

2023

GEOGRAPHY — HONOURS

Paper : CC-4

(Thematic Mapping and Surveying)

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Use of Scientific Calculators is allowed in this Examination / Paper.

Category - A

Answer *any five* questions (each within 50 words).

1. (a) Size of a soil particle is 0.00002 meters in diameter. How is this number written in scientific notation? 1/2
(b) The average distance between Earth and Moon is 3.825×10^5 kilometers. Convert and write this distance in standard form, without power of 10. 4
(c) Round off the following number to tenths place : 87.952. 1
(d) How many significant figures / digits are there in : 0.0000407? 1/2
2. Mention the relationship between natural logarithms and 10 base logarithms. 2
3. What symbols are used to represent the following weather phenomenon on a weather map? (a) Snow, (b) Haze. In which season will there be precipitation predominantly in some stations of extreme North-Western India? 1+1
4. What is the main utility of Transit Theodolite? 2
5. Given that BS at X is 1.670 meters, IS at next station Y is 1.875 meters and FS at Z is 1.990 meters and there is no change point. Mention whether land slope is rising or sloping down from X to Z and, by what amount. 2
6. Differentiate between sills and dykes. How will you identify them on a geological map? 1+1
7. Which diagrams / maps will be used to represent the following socio-economic characteristics? 1/2
(a) Land use pattern of an area
(b) Distribution pattern of different minerals in West Bengal
(c) Cropping Intensity in different blocks
(d) Commuter Movement around a metropolis.

Please Turn Over

Category - B

Answer *any four* questions (each within 150 words).

8. What are the objectives and functions of NRSC / Bhuvan? 5
9. Distinguish between magnetic bearing and true bearing. What are the sources of error in a Prismatic Compass? 2+3
10. State the significance of point and line symbols in thematic maps. 5
11. What is apparent dip? How will you identify folded and horizontal structures in geological maps? 2+3
12. Mention the objectives of Land Use and Land Cover maps. 5
13. Determine the elevation of the topmost point P of a hill above MSL from the field notes taken with a Theodolite. (Note A, B and P lie in the same vertical plane) 5

Instrument at	Height of the instrument above ground surface (m)	Vertical angle of P	Remarks
A	1.450	32°40'	Distance of AB = 80m RL of A = 45.150m
B	1.755	22°30'	

14. What is the smallest accurate reading that can be taken in an Abney Level? State the basic operating principle of the Laser Distance Meter. 1+4

Category - C

Answer *any two* questions (each within 500 words).

15. What is socio-economic data? Discuss with relevant examples the different methods for diagrammatic representation of data. 2+8
16. The following are the bearing of lines of a Closed Traverse.

Line	Fore Bearing	Back Bearing
AB	301°	119°30'
BC	236°30'	58°
CD	115°	297°30'
DA	57°	236°

- (a) Correct the bearings for local attractions.
- (b) Calculate the included angles of the traverse.
- (c) Undertake checking to verify if the sum of interior angles is correct. 4+4+2

(3)

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17. Discuss the different parts of a Dumpy Level and mention the uses of each part in detail. Define datum surface and collimation level. 2+8
18. Compare the isobaric pattern, wind direction and speed and variation in cloud amount across the Indian sub-continent on weather maps representing pre-monsoon and post-monsoon seasons. Use diagrams to illustrate your answer. 5+5
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