

MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR
SEMESTER END THEORY EXAMINATION, B.Tech. (D.T.) DEGREE COURSE 2016-17

Semester	: II (V Dean)	Academic Year	: 2016-2017
Course No.	: DE-205	Course Title	: Heat and Mass Transfer
Credits	: 2+1=3	Total Marks	: 50
Day & Date	: Friday, 16.06.2017	Time	: 11.00 to 13.00 Hrs.

- Note :
- 1) Section "A" is Compulsory.
 - 2) Solve Any Three questions from Section "B"
 - 3) The use of scientific tables, charts and calculator is allowed in case of engineering courses.

SECTION –‘A’

- Q.1. A) Give the formulae for the following. (05)
- i) The heat transfer by conduction through a hollow cylinder.
 - ii) Fourier's law of heat conduction.
 - iii) Thermal diffusivity of a substance.
 - iv) Logarithmic Mean Temperature Difference.
 - v) Overall coefficient of heat transfer.
- B) Do as directed. (05)
- i) State Stefan Boltzmann's law.
 - ii) Define heat exchanger.
 - iii) Define emissivity.
 - iv) State Fick's law.
 - v) Give Prandtl number.
- Q.2 A) State whether True or False. If false, rewrite the statement after making necessary corrections. (05)
- i) The heat transfer is constant when temperature remains constant with time.
 - ii) Heat transfer from higher temperature to low temperature takes place according to first law of thermodynamics.
 - iii) In laminar flow maximum heat transfer rate can be expected.
 - iv) A material medium is always necessary for heat transmission.
 - v) The reflectance of a black body is infinity.
- B) Choose the most appropriate answer from the options given below. (05)
- i) Unit of thermal conductivity
 - a) $\text{k Cal/kg m}^2\text{ }^\circ\text{C}$
 - b) $\text{kCal m/hr m}^2\text{ }^\circ\text{C}$
 - c) $\text{kCal /hr m}^2\text{ }^\circ\text{C}$
 - d) $\text{kCal / hr }^\circ\text{C}$
 - ii) Thermal conductivity of solid metals with rise in temperature normally
 - a) Increase
 - b) Decrease
 - c) Remain constant
 - d) May increase or decrease
 - iii) Heat transfer takes place as per
 - a) Zeroth law of thermodynamics
 - b) First law of thermodynamic
 - c) Second law of the thermodynamics
 - d) Kirchoff's law

(P.T.O.)

- ## SECTION – 'B'

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