INDIAN MARITIME UNIVERSITY

(A Central University,Government of India)

END SEMESTER EXAMINATION DECEMBER-2019

B.Sc.(Nautical Science)

Semester:IV

Nautical Electronics-III (UG21T2404)

Date: 17-12-2019 **Max.marks :70**

Time: 3 Hours **Pass marks:35**

Note: Answer any SEVEN Questions. All questions carry equal marks.

1. a)Explain Pulse amplitude modulation with neat waveform and block diagram. (5)

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

2.a) Define Signal to noise ratio. (5)

   b) The pulse repetition frequency of a pulsed radar is 750 Hz. Find the maximum range in km, 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)A message signal has a sine tone of 500 Hz,sound tone of 1000 Hz and a high frequency component of 2000 Hz. What is the minimum sampling frequency. (5)

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

5. a)With the help 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 quantization. (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) Define Characteristic impedance of a transmission line. (5)

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

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

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