Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/PGDGI/SEM-1/DGI-104/2010-11

2010-11

BASICS OF GLOBAL POSITIONING SYSTEM (G.P.S.)

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Objective Type Questions)

1. Answer any *ten* of the following : 10 × 1 = 10

A) Fill in the blanks :

i) GLONASS is a ..... satellite based GPS.

ii) In the upper atmosphere, the GPS signals are obstructed in the ..... layer.

iii) L_1 and L_2 are frequencies of the ..... region of electromagnetic spectrum.

iv) The geometric method being used in GPS to determine the position fix is known as ..... .

v) The *Y* code is also known as ..... code.

vi) In Block II *R* satellites, the length of the signal code is ..... .

B) State whether the following statement is *True* or *False* :

vii) GPS gives the data on *latitude, longitude* and *altitude* only.

viii) User segment deals with the civilian GPS receivers only.

ix) The orbit plane of GLONASS is 8 planes, 3 satellites in each plane.

x) The datum of NAVSTAR GPS is WGS84.

xi) Selective availability (S/A) may be reactivated at any time by the Pentagon in case of NAVSTAR GPS.

xii) The 'Range' in GPS measurement is the distance from the base station receiver to roving receiver.

GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Why are the microwave frequencies used in GPS ?

3. Why do you need DGPS ? What are the steps to implement a DGPS survey ? 1 + 4

4. Discuss the advantages of GPS survey.

5. What do you mean by 'Stop and Go' survey technique ?

6. Write the full form of NAVSTAR GPS. What are the orbit characteristics of NAVSTAR GPS ? 1 + 4

7. What are the functions of space segment ?

8. Explain the 'Real Time Survey' technique.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

9. What is GPS ? What are the consequences of geodetic datum definition in GPS ? Explain the functions of control segment.

2 + 4 + 9

10. Who developed GPS ? What are different components of GPS signals ? 3 + 12

11. What do you mean by differencing ? What is point positioning ? Explain different types of relative differencing with suitable diagrams. 1 + 2 + 12

12. What do you mean by GPS satellite constellation ? Write a note on DOP. 5 + 10

13. What do you mean by Bias in GPS measurements ? What are the different sources of errors in GPS survey ? 3 + 12