4. STATISTICAL METHODS

1. a ii) - Relatively more difficult to draw/time consuming.
   - Long bar not easy to compare.
   - Number of components to be represented is limited
   - Fluctuation in production over a period of time are not easy to see at a glance

2. (a) ii) - A better impression of totality and individual contribution.
   - Differences in quantities are easier to see.
   - Easy to read the bars as they start from a common baseline.
   - The value of each bar is easily determined.

   b) - Kenya is not self sufficient in the commodities due to the high population.
   - Frequent drought which lead to crop failure cause food shortage thus importation to supplement local produce
   - Increased cost of farm inputs leading to low production hence the need to import.
   - Occasional illegal imports/smuggling /hoarding of the commodities creates artificial shortage hence the need to import these commodities.
   - Pests and diseases reduce the amount of grain harvested thus the need for importation.
   - The requirements to maintain the trading quotas among the countries African trading blocks that Kenya imports some of the commodities in exchange of her own imports

3. a i)

DISTRICT / YEAR	1982	CT	1992	CT	2002	CT
TRANS NZOIA	24	24	26	26	40	40
KIAMBU	23	47	25	51	31	71
MERU	25	72	27	78	32	103
BUNGOMA	12	84	14	92	20	123

Milk production in 000 units in selected Districts in Kenya

4. a i) - The year 2009 recorded the highest network coverage in the country
   - The year 2007 held the lowest network coverage and uncovered areas respectively since 2009
   - Safaricom network has been the leading in terms of network coverage since 2007 to 2009
   - YU network has been the least in terms of network coverage

   ii) - Suitable for absolute totals in different periods
   - Gives a good visual impression of the totality
   - Easy to interpret

5. a ii) – It's easy to compare the various components within a circle.
   - They are simple to construct after angles have been calculated.
   - Give clear visual impression of individual components.
   - It's easy to determine the value of each component since the size, the sector is proportional to the value it represent.

   b) $= 130,000 – 70,000 = 60,000$ √1 mk

   % increase $= \dfrac{60,000}{70,000} \times 100 = 600$

   $= 85 \frac{5}{7} \%$ √1 mk

6. a) Gold $= \frac{26}{100} \times 360 = 93.6 = 94^0$√ 1
   Fluorspar $= \frac{14}{100} \times 360 = 50.4 = 50^0$√ 1
   Soda Ash $= \frac{32}{100} \times 360 = 115.2 = 115^0$√ 1
   Zinc $= \frac{28}{100} \times 360 = 100.8 = 101^0$√ 1

   b) - Good in showing variant types of data√
   - Easy to draw√
   - Easy to interpret √
   - Easy to make comparisons√

5. MAPS AND MAP WORK
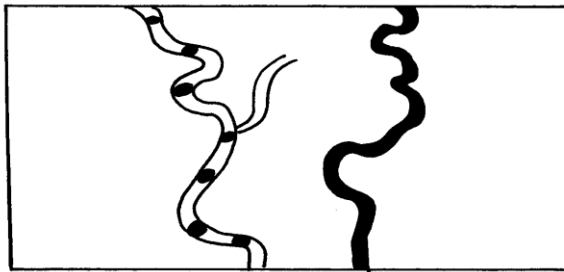
1. a i) - Kisumu east 116/2
   - Muhoroni 117/1
   - Lumbwa 117/2
   - Nyakach 116/4
   - Kericho 117/4
   - Kisii 130/2
   - Chemagel 131/1
   - Chapatarakwa 131/2

   b i) - Presence of tea plantation-tea grows under heavy amount of rainfall
   - Presence of forest cover
   - presence of permanent river

   b ii) - R. Kibol
   - Scrub vegetation
   - Tea plantation

   c i)

