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 : **31415926.53589793238×10⁻⁷**

   (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) $\log_5 \dfrac{1}{5} = 1$

      (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

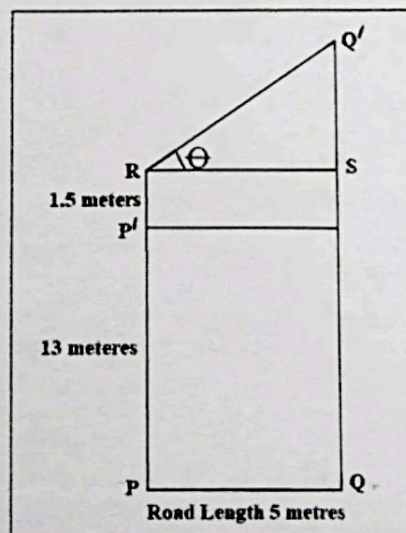6. What is the function of a slow motion screw?   2

Please Turn Over

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'.

      (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

———————