INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

May/June End Semester Examinations
B.Sc. (Nautical Science) Fourth Semester
(AY 2013-14 to 2015- 16 batches only)

Nautical Electronics - III (UG21T2404)

Date : 08.06.2017 Maximum Marks: 70
Time: 3 Hrs Pass Marks : 35

Note: Answer any SEVEN from the following 9 Questions.
All questions carry equal marks. (7 ×10 =70 marks)

---

1. a) Define PCM. Describe generation and demodulation of PCM. (5)

   b) If antenna radiation resistance is 100Ω and the radiation efficiency is 75%,what is the antenna resistance. (5)

2. a) Explain with block diagram, the working of FM receiver. (5)

   b) The pulse repetition frequency of a pulsed radar is 750 Hz. Find the maximum range in kms, that the radar can detect a target. Also determine the range in nautical miles. (5)

3. a) Explain the terms antenna gain and radiation resistance. (5)

   b) Explain the types of noise. (5)

4. a) Explain pulse amplitude modulation in detail. (5)

   b) Explain with block diagram, the working of tuned radio frequency receiver. (5)

5. a) With the aid of appropriate diagram, explain the operation of

   Yagi uda antenna. (5)

   b) Explain in detail the Radar Beacon. (5)

6. a) Explain the terms sampling and quantisation. (5)

b) Define standing wave ratio(SWR). (5)

7. a) With the help of block diagram, explain the working of a super heterodyne receiver. (5)

b) A message signal made of multiple frequency components has a maximum frequency value of 4 kHz. Find out the minimum sampling frequency. (5)

8. a) Explain the use of Radar altimeters. (5)

b) If an antenna with a total loss of 25% is fed with a signal of 800 watts. How much of it is actually radiated. (5)

9. a) Draw the block diagram of Radar, explain the action of each section (5)

b) Determine the length of an antenna operating at a frequency of 500 kHz (5)

****