   -all weather road loose surface

   -district boundary

   d i) - the major river is R.yurith
   - river are permanent
   - the river are few

   ii) - Farming
   - Forestry
   - Mining

3. a) (i)- $0^0 20^1 S 35^0 1 91 E$
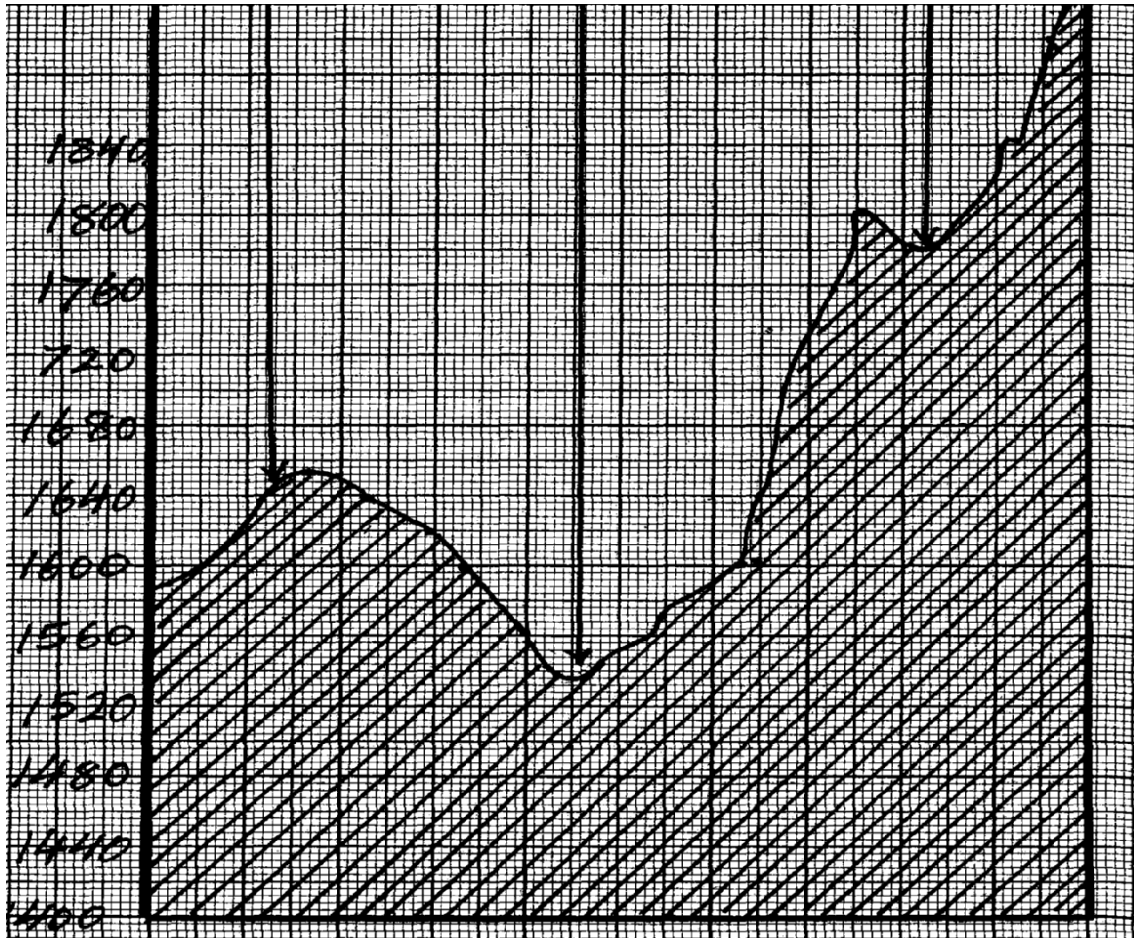   ii) - Power transmission line

   b i) - Trigonometrical station
   - Contours
   - Hunhures e.g. along road in grid square 6867

   ii) - 3.9Km ± 0.1 (3.8km – 4.0km)

   iii) - $180 + 35 = 215^0 \pm 1^0 = (214^0 – 216^0)$

3. a)

(graph with vertical axis values: 1840, 1800, 1760, 1720, 1680, 1640, 1600, 1560, 1520, 1480, 1440, 1400)

ii) $VE = {}^{VS}/_{HS} = {}^{1}/_{8000}/{}^{1}/_{50000} = {}^{1}/_{8000} \times {}^{50000}/_{1}$

4.   a i)   - north west√√
        ii)   - 000°/360°√√
        iii) - trigonometrical station: secondary√
        - trigonometrical station :other√
    iv) full squares=28
        ½ squares=26x ½ =13
        41x1000m=41,000metres√√
    b iii)   V.E=$\underline{VS}$
                        GS

            = $\underline{1}$
            10,000
            $\underline{1}$
            50,000
        = $\underline{1}$ X $\underline{50,000}$
                10,000   = 5√

c).

