2310/304
2312/304
CARTOGRAPHY
Oct. / Nov. 2022
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN PHOTOGRAMMETRY AND REMOTE SENSING
DIPLOMA IN LAND SURVEYING**

CARTOGRAPHY

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
    Answer booklet;
    Scientific calculator;
    Drawing instruments.
*Answer **FIVE** of the following **EIGHT** questions.*
All questions carry equal marks.
Maximum marks for each part of a question are as indicated.
Candidates should answer the questions in English.

This paper consists of 3 printed pages.

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

    Turn over

1. State **five** differences of each of the following:

    (a)   survey plants and RIM;

    (b)   Atlas maps and Topographic maps.

                                                                                    (20 marks)

2.   (a)   (i)   Define map generalization.

            (ii)   Outline the options of map generalization.

                                                                                       (6 marks)

    (b)   Explain the use of a sketch master in mapping.   **(8 marks)**

    (c)   Outline the stages of photographic process in map reproduction.   **(6 marks)**

3.   (a)   With the aid of a labelled diagram, outline the main elements of a reproduction camera.

                                                                                      (12 marks)

    (b)   The following parameters are used for calculating scale change on a process camera

                    Final scale - 10,000

                    Image distance - 60 cm

                    Object distance - 120 cm

        Determine:

        (i)   original scale;

        (ii)   focal length of the lens.

                                                                                           (8 marks)

4.   (a)   Outline **four** methods of producing text on maps.   **(8 marks)**

    (b)   Describe **three** types of plastic materials mostly used in the production stages of mapping stating their properties.   **(12 marks)**

5.   (a)   With the aid of illustrations, explain how the following relief effects are created:

        (i)   slope hachures;

        (ii)   shadow hachures.

                                                                                        (14 marks)

    (b)   Using illustrations, distinguish between the following as used in relief representation to calculate slope:

        (i)   horizontal equivalence;

        (ii)   vertical equidistance;

        (iii)   gradient.

                                                                                            (6 marks)

6. (a) Using illustrations, show the classes of cartographic symbols according to shape giving advantages and disadvantages. (12 marks)

(b) With the aid of sketches explain **two** levels of measurements in which data can be sub-divided. (8 marks)

7. (a) With the aid of a diagram, describe the structure of UTM grid system. (12 marks)

(b) In the process of map compilation, the task of data collection is core. Discuss. (8 marks)

8. (a) Describe the following as used in map projection:

(i) great circle;
(ii) graticule.

(4 marks)

(b) Describe the classification methods of map projections. (16 marks)

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