

**2020**

**GEOGRAPHY**

( Major )

Course : 601

**( Map Projection and Cartographic Methods )**

Full Marks : 48

Pass Marks : 19/14

Time : 2 hours

*The figures in the margin indicate full marks  
for the questions*

1. Answer the following as directed :  $1 \times 6 = 6$

(a) Equator cannot be drawn in Polar  
Zenithal Gnomonic Projection.

(Write True or False)

(b) Which projection is most suitable for  
showing navigational routes of the  
world?

(c) In levelling, a \_\_\_\_\_ is a fixed reference  
point of known elevation.

(Fill in the blank)

( 2 )

- (d) A theodolite can be used in place of prismatic compass and levelling instrument. (Write True or False)
- (e) In GIS, \_\_\_\_\_ data describes the characteristics of spatial features. (Fill in the blank)
- (f) Microwave remote sensing can acquire images of the earth's surface through cloud coverage. (Write True or False)

2. Write short notes on the following (**within 100 words** each) : 4×3=

- (a) Gall's projection
- (b) Transit and non-transit theodolite
- (c) Raster and vector data

#### UNIT—I

#### ( Map Projection )

3. Define map projection. Give a detailed classification of map projections. 3+7=

Or

What projection can be selected to represent the maps of the equatorial region more or less correctly? Justify the selection. Derive the formula to construct the graticule for the projection. 1+2+7=

UNIT—II

( Cartography )

4. What is levelling? What are the different types of levelling? In running a reciprocal levelling, the following field book was recorded :

Instrumental station	Staff reading (in metre)		Remarks
	(1)	(2)	
A	5.212	2.563	Reduced level of A is 165.7 metres
B	2.162	1.462	

(a) Determine the difference of level between A and B.

(b) Determine the RL of B.  $2+2+6=10$

Or

What is a closed traverse survey? In conducting a closed traverse survey the following field book was recorded :

Line	Fore bearing	Back bearing
AB	160° 30'	340° 30'
BC	75° 45'	255° 45'
CD	351° 0'	171° 0'
DE	282° 30'	102° 30'
EA	211° 45'	31° 45'

Calculate the included angles of the traverse.

Proof your result.

$2+7+1=10$

UNIT—III

( Modern Cartographic Method )

5. What are sensors? What are the different types of sensors based on sources of energy? Explain the basic elements of image interpretation in remote sensing. 1+2+7=

Or

Write short notes on any *two* of the following : 5×2=

- (a) Types of resolution in remote sensing
- (b) Multispectral remote sensing
- (c) Geometric properties of aerial photographs
- (d) Functions of the GPS

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