ZIMBABWE

MINISTRY OF HIGHER AND TERTIARY EDUCATION, INNOVATION, SCIENCE AND TECHNOLOGY DEVELOPMENT

HIGHER EDUCATION EXAMINATIONS COUNCIL (HEXCO)

NATIONAL CERTIFICATE

IN

MVBR, MOTOR CYCLE MECHANICS, DIESEL PLANT FITTING, MOTOR MECHANICS, AUTO-ELECTRONICS, PRECISION MACHINIING

SUBJECT: Engineering Drawing

PAPER NO: 346/13/S04

DURATION: 3 hours

MARCH/APRIL 2020 EXAMINATION

REQUIREMENTS

A3 drawing papers, A4 drawing papers, pencils, drawing instruments

INSTRUCTIONS TO CANDIDATE

1. Section A: Answer all questions. [10 marks]
2. Section B: Answer any five questions. [50 marks]
3. Section C: Compulsory question. [40 marks]

This paper consists of 5 printed pages.

SECTION A

QUESTION 1

1.1 State the measurements of an A2 size sheet of paper. (1 mark)

1.2 Hatching lines are drawn at ..... degrees to the horizontal and ..... mm apart. (2 marks)

1.3 In 3rd angle orthographic projection the plan is drawn ..... the front elevation. (1 mark)

1.4 Give the meaning of the following abbreviations:

i) PCD
ii) CHAM (2 marks)

1.5 Inclined axis in oblique projection are drawn at ..... degrees to the horizontal. (1 mark)

1.6 Define interchangeability in engineering drawing. (1 mark)

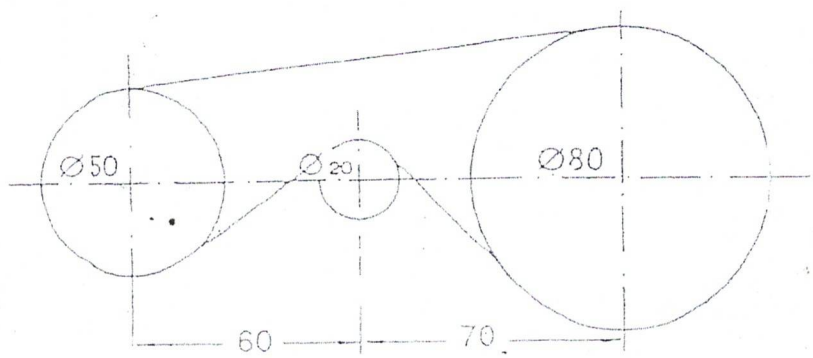
1.7 Give the ratio of sides of all the 'A' series sheets of paper. (1 mark)

1.8 According to a scale 1:4 a distance of 30*mm* on the drawing is ..... on actual object. (1 mark)

SECTION B

QUESTION 2

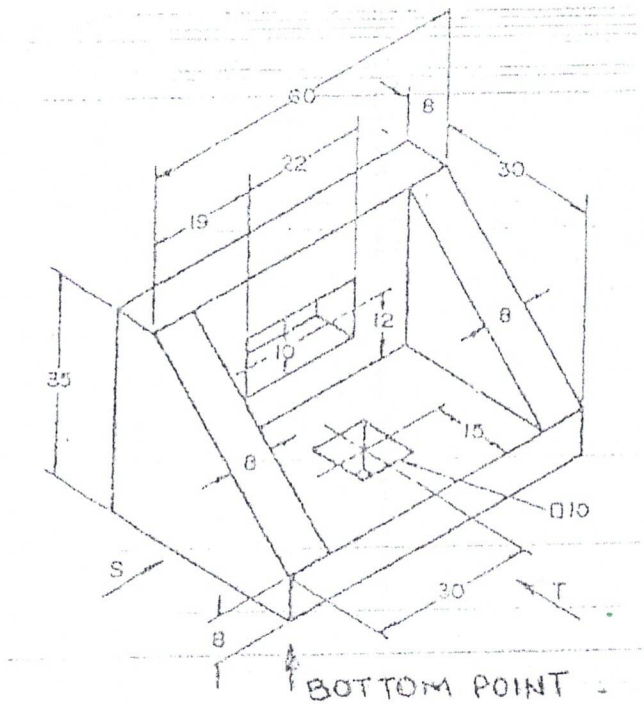
Draw the following diagram showing all constructions for obtaining the points of contact between the wheels and the belt.