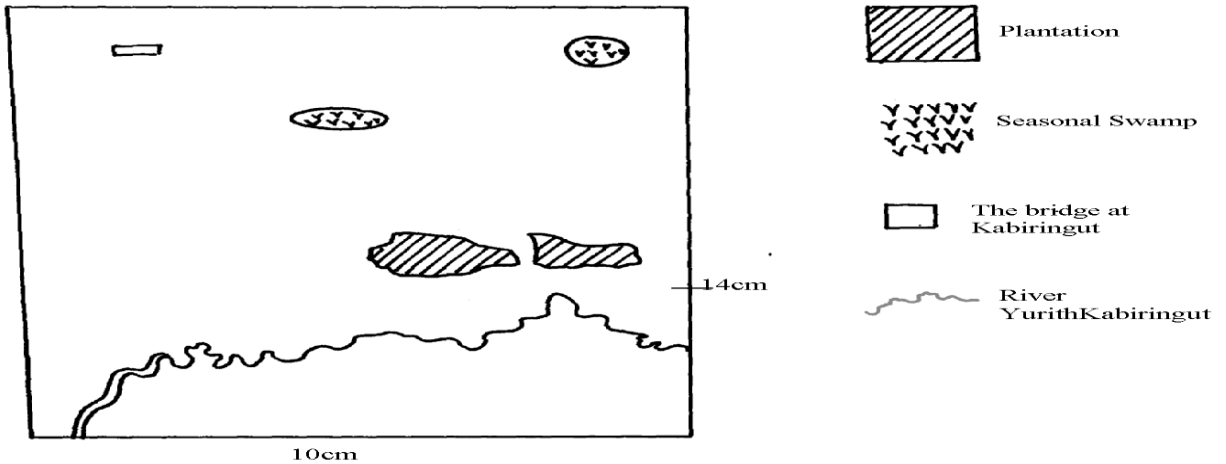| CROP	EVIDENCE
-coffee	-coffee mill (2347)
-Grains(maize, millet, sorghum	-mills, posho mill (4255)
-tea	-tea estate, tea nursery, tea factory.(1x2=2mks)

c.

5.   a) X – Savanna grass land

Y – Tropical rain forest
b)   - Has very low temperature
          - Thin soils and bare rock
          - Soil is permafrost
c)- Mt.Kenya
6.   a i)   - 2020m
          ii) 15' (35°00' to 35°15')
    iii) 36.0km^2 (35 to 37km^2)
     iv) 28755548
. b i) & ii)

KEY

Plantation

Seasonal Swamp

The bridge at Kabiringut

River YurithKabiringut

14cm

10cm

iii) New scale = map scale x scale factor of reduction
        = $^1/_{500m}$x ½ = $^1/_{100000}$= 1: 100000
c) - The forestal area has few/no all weather roads because it is reserved for the
    growing of trees
    - The all weather roads avoid high hills/steep slopes because construction on/along steep
    slopes is difficult for example the road from Maraboi through Tamungo to Marumbasi
    detours to avoid steep slopes and hills.
    - The roads avoid swamps because of their water-logged conditions for example the road
    from Ainaboi through kabionga to Kiptula avoids the papyrus swamp
    - the roads avoid river valleys and only crosses them unavoidable
    - the roads are constructed on gentle slopes as it is easier to construct them as seen by
      the   construction of roads on the gentler slopes to the East and no all weather roads
      on the ridge   east of river Sondo
    - All weather roads are constructed on ridges/spurs/water sheds due to the gentleness of
       the slopes for example the road from Maragwa to Maraboi/the road from Ainabkoi
       to Kerenga
d i) - Cool temperature as evidenced by the high relief – over 1700metres makes the area
     suitable for growing of tea bushes.
       - The gentle/indulating slopes as evidenced by widely spread contours allows for proper
          drainage of soils/mechanization making it ideal for tea farming.
       -The high rainfall as evidenced by forest vegetation/many permanent rivers originating from
       the area which is suitable for ea growing
       - Presence of labor as seen by the fairly dense settlement/labour lines to work in the
        tea farms
       - Transport is avoidable as seen by all weather roads for transportation of tea from the
         farms/transportation of labour
     d ii) Coffee evidence coffee mill in grid square 2347
7.   a i)   1: 50,000
                        10000cm represent 1 km
                        = 50,000   = 0.5

