

2022

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.*

Category - A

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

1. (a) Convert into scientific notation : Depth of Mariana Trench : **11034 metres.**
 (b) Convert into standard notation — without power of 10 : **$31415926.53589793238 \times 10^{-7}$**
 (c) Round of the following number to nearest thousand : **49962**
 (d) Round of the following number to 4 significant digits : **0.045067** ½×4
2. (a) When is the 'characteristic' of logarithm of any number positive and when is it negative?
 (b) Which of the following is/are false?
 (i) $2^{\log_2 8} = 8$
 (ii) $\log_5 \frac{1}{5} = 1$
 (iii) $\log_5(7 \div 2) = \log_5 7 - \log_5 2$ 1+1
3. What is the smallest graduated division in levelling staff? What is the difference in level between X and Y if BS at X is 2.670 metres and FS at Y is 1.770 metres and there is no change point? 1+1
4. What diagrams are used to represent the following ? ½×4
 (a) Age and Sex Composition of Population
 (b) Economic Composition of Population
 (c) Mean Monthly Annual Temperature
 (d) Number of Households in Different Blocks of a District.
5. What is WML? 2
6. What is the function of a slow motion screw? 2

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7. How are the following represented on a weather map?

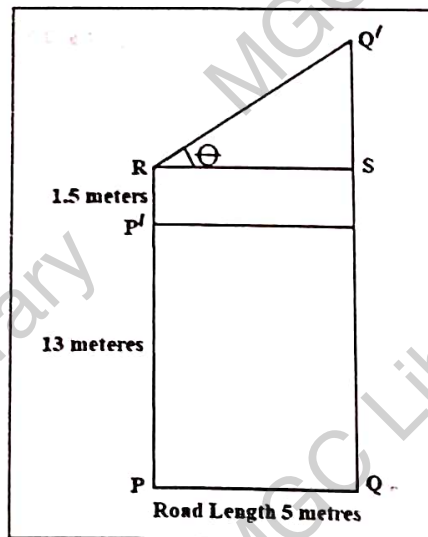
- (a) Thunderstorm.
- (b) Wind speeds of 50 knots.

1+1

Category - B

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

- 8. What is closing error? How is it corrected graphically? 2+3
- 9. What is the function of a prism in a prismatic compass? How can the errors due to local attraction be minimised? 2+3
- 10. How do geological maps help in analyzing the topography of a given region in relation to its structure? 5
- 11. Two students are on the opposite sides of a tall tower. The measures of angles of elevation of the top of the tower are 30° and 45° . If the height of the tower is 20 metres, find the distance between the boys. 5
- 12. What do you mean by inversion of relief? How will you identify it on a geological map? 2+3
- 13. How would you find the height of a point whose base is accessible and inaccessible by theodolite? 5
- 14. (a) Two buildings PP' and QQ' of different heights are located across a road. The height of the building PP' is 13 metres. The Abney level is held on the summit of PP' at a height of 1.5 metres from the top of this building. The angle (θ) from the instrument on top of P to the top of the building QQ' is determined using an Abney Level to be 42° . Road length between the two buildings is 5 metres. Determine the height of the second building QQ' .



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- (b) What is the least count of the vernier in an Abney Level? What is the maximum minutes marked on the vernier scale? 3+2

Category - C

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

15. The following are the bearings of lines of a closed traverse. The survey was undertaken in a clockwise direction.

Line	Fore Bearing
MN	N 50°30' E
NO	S 40°15' E
OP	S 38°30' W
PM	N 30°45' W

- (a) Represent the Fore Bearing values as Whole Circle Bearings.
 (b) Calculate the included angles of the traverse.
 (c) Undertake checking to verify if sum of interior angles is correct. 4+4+2
16. How are qualitative and quantitative data employed to construct a socio-economic map? Explain your answer with suitable examples. 10
17. Discuss the different parts of a Theodolite and explain the utility of each part. 10
18. What is meant by pressure gradient? Comment on the isobaric patterns most likely to be found on a weather map representative of S-W monsoon season in India. Use diagrams to illustrate your answer. 2+8

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