CHRISTIAN SOCIAL SERVICES COMMISSION (CSSC)

NORTHERN ZONE JOINT EXAMINATIONS SYNDICATE (NZ-JES)

FORM SIX PRE-NATIONAL EXAMINATIONS 2026

113/1 GEOGRAPHY 1

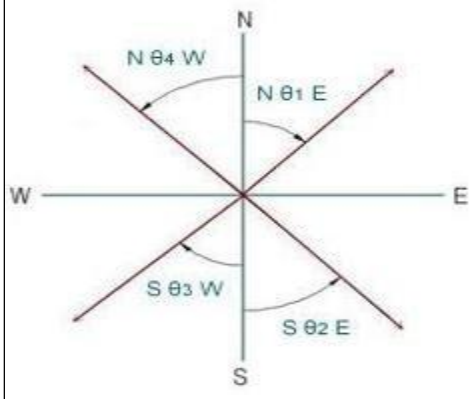
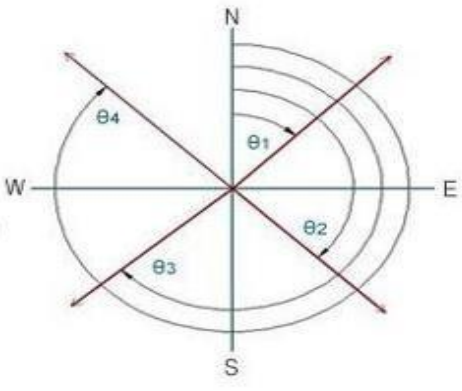
MARKING SCHEME

1. (a) Differences between whole (WCB) circle bearing and quadrant bearing system (QBS). (3 points @ 2 = 6marks)

In whole circle bearing angles are measured clockwise from north direction while in quadrant bearing system angles (bearing) are measured clockwise and ant clockwise from either North pole or south pole.

Whole circle bearing makes large angle ranging from 0^0 to 360^0 whereas quadrant bearing system makes small angle ranging from 0^0 to 90^0

Angles of the whole circle bearing and not preceded by any letter while the angular value of the quadrant bearing system is preceded by a prefix N or S and followed by a suffix E

QUADRANT BEARING SYSTEM	WHOLE CIRCLE BEARING
	

To change the (WCB) angle to quadrant bearing system (QBS) angle. (3 parts @ 2 = 6marks)

65° 40'

In QBS =N 65° 40' E

135°

Into QBS = $180^0 - 135^0$ = S 45^0 E

265° 25'

Into QBS = 265° 25' -180^0 = S 85° 25' W

Ways of avoiding or reducing error in prismatic compass survey **(7 points @ 1= 7marks)**

Check the accuracy of the compass by comparing it with an accurate compass or with location of magnetic north (MN) for the year of the survey.

Always check every reading with a back bearing and adjustment by adding or subtracting the mean of the error.

Hold the compasses steady at 180° and ensure accuracy of all chain or tape measurements between ends of legs and to points of observation on legs.

Check that all conversions from magnetic bearing to true bearing are accurate and all scaled conversions are accurate.

Ensure the booker takes down reading accurately by asking him to repeat where necessary.

Avoid areas where there are deposits of metalliferous ores steel structures, metal gates, railway lines and others, which would influence reading.

Avoid wearing metal rimmed spectacles, metal bangles or steel watches when using the compass.

Solution

Data

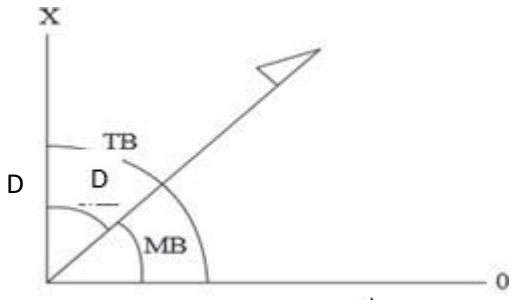
Old MB = 320^0 30`

Old declination = 3^0 30`W **(01 marks)**

Present declination = 4^0 15`E

Present magnetic bearing = ?

Consider the diagram below



MB = TB – declination

TB (when declination is in west) = MB –Declination

= 320^0 30`- 3$^0$ 30`

=317^0 00` **(2 marks)**

Since the TB of a line is constant (present TB is also 317^0 00`).

MB (when declination in E) = TB – Declination

= 317^0 00` - 4$^0$ 15`

= 312^0 45` **(2marks)**

2. Marks distribution

Introduction- student must define research (1.5 marks)

Main body – Eight qualities for good research (8 points @ 1.5 marks) Conclusion -Any but related to the question asked (1.5 marks)

Qualities for good research.

Research is systematic, that is it has a well-structured framework with a clear step by step process in attaining the solutions or conclusions. Research starts from problem identification to report writing.

Research is logical, it is guided by logical reasoning to make research more meaningful in decision making.

Research is empirical, it should be supported by evidences. Conclusions are being drawn based on true evidences collected through life experiences and repeated observations.

Research is replicable as they allow to be verified or tested by other researchers. It means that, if independent researcher(s) elsewhere will apply the same methods used by the previous researcher will arrive to the same conclusion made in the previous study.

Research is cumulative as Knowledge is accumulated as a result of time-to-time studies, in the sense that new studies should be built over what has already been done on the subject matter of interest. Therefore, new knowledge adds up to the existing one.

Theory driven; theories are very important in research since they connect researchers with the existing knowledge as they offer a conceptual model from which data are collected.

Objectivity, research should be strongly related to the research problem and it relies on observations from actual studies which can be either cross-sectional or longitudinal.

Generalizability, as generalization is made from a sample to the population.

