ii) plan;
- (iii) end elevation in the direction of arrow Y;
- (iv) a sectional elevation viewed from the cutting plane A-A.

(20 marks)

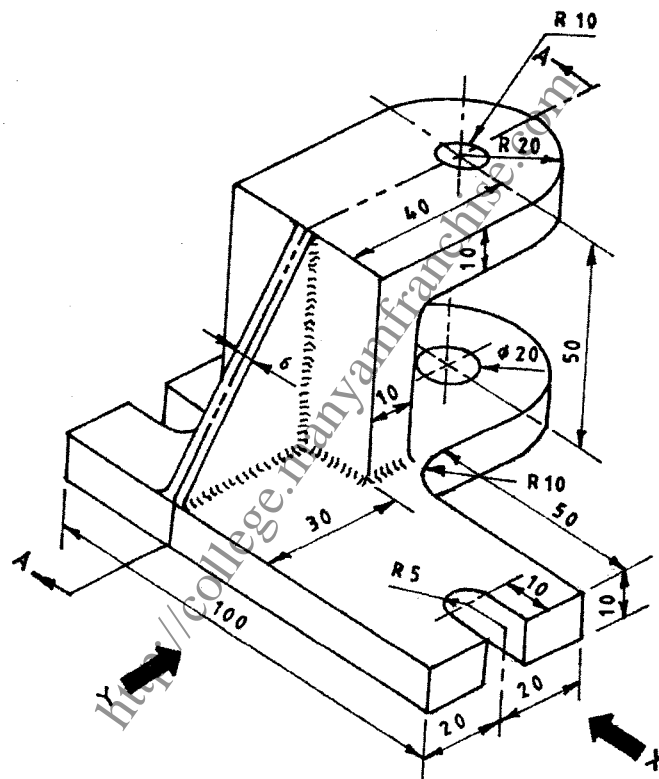


Fig 1.

2. Figure 2 shows the intersection of cylinder and a square pyramid meeting at an angle. Copy the given view and construct the:

- (i) plan;
- (ii) interpenetration curve;
- (iii) end elevation;
- (iv) development of the cylinder.

(20 marks)

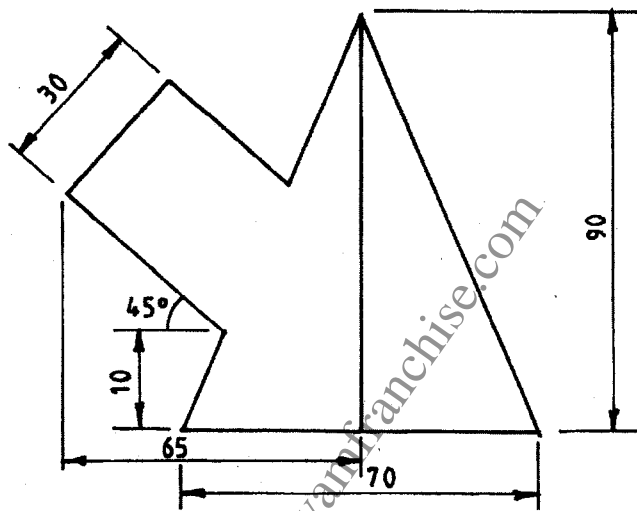


Fig. 2

SECTION B: WORKSHOP TECHNOLOGY

3. (a) Define soft soldering. (2 marks)
- (b) State:
- (i) **two** main functions of flux used in soft soldering;
- (ii) **two** advantages of brazing. (4 marks)
- (c) Explain the procedure of soft soldering. (14 marks)
4. (a) Draw a labelled diagram of a pillar drilling machine. (6 marks)
- (b) Explain the effect of the following incorrect grinding of a twist drill used in a drilling machine:
- (i) clearance angle too small;
- (ii) clearance angle too large. (4 marks)
- (c) Draw a labelled diagram of a quick return mechanism of a shapping machine. (10 marks)

SECTION C: ENVIRONMENTAL HEALTH AND SAFETY

5. Describe the following steps of solid waste audit in the petroleum industry under the following heading:
- (a) Planning. (6 marks)
- (b) Collection. (4 marks)
- (c) Sorting. (6 marks)
- (d) Analysis. (4 marks)
6. (a) Explain how the following environmental strategies can be applied in a petroleum industry:
- (i) pollution prevention; (5 marks)
- (ii) cleaner production. (5 marks)
- (b) Cite the benefits of:
- (i) pollution prevention; (5 marks)
- (ii) cleaner production. (5 marks)

SECTION D: POLICY FRAMEWORK

7. Discuss the following consequences arising out of improper land use in Kenya:
- (a) deterioration of livelihoods; (5 marks)
 - (b) insecurity; (5 marks)
 - (c) human wildlife conflicts; (5 marks)
 - (d) land degradation. (5 marks)
8. (a) State the human rights conferred by environmental management and coordination Act (1999) in respect to environment. (4 marks)
- (b) Section 13 of the environmental management and coordination Act (1999) is essential in enforcing the provisions of the Act as it defines "Environmental Offences" and "Penalties" in respect of such offences. In view of this state environmental offences relating to:
- (i) Environmental Impact Assessment (EIA). (5 marks)
 - (ii) Environmental Inspection. (5 marks)
- (c) State the legal penalties related to (b) (i) and (ii) above. (6 marks)