$$100000$$
1 centimeter represents 0.5 kilometers

   ii)   - $35^{\circ}00^{1} - 35^{\circ}15E$

   iii)   - $120^{\circ} + 1^{\circ}$

. b) - Wood land

- Riverine trees

- Papyrus

- Scattered trees

- Scrub

   c ii)   - River Sondo is the main river

      - River Yurith flows S. westwards

      - Papyrus swamp present to the north and south

      - Yurith river has meanders

      - Rivers are permanent

      - Most rivers show a dendritic pattern

      - Dams in grid square 4349 and 4954

   d)   - Shops and trading centre

      - Presence of roads foot paths

      - Dense settlements provide market

      - Police post for security

8.   a i) -Rift valley

      -Nyanza

   ii)   -south west direction

   iv) 420557

   b i)   - 4.00km=0.1(3.9 to4.1)km

    ii)   -use of place names

      -grid reference

     -compass direction

   iii) -forest

    -woodland

    -scrubs

    -riverine trees

     -papyrus swamp

   iv) -Tea growing-evidenced by tea factory/tea estates

      -live stocks keeping-evidence by veterinary livestock centre

     -cereal crops growing-evidenced by posho mill

(c)-Gentle have dense settlement due to gentle gradient which encourages settlement as
     evidence by spaced contours.

-Relatively flat areas have little or no settlement due to pour drainage as evidenced by papyrus swamp

-Areas with steep slopes in the western area hear Kebenet have few settlements as evidence by closely spaced contours

-There has dense settlements due to fertile soil as evidenced by the growing of tea in estates

   (d) -there are several permanent rivers in the area

    -rivers Sondu and Yurith are the major rivers in the area

    -rivers with their tributaries for dendritic drainage pattern

    -there is a seasonal swamp in grid square 3656

    -in the west, rivers flow north-west wards in the south they flow westwards

    -there are fewer rivers in the north than in the south-

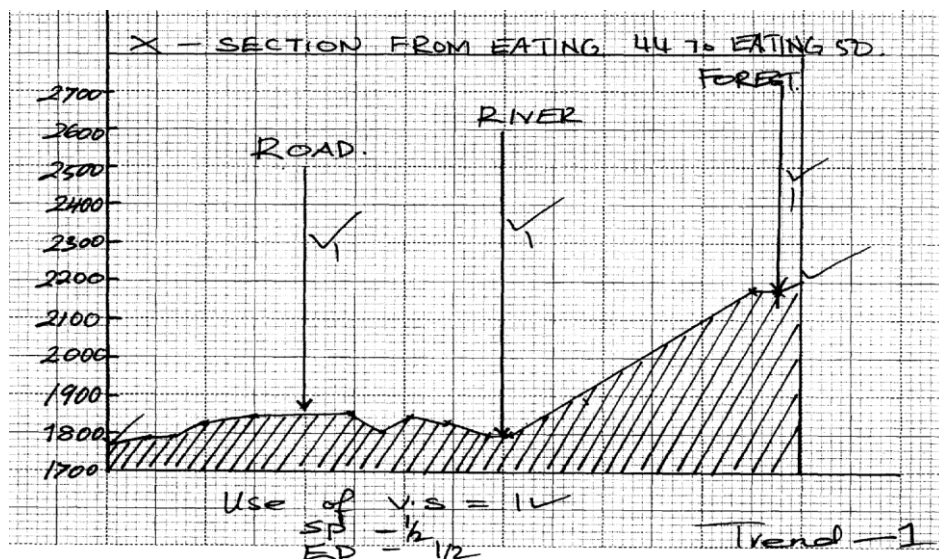9.   a i)   - topographical map.

