# WEST BENGAL STATE UNIVERSITY

B.A./B.Sc. Honours 1st Semester Examination, 2019

## GEOACOR02T-GEOGRAPHY (CC2)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.*
*Candidates should answer in their own words and adhere to the word limit as practicable.*
*All symbols are of usual significance.*

## CATEGORY-I

### Answer any *one* question from the following

10×1 = 10

1. Differentiate between polar and rectangular coordinate systems. Calculate the polar coordinate of a point P whose rectangular coordinates are (−5, +12).

7+3

2. Explain the principle of grid system of Universal Transverse Mercator Projection. Find the UTM co-ordinate of Place A (80°13′E, 13°4′N) when it lies 79060 m West from Central meridian and 1446393 m North of the equator of the UTM Grid.

6+4

## CATEGORY-II

### Answer any *four* questions from the following

5×4 = 20

3. Find the Cartesian co-ordinates of a point whose polar co-ordinates is (− 4, − 60°).

4. Classify map projections on the basis of plane of projection.

5. A map of area 121 sq. cm. covers an area of 253009 sq. km. on the ground. The map is reduced to half its original size. Find the R.F. of the reduced map.

6. Prove that the length of any parallel $\phi$ on the generating globe is $2\pi R \cos\phi$.

7. How is the property of orthomorphism maintained in the Mercator's Projection?

8. Calculate the distance AB, in the same UTM Zone if the co-ordinate of A is 640,220 (Easting), 2,496,800 (Northing).

9. Calculate how much length is required in a diagonal scale to represent 3 km. 5 hectometres 20 metres when the R.F. is 1:40,000.

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## CATEGORY-III

### Answer any *five* questions from the following

2×5 = 10

10. Define principal scale and scale factor.

11. Mention the R.F. of the following SOI Topographical Maps:

    (A) 78 G          (B) 78 G/6          (C) 78 G/NE          (D) 78 G/10/4

12. In a Vernier scale, the Vernier constant is 30 seconds and the smallest main scale division is 15 minutes. How many divisions are there in the Vernier scale?

13. Given that the radius of the earth is 6367 km. and the length of the equator on the generating globe is 25 cm. Calculate the R.F.

14. Why the size of India is much smaller than Greenland in Mercator's projection?

15. Why UTM Zones are limited to 80°S and 84°N latitude?

16. Name two projections suitable for showing the distribution of sugarcane producing areas on a world map and justify your choice.

17. What is WGS 84 datum?

18. What is the latitudinal and longitudinal extension of the quadrilateral named 5N on the UTM Grid System?

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