Reg. No.										

B.E./ B Tech (Full Time) END SEMESTER EXAMINATIONS, NOV/ DEC 2011

GEO INFORMATICS ENGINEERING BRANCH
FIFTH SEMESTER

GI- 9304 GEODESY
(REGULATIONS 2008)

Time: 3hrs **Max Marks: 100**

Instructions:
1. Draw neat sketches wherever necessary.
2. Assume suitable data wherever required.
3. Answer all questions in Part A and Part B respectively.

Part – A (10 x 2 = 20 Marks)

1. State the purposes of Geodesy.

2. On Everest Spheroid, Compute the rectangular co-ordinates of a point whose reduced latitude is 12^0 57' 59.5" N.

3. How would you determine the area of a Trapezium on the spheroid?

4. Compute the spherical excess of an equilateral triangle of side 100 km if the mean geodetic latitude of the area is 13^0 00' 30" N.

5. Compute the normal gravity of a point whose geodetic latitude is 13^0 00' 30" N.

6. Deduce the fundamental equation of physical geodesy.

7. Draw a neat sketch of an Astronomical triangle obtained for the transformation of Right Ascension and Ecliptic celestial coordinate systems.

8. Mention the reasons for irregularities in rotational time system.

9. Tabulate the relationship between the rectangular and polar co-ordinates if the points are in the different quadrant.

10. Distinguish between intersection and Arc Section.

Part - B (5 x 16 = 80 Marks)

11. i) Establish the relationship between the reference surfaces used in geodesy (6)

ii) What is Engineering Geodesy? How is it different from normal geodesy? (6)

iii) Write about the planetary geodesy. (4)

(P.T.O)

12. a.i) Deduce the general expression for computing the mean radius of curvature at any azimuth. (10)

ii) On Everest spheroid , Compute the mean radius of curvature of Tamilnadu if the mean geodetic latitude is 10^0 30' 00" N and Azimuth of the line joining a point at Kanniyakumari and Chennai is 35^0. (6)

(Or)

b. i) Bring out the step by step procedures involved in computation of coordinates with the help of trilateration. (4)

ii) Given the following on Triangulation, compute the distance AB and Azimuth of the line AB on Everest Spheroid. (12)

Geodetic Latitude of A = 27^0 22' 02.57" N
Geodetic Longitude of A = 87^0 27' 31.86" E
Geodetic Latitude of B = 27^0 28' 38.30" N
Geodetic Longitude of B = 87^0 29' 36.00" E

13. a. i) Define the following terms: Geops, Spherops, INGN and Terroid (4)

ii) Bring out the gravimetric method of determining the deflection of vertical. (6)

iii) How will you reduce the gravity at geoid from the gravity observed on the earth's surface? (6)

(Or)

b. What is Spheroidal height? How is it computed by observing reciprocal and single vertical angle?

14.a It is proposed to investigate the possible use of two stars for an observation program in our campus. Their declinations are 10^0 and 20^0

i) If the stars are said to cross the prime vertical, compute their zenith distance and hour angle (8)

ii) If the stars are said to be elongated, compute their Azimuth, Zenith distance and hour angle (8)

(Or)

b. How will you determine the position of a point by observing stars?

15. a. Give the following on Helmert's transformation, Compute the Co-ordinate of D in X, Y System.

Point No.	X (m)	Y(m)	x (m)	y (m)
A	96935.27	8922.55	97319.35	8802.06
B	98511.77	9772.69	98858.81	9717.54
C	97944.99	8664.62	98338.99	8586.69
D	?	?	97918.31	9538.01

(Or)

b. Given the following data, compute the coordinate of the resected point 'N'

Point No.	Easting (m)	Northing (m)	Observed Directions
A	46867.94	5537.00	60^0 07'50"
B	51293.86	6365.89	265^0 18'22"
M	49666.56	4448.58	326^0 33'59"
N	48613= x_0	6361=y_0	