Indian Maritime University

(A Central University, Govt of India)

May-June 2018 End Semester Examinations

B Sc (Nautical Science)

Semester-II

Nautical Physics-III (UG21T2205)

Duration:3 Hrs | Max Marks:70 Marks

Date: 14.06.2018 | Pass Marks:35 Marks

Note:Answer any SEVEN from the following 9 Questions.
All questions carry equal marks.

(7 ×10 =70)

1.a)Define the following terms w.r.to hygrometry

i)Vapour pressure ii)Dew point temperature. (5)

b) Explain dry and wet hygrometer. (5)

2. a)If a photo emissive surface has a threshold frequency 4.6×10^{14}Hz,calculate the energy of the photons in eV.given $h=6.6\times10^{-34}$Js. (5)

b) Explain with neat diagram, construction and working of periscope. (5)

3. a)Explain with neat diagram, construction and working of sextant. (5)

b) Give the applications of optical fibre. (5)

4.a)Explain with neat diagram, construction and working of azimuthal mirror. (5)

b)When a car sounding its horn of frequency 500 Hz passes a stationary observer with a speed of 20 m/s ,the frequency changes in the ratio 9:10,calculate the velocity of sound. (5)

5. a) Give any 3 applications of Doppler effect. (5)

b) A closed system receives an input heat of 450 KJ and increases the internal energy of the system for 325 KJ. Determine the work done by the system. (5)

6.a)Explain with neat block diagram, the working of echo sounder. (5)

b) An automobile moving at 30 m/s is approaching a factory whistle that has a frequency 500 Hz.if the speed of sound is 340 m/s,find the apparent frequency of the whistle as heard by the driver. (5)

7.a) A sound intensity of about 1.2 W/m^2 can produce pain in the ear. What is its equivalent in decibels. (5)

b) Discuss the characteristics of sound. (5)

8.a)Define the following

i)heat engine ii)refrigerator. (5)

b) A liquid of mass 18 kg is heated from 25^0c to 85^0c.How much heat transfer is required? Assume C_p for water is 4.2 Kj/Kg-k. (5)

9.a)State first and second law of thermodynamics. (5)

b)Explain h-S diagram in detail. (5)

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