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**INDIAN MARITIME UNIVERSITY**

(A CENTRAL UNIVERSITY GOVERNMENT OF INDIA)

**DIPLOMA IN NAUTICAL SCIENCE**

**SEMESTER – II**

**NAVIGATION – IV: ADVANCED BRIDGE EQUIPMENT, WATCHKEEPING &  
METEOROLOGY  
(UD11T3202)**

**Date: 25-06-2019**

**Max. Marks: 70**

**Time: 2 hours**

**Pass Marks: 28**

Note: Non Programmable Scientific Calculator is Permitted.

**Part: A**

**Bridge equipment and watch keeping**

**(Question number 1 is compulsory. Attend any 3 questions from the  
remaining 4 questions.)**

1. (a) When will you consider a vessel to be overtaking as per COLREGS  
(b) In restricted visibility, What shall "A Vessel which detects by radar alone the presence of another vessel" determine & What action she shall take for alteration of course.  
(c) What signals are used to attract the attention of other vessels as Stated in COLREGS.  

(4 + 4 + 2 = 10 Marks)
2. (a) Explain the different modes of steering.  
(b) Explain the principle and working of Doppler Log.  

(5 x 2 Marks = 10 Marks)
3. (a) Answer the Following in short :
  - i. State the purpose of AIS
  - ii. List the data which will be transmitted from ship as a part of LRIT.
  - iii. State the purpose of LRIT.
  - iv. What is the use of BNWAS System.
  - v. List out any Four data which will be recorded automatically by VDR unit.  

(1x5=5 Marks)

(b) Describe the difference between Raster and Vector charts. (5Marks)
4. (a) Explain in short the duties of each member of Bridge team.  
(b) What entries are made in Deck Log Book. (5 X 2 Marks = 10 Marks)
5. (a) Explain the preparation and duties Prior to arrival port.  
(b) Explain Watch-keeping duties at Anchor. (5 X 2 Marks = 10 Marks)

**Part: B**  
**Meteorology**

(Question number six is compulsory. Attempt any two from the remaining Questions.)

6. Code the following ships report.

Ship: 3FRK, position:  $27^{\circ} 35' N$   $98^{\circ} 29' W$ , Course made good last three hours:  $320^{\circ}$  at 15 knots, visibility: 20 Km, Wind:  $240^{\circ}$  estimated at 16 Knots, Pressure :1026.8 mb, Tendency: +6.4mb, Barograph Trace:

GMT: 08d06h10m. Temperature: Dry  $28.5^{\circ} C$  , Wet  $23.0^{\circ} C$  , Sea  $20.6^{\circ} C$  , Clouds: Total 6/8 of sky, low clouds 4/8 of sky, base 1000 meters above sea, Sc not resulting from Cu, Dense Ns , Ci in hooks progressively invading sky. Weather : Present – Precipitation near but not at station. Past – cloud covering more than  $\frac{1}{2}$  sky throughout and intermittent drizzle. Sea : Period 08 seconds, Height 01 meters. Swell : From  $050^{\circ}$  , period 10 seconds, Height 02 meters. (10Marks)

7. (a)With the help of neat diagram explain High or anticyclone

(b)Explain in general the Origin, Movement and lifespan of TRS.

(5 X 2 Marks=10 Marks)

8. (a)Explain what is Front. What are Warm and Cold Fronts.

(b)Explain briefly the cause of storm surges.

(5 X 2 Marks=10 Marks)

9. Fill in the blanks , state True or False.

a) Ridge or Wedge is an area of \_\_\_\_\_

b) In Sea breeze winds blows from \_\_\_\_\_.

c) **ITCZ**, is a belt of low pressure which circles the Earth generally near the equator where the trade winds of the Northern and Southern Hemispheres come together. (True / False)

d) The route over which TRS centre has already passed is called as \_\_\_\_\_.

e) The advance Quadrant of the Right hand semicircle of TRS in Northern hemisphere is called as \_\_\_\_\_.

f) Frontal Depression is a high pressure area formed at the boundary between two different air masses.

g) The frontal depression begins as a small bulge of warm air in the cold air. (True /False)

h) When a current from Equatorial region passes through higher latitude it will be \_\_\_\_\_ current

i) Labrador current is the name of \_\_\_\_\_ current.

j) Face the low wind low pressure area will be on your Northern Hemisphere.

(10 X 1Marks)

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