



Note: Assume any data required, state your assumption clearly. Answer all the following Questions

Question (1)

(50 Marks)

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- (A) Define the followings: Metabolic Rate, Relative Humidity, Degree of Saturation, Dew-Point Temperature, and Humidity Ratio.
 - (B) Describe in details the function and different types of sensors and transducers used in ventilation systems.
 - (C) Specify the required indoor design parameters for a ventilated space.
 - (D) Explain the Two-Node Model of Thermal Interaction.
 - (E) Discuss briefly the metabolic rate and sensible heat losses from human body.

Question (2)

(50 Marks)

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- (A) What is the evaporative heat losses? State these losses briefly?
 - (B) State the steps and requirements required for air conditioning system design?
 - (C) Discuss briefly the classification of air conditioning systems according to construction and operating characteristics.
 - (D) What are differences between cooling load and coil load calculations? Also, state the components of each.

Good Luck, Dr. Khaled Yousef and Dr. Aboelmahasen Elhanafy