Clarity, scientific research should be precise and with good explanation.

Rigorous, research should ensure that the methods used in answering the research questions are relevant and justifiable.

3. MAP EXTRACT OF MPWAPWA (163/

a) Types of vegetation (any type 01 mark)

- Forest
- Woodlands
- Scrubs
- Scattered trees

b) … (01 mark each = 04 marks)

i. Relief

ii. Soil

iii. Social services

iv. Infrastructures

c) Tropical climate (1 mark)

Evidence : vegetation such as woodlands, scrubs, scattered trees (1 mark)

d) Any 4 points with evidence (0.5 mark each = 02 marks)

i. Agriculture

ii. Tourism

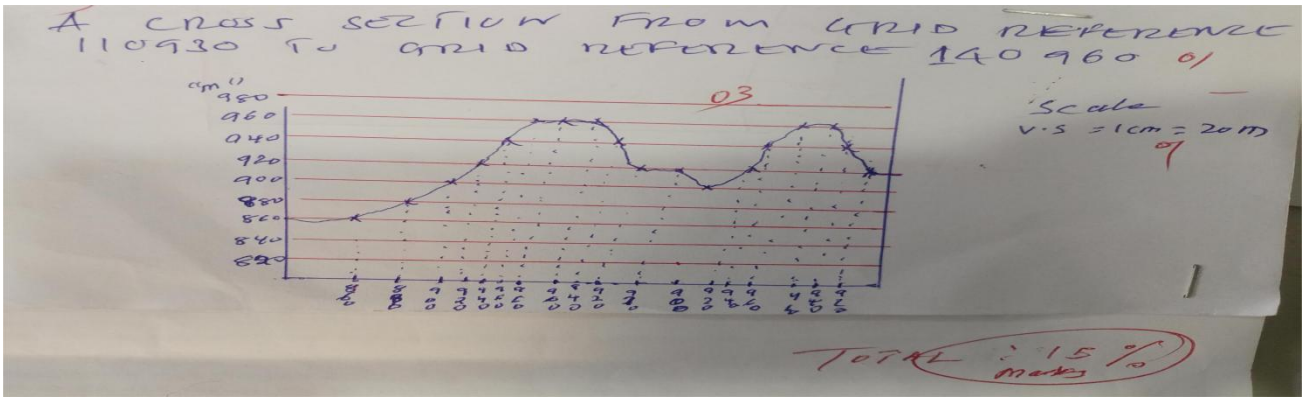
iii. Trade

iv. Transportation

v. Lumbering

e) Setting mistake of the question no marks allocated to this part

f)



4. Marks distribution

Introduction- student define soil formation (02½ marks)

Main body – Six factors for soil formation – two influences in each factor (any 5 points @ 3= 15 marks)

Conclusion -Any but related to the question asked (02½ marks)

Proposed introduction

Soil formation or pedogenesis is initiated by weathering of the parent rock. Soil formation is the accumulation of a layer of loose, broken, unconsolidated parent rock materials known as regolith. The Regolith not only originates from weathering but may also be derived from the deposition of alluvium, drift, loess and volcanic materials.

Main body (Six factors for soil formation – two influences in each factor)

Parent rock materials, the parent rock materials are chemically and physically weathered, transported, deposited and precipitated, at the end is transformed into soil. Parent material influence soil formation by influencing speed of weathering, influence soil physical properties like texture, structure, permeability and porosity and by determining the type of soil to be formed

for example, limestone underlying rock gives development of calcareous soil of either terrarosa or rendzina.

Climate, climate influence soil formation through precipitation and temperature, which affect

the rates of chemical, physical and biological processes. Specifically, climate influence disintegration of rock through weathering. favour growth of vegetation which adds organic matter to soil and makes soil to have horizons formed by leaching and capillary action.

Topography, relief influence soil formation by determining the rate and depth of the soil (thin or deep) and by modifying the effects of climate on soil formation. That is, high altitude areas temperature is very low hence low rate of decomposition as compared to areas of low altitude.

Living organisms, these includes the influence of plants and animal ranging from micro-organisms to macro-organisms. Vegetation influence both physical and chemical weathering leading to development of soil profile. Vegetation contributed to the development of soil profile by adding humus especially when they die and decompose. Leguminous plants help to fix nitrogen into the soil. Burrowing animals facilitates weathering process by loosening the soil particles.

Time, time is associated with the duration of the operation of the soil formation processes. When soil formation has taken a long and enough time, soil tend to mature (they are deep and well developed). The profile of mature soil has three horizons A, B and C.

Conclusion (any but related to the question asked)

5. Introduction.

Definitions of air in motion (wind).

Movement of air from high pressure region to low pressure region.

Main body.

Factors that lead areas to have different wind

Temperature

Altitude

Latitude

Vegetation cover

Human activities

Water bodies.

Conclusion. Any relevant conclusion

6. Introduction (any relevant definition of volcanism) (1 mark)

Intrusive volcanic features are the features formed either plutonically or hypabyssal Intrusive volcanic features.

a) Batholith.

b) Sill.

c) Dyke.

d) Lopolith.

e) Phacolith

f) Laccolith. (18@3 marks)

Conclusion (any relevant conclusion) (1 mark)

7. Introduction.

(any relevant definition of climatic change) (1 mark)

Causes of climatic change.

a) Volcanic eruption.

b) Plate tectonic.

c) Industrial activities

d) Deforestation activities.

e) Large scale mining activities.

f) Testing of nuclear bombs.

g) Falling of meteors from the outer space.

h) Burning of fossils fuel example coal. (18 @ 3 mark)

Conclusion (any relevant conclusion) (01mark)