   ii) - Contours

    - Trigonometrical stations.

b i) 1.3 cm → 1 km 100000 cm

1 km = 100,000 cm 13 cm → $\dfrac{1cm \times 100000}{13}$ = 0.000013km

ii) - Tea. Evidence by changoi tea factory and tea nursery.
    - Coffee, evidence by coffee mill

c i) - The plains are densely settled as the land is flat/gentle land.
    - The basins have been avoided as they land is water logged/flooded/swampy.
    - Steep slope/escarpment have been avoided because they are unstable for construction of houses/for farming.
    - There are few settlement on hilly areas because slopes are gentle.

ii) - Education/schooling evidenced by Gekonge school, Matongo school, Cheboan school, Kakibei school e.t.c
    - Trading evidenced by Health centres, Dispensaries
    - Social work evidence by labour lines.
    - Transportation evidence by murram, Dry –weather roads.

- Road
- River
- Forest

10. a i) $35°00^1 - 35°15^1$

ii) Map scale 1:50000 i.e. 1cm represents 50000 cm

$50000cm = \dfrac{50000}{100000}$ km

= 0.5km/ ½ km

Statement scale is 1cm represents 0.5km/ ½ km

iii) Contours
    Trigonometrically stations

b iii) $VE = \dfrac{VS}{HS}$

$= {}^{1/2000}/{}_{1/50000}$

$= \dfrac{50000}{1} \times \dfrac{1}{2000}$

= 25

11 . (a) - The drainage consists of rivers papyrus swamps, ponds and lakes
    - River Yurith is the main river
    - River Yurith generally flow West wards
    - The river has many meanders
    - River Yurith has two main- tributaries Itare and Kitoi

- The area covered by the map are numerous
- River Yurith has many tributaries that form a dendrific pattern along the course
- The river yurith is Permanent River
- There are many disappearing rivers

b)

ECONOMIC ACTIVITY	EVIDENCE
Transportation	Roads/ main tracks/ foot paths Dry weather roads, All weather roads:. Bound surface and loose surface), Air strip
Trading	Shops, Coffee mill/ tea factory/ posho mill factory
Crop farming	Tea nursery/ tea plantation

c) - Employment to people work there is provided.
   - Facilitates agriculture in the regions around.
   - Processing of tea, ready for use.
     - Transportation of people evidence by all weather road e.t.c
d)- Presence of tea that requires high rainfall.
   - Forest
   - Many permanent rivers.
   - Presence of many factories that use a lot of water.

12.   a i) Topographical.
          ii) 24   54
          iii) Calculate the area enclosed by Kendu Kisii. All weather roads bound to the West
                of the map.
             7.5 km^2 = (7.00 – 8.00 km^2).
          iv)   - Education - evidence school.
                 - Medical care – evidence hospital.
                 - Administration – evidence Chief's Camp, DC's, D.O's office.
                 - Recreation.

b)   ii) <u>Vertical scale</u>
              Horizontal scale
              = $\frac{1}{20}$ $\times\frac{50,000}{1}$ = $\frac{1}{5,000}$
                       $\frac{}{25}$
                        V.S = 2500
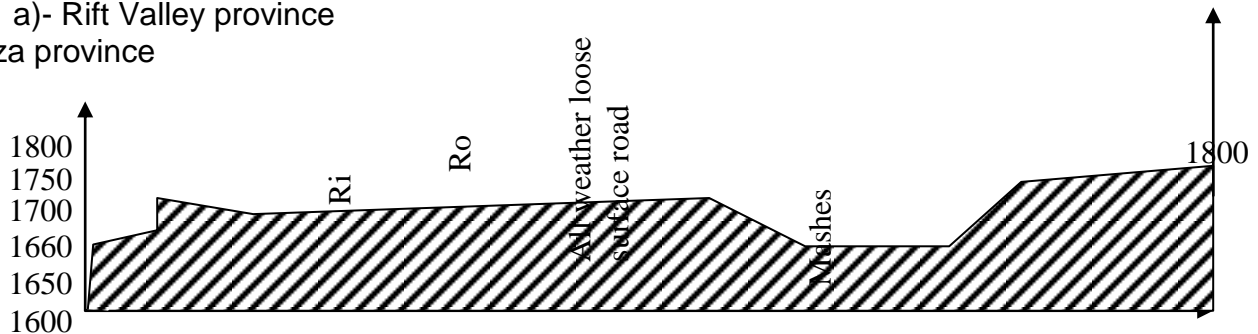
     c)   - There are several permanent rivers like Itare and Kitoi.
              - River Yurith is the main river.
              - Rivers flow from North Eastern to North Western.
              - There is a swamp / tree swamp around Kabiaga farm.
              - Rivers form dendritic pattern
     d) - The scrub vegetation shows availability of pasture for cattle.
     - The many rivers (like R. Yurith, Itare and Kitoi) in the area shows that there is adequate
          water for cattle.
     - The high altitude of above 1800m above the sea level indicate cool conditions ideal for
          cattle keeping.

