



Department of Food Technology
School of Interdisciplinary Sciences and Technology
Jamia Hamdard, New Delhi-110062
End Semester Examination, December, 2025. B.Tech IIIrd SEM)
Paper Title: Transfer Process in Foods; Paper Code: BFTC-304

B.Tech. 3rd Sem.

Time Allotted: 3Hrs.

Max Marks: 60

Note: Write to the point. Before answering make sure you have mentioned the Question No.

Section-A (2 Marks each, Attempt All)

Q1	What is the unit of heat?	Co1Po3
Q2	What is energy?	Co1Po2
Q3	Write down the expression for Wien's law.	Co1Po3
Q4	What is the expression for the thermal resistance?	Co2Po2
Q5	What do you understand by heterogeneous system?	Co1Po3

Section-B (5 Marks Each, Attempt any 5)

Q6	Differentiate between free convection and forced convection.	Co1Po3
Q7	Write down the essential features for Newton's law of cooling.	Co2Po2
Q8	The time period t of a pendulum depends upon the length (L) of the pendulum and acceleration due to gravity (g). Derive an expression for the time period.	Co2Po3
Q9	What is thermal conductivity? Write down its unit and fundamental dimension along with its expression.	Co2Po2
Q10	What do you understand by thermal resistance? Write down the expression for thermal resistance for convection and radiation process.	Co2Po3
Q11	Write down the advantages and limitations of dimensional analysis.	Co2Po2
Q12	Write short note on gray body.	Co2Po2

Section C (Attempt any 2) (12.5 Marks Each)

Q13	Calculate the rate of heat transfer per unit area through a copper plate 45mm thick, whose one face is maintained at 350 C and other face is at 50 . $K=370$ W/mC	Co3Po4
Q14	What do understand by heat exchanger? Derive the expression for LMTD in case of parallel flow heat exchanger	Co4Po4
Q15	Find an expression for the force on a smooth sphere of diameter D , moving with a velocity V in a fluid of density ρ and dynamic viscosity μ by using Buckingham method.	Co3Po4
Q16	Derive the expression for general heat conduction equation in spherical coordinates.	Co4Po4