



WEST BENGAL STATE UNIVERSITY  
B.A./B.Sc. Honours 1st Semester Examination, 2018

GEOACOR02T-GEOGRAPHY (CC2)

CARTOGRAPHIC TECHNIQUES

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. Explain the principle of grid system of Universal Transverse Mercator Projection. Determine the UTM zone where point A having Easting 352,669, Northing 7,322,444 is located. 7+3
2. Explain the process of the coding system in open series topographical map of Survey of India with sketches. Mention the latitudinal and longitudinal extension (Old Series) of the following SOI topographical sheets. 7+3  
(i) 76 A                      (ii)  $76 \frac{A}{12}$                       (iii) 76 / B / 5 / SW

Category-II

Answer any *four* questions from the following

5×4 = 20

3. Prove that the vernier constant is the ratio between the least count of main scale ( $d$ ) and the number of vernier scale division ( $n$ ). 4+1  
Calculate vernier constant while reading on vernier scale is 0.04 mm and 14<sup>th</sup> mark of vernier division coincides with any one division of the main scale.
4. Classify map projection according to the properties of projection with example. 5
5. What do you mean by Radial scale factor and tangential scale factor of a projection? 5
6. Calculate the Cartesian co-ordinates of point A whose polar co-ordinates is  $(-2, 30^\circ)$ . 5



7. The scale of a map was 1 cm to 180 km and it has been redrawn on a new scale i.e. 1 cm to 80 km. Now calculate the magnitude of enlargement in percentage. 5
8. 15 cm × 16.5 cm area on the map represents 180 km × 120 km ground area. What will be the R. F.? 5
9. In a UTM zone two points C and D are located at a distance of 800 m from the central meridian to the west and 200 m from the central meridian towards east on the same latitude respectively. What are the easting values of C and D? 5

### Category-III

Answer any *five* questions from the following

2×5 = 10

10. The contour interval on a topographical map is 20 m. There are 150 contour lines between foot and peak of a mountain. The peak of the mountain is 2 km away. Find out the slope of the mountain.
11. The length of 45° parallel on the reduced globe is 6671.22 cm. Calculate the R.F.
12. What is loxodrome?
13. What is false easting and northing?
14. What is WGS 84 datum?
15. Mention the properties and uses of Bonne's projection.
16. What is the relationship between primary, secondary and tertiary divisions of a diagonal scale?
17. Make a correlation between standard parallel and constant of a cone in Bonne's projection.
18. Differentiate between perspective projection from non-perspective projection.

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