13.   a i) 020º

ii) 556711

iii) map scale 1:50,000

       1 cm rep 50,000cm

50,000=$\frac{50,000\sqrt{1}}{100,000}$

      =0.5   Statement scale is 1cm rep 0.5km/ ½ km

iv) 0º 19'S 35º 18'E

v)   -contours

    -trigonometrically stations/pillars

b i) -education-school/college

       -recreational-club/race course

        -Health-hospital

. b ii) - tea growing –tea estate/tea factory

       - Trading-shop/markets

       - Transportation-all weather roads/dry weather roads, murram roads

       - Quarrying-quarry

d)   -the main river is tugenon

    -There are many permanent rivers

     -River Kipkwes and its tributan's form Dendntic drainage pattern

    -River north of northing 69 flow generally towards the north

    -River south of northing 60 flow towards west/south west

14.   a)- Rift Valley province

Nyanza province

b i)

ii) V.E = $^{VS}/_{HS}$ = $^1/_{50m}$ = $^1/_{50000cm}$

$$VE = 10 \sqrt{2}$$

iv) – Topographical

15.   a i) i) - 402488

    ii)   - 7.1 ± 0.1 Km

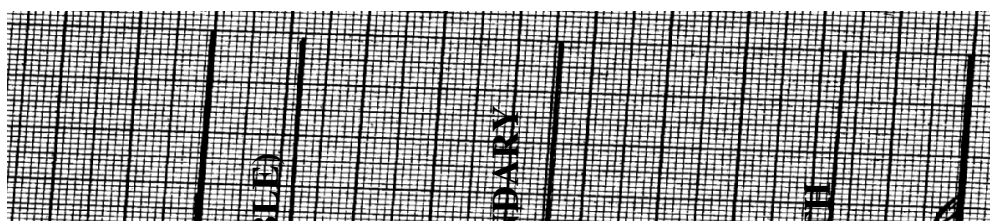   iii)   - LUMBWA

    . b i)   - 35°00^{1}E to 35°15^{1}E

    ii)   - 1844 – 1847 m

. c i) - The southern part of the area covered by the mp is well drained as evidenced by

    presence of many permanent rivers

      - The main river is Yurith that flows South Western wards

      - There is a seasonal swamp in the northern part of the area covered by the map

      - There are several dams along river Kitoi

      - River Sondo and its tributaries form dentric drainage pattern

      - River Kitoi and Kimugung re in their youthful stages

ii)

d i)) - Steep slopes e.g. along the escarpment have been avoided. There are more
        settlement on gently sloping regions
    - Forested areas e.g. to the south eastern part of the map have been avoided
    - Swampy areas have no settlement
    - Plantation forms have no settlement inside, people tend to settle around the forms
    - There are linear settlements along all weather road loose surface especially in the north
      eastern part of the area covered by the map
d ii) - Presence of well developed transport network in the area ensures movement of goods
        and   Services
    - Presence of scattered houses in the area ensures there is market provided by those in
      the houses
    - Tea factories and tea plantation farms is likely indication that people are employed in
    the area and therefore have better living standards