Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/BNS/SEM-1/BNS-104/2012-13

2012

PRINCIPLES OF NAVIGATION-1

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

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 10 × 1 = 10

i) A small circle is

a) the intersection of the sphere and a plane which does not pass through the center of the sphere

b) a plane that passes through the centre of the sphere

c) the meridian of 0 degrees longitude, used as the origin for the measurement of longitude

d) all of these.

ii) By international agreement one nautiral mile is

a) 1,852 metres b) 1,842.9 metres

c) 1,861.7 metres d) 1,862 metres.

iii) True north may be defined as

a) north indicated by magnetic compass

b) north indicated on the chart compass rose

c) direction along the earth's surface towards the Geographic North Pole

d) all of these.

iv) Meridian passage occurs when the body

a) reaches the observe meridian

b) when the body rising

c) when the body is setting

d) none of these.

v) The statement below is right or false ?

Magnetic north tends to shift and refers to the pole of the Earth's magnetic field.

vi) Example of small circles is

a) Equinoctial b) Parallels of declination

c) Celestial meridians d) Ecliptic.

vii) Departure is

a) East west distances between two places

b) North south distance between two places

c) Is the shortest distance between two points

d) none of these.

viii) When the moon is closet to the earth it is said to be in

a) Apogee b) Perigee

c) Line of apside d) None of these.

ix) Polar region can be represented on

a) Gnomonic charts b) Mercator charts

c) Plan charts d) None of these.

x) The nearest planet on the solar system is

a) Venus b) Earth

c) Mars d) Mercury.

GROUP – B
(Short Answer Type Questions)

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

2. State the relation between Latitude, departure and course while engaged in plane sailing ? How do you prove your statement ?

3. Define and differentiate between

i) Dead reckoning position

ii) Estimated position.

4. A vessel in Latitude 47˚00'S Longitude 054˚00'W steers a course of 270˚ (*T*) for a distance of 412 miles. Find the position arrived.

5. A vessel sails from a position 12˚49.5'S 176˚48.7'E. If the vessel sails to a position whose d'lat and d'long from the present position require to be 30˚12.0'N and 12˚36.5'E, what is the latitude and longitude of the final position.

GROUP – C
(Long Answer Type Questions)

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

6. a) What is Great Circle sailing ? Expalin following terms in connection with Great Circle Sailing :

i) Composite Great Circle Sailing

ii) Vertex. 5 + 10

b) Along a route on a Great Circle track find

i) Initial course

ii) Final course

iii) Position of the vertex

iv) the distance along the GC track from a position Latitude 32˚12.0'N and longitude 18˚15.0'E to Latitude 05˚40.0'N and Longitude 34˚20.0'W.

7. Define and illustrate any *five* from the following : 5 × 3

i) Observed Altitude

ii) Apparent Altitude

iii) True Altitude

iv) Rational Horizon

v) Semi-diameter

vi) parallax in altitude.

8. Explain the following statement with suitable diagram :

1 × 15

"Seasons are caused by the fact that the "Earth is tilted" that is that the Earth's axial tilt is at an angle of 23.5 degrees relative to the plane of the Ecliptic, its plane of orbit around the sun.

9. Discuss following of a Gnomonic chart : 3 × 5

a) Advantage

b) Limitation

c) Use.