Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Total No. of Pages: 02

Total No. of Questions: 09

B.TECH (AE) (Sem.-3rd)

APPLIED THERMODYNAMICS

Subject Code: AE-205

Paper ID: [A0704]

Time: 3 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATE:

(i)Section –A, is Compulsory.

(ii)Attempt any four questions from Section-B.

(iii)Attempt any two questions from Section-C.

Section –A

Q.1.(a)   Define low calorific value of fuel.

(b)   Define isothermal efficiency of a reciprocating air compressor?

(c)   Explain the newton's law of cooling.

(d)   What is effectiveness of the heat exchanger?

(e)   What is Dalton law of partial pressure

(f)   What is Air conditioning?

(g)   Define Dew point temperature.

(h)   What is swept volume in reciprocating air compressor?

(i)   Write the any two properties of Engine fuel.

(j)   Explain the function of evaporator   (2×10=20)

Section –B

Q.2.   Explain in brief general use of alternate fuel.   (5)

Q.3.   What are basic constituents of fuel. Which constituents supply a large portion of heat? (5)

Q.4.   Discuss how the clearance affects the performance of multistage reciprocating

compressors.   (5)

Q.5. Explain the factor influencing the selection of number of blades used in the impeller of a centrifugal compressor. (5)

Q.6. Explain briefly the following types of heat exchanger:

(i) Parallel Flow Type

(ii) Counter Flow Type

Section –C

Q.7. Explain the phenomenon of "Stalling", "Surging" and "Choking" in centrifugal compressors. (10)

Q.8. Prove that the partial pressure of water vapour in the atmospheric air remains constant as long as the specific humidity remains constant. (10)

Q.9. Write the short notes on following : (i) Fuel blending (ii) axial flow compressor (5+5)

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