S.B. Roll No……

HEAT TRANSFER

5th/RAC/5406/Nov'15

Duration: 3 Hrs **M.Marks=75**

NOTE: Attempt any FIVE Questions. Q1& Q2 Are Compulsory.

SECTION-A

Q1. Fill in the Blanks: **10x1.5=15**

a) Black body is defined as…… .
b) Correction of LMTD is applied in case of …… flow.
c) Cane sugar juice is evaporated using ……. Evaporator.
d) Reynold number is defined as…….
e) Units of overall heat transfer co-efficient is ……
f) Baffles are provided in heat exchanger to …… Heat transfer coefficient.
g) Convection is defined as…… .
h) Fourier's law is applicable to ……
i) Condensation of vapour under saturation condition means removal of …….. Heat.
j) Vertical long tube evaporator is used for…….. .

SECTION-B

Q2. Attempt any SIX Questions: **6x5=30**

I. What are various modes of heat transfer?
II. Define Prandtle number and its significance.
III. Explain Newton' law of cooling.
IV. What do you mean by thermal conductivity? Write its units also.
V. Define heat exchanger effectiveness and capacity ratio.
VI. Is it better to arrange for the flow in heat exchanger to be parallel or counter flow? Explain
VII. Explain overall heat transfer co-efficient. Write its units also.
VIII. Define black body, grey body and white body.

SECTION-C

Note: Attempt any THREE questions.

Q3) Derive the expression of conduction of heat through plane homogeneous wall. **10**

Q4) Write short note on any two: **5x2=10**

a)greshoff number
b) nusselt number
c)plank distribution law

Q5.) What do you mean by forced and free convection in detail with examples? **10**

Q6) Explain with the help of diagram the construction and working of parallel flow heat exchanger. **10**

Q7) What are the various heat losses from pipes and conductors? **10**