(10 marks)

QUESTION 3

Draw the diagram shown below to a scale of full size in Isometric projection.



(10 marks)

QUESTION 4

With the aid of sketches show the conventional representation of the following:

a) An external thread

b) An interrupted view of a hollow shaft

c) Square on a shaft

d) Holes on a circular pitch

e) Bearing on a shaft

(10 marks)

QUESTION 5

Name any five methods of dimensioning that are used in engineering drawing.

(10 marks)

QUESTION 6

Draw a regular octagon, using the set square method, given that the distance across corners AC=50. Show all the constructions. (10 marks)

QUESTION 7

Using the four centre method draw an ellipse whose major and minor axis are $100mm$ and $50mm$ respectively. All construction lines should be shown. (10 marks)

QUESTION 8

Give the standard symbols for the following:

a) Battery

b) Earth

c) Fuse

d) Resistor

e) Switch (10 marks)

SECTION C [40 marks]

QUESTION 9

Below is a diagram of a support bracket. Using half full size scale, draw the following views, in orthographic first angle projection.

a) Sectional front view, viewed from A on FF

b) A sectional plan

c) An end elevation as viewed from B

d) Include 6 dimensions and a title block

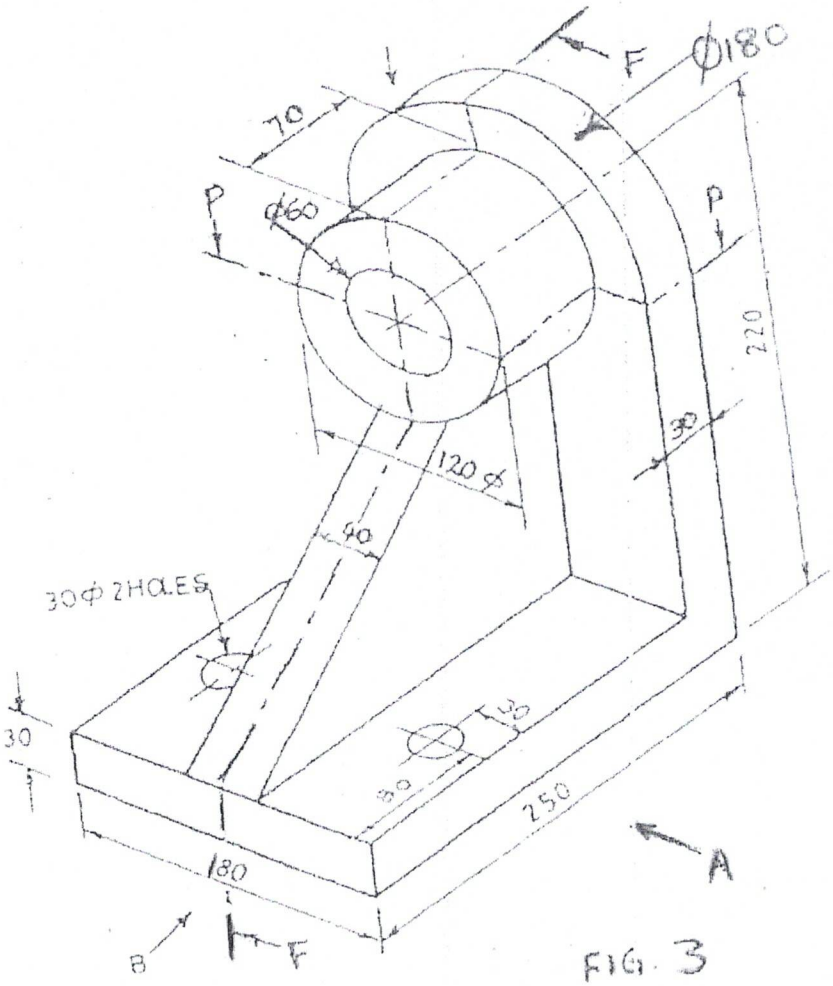


FIG. 3

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