

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**Diploma Aeronautical Engineering, Mid semester Examination**

**Semester: 6th**  
**Subject Code: 03609381**  
**Subject Name: Principal of Heat transfer**

**Date: (23/01/2023)**  
**Time: (1hr: 30min)**  
**Total Marks: 40**

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic.

<b>Q.1</b>	<b>Answer any six out of Ten. (2 Marks Each)</b>	<b>(12)</b>	<b>CO/PO</b>	<b>Bloom's Taxonomy</b>
	1. What is conduction of Heat?		CO1	Knowledge
	2. What is Convection of Heat?		CO1	Knowledge
	3. Explain temperature gradient.		CO2	Understand
	4. Give an example of conduction.		CO1	Knowledge
	5. Define Radiation.		CO1	Knowledge
	6. How is Heat Transferred?		CO2	Knowledge
	7. Definition of Heat transfer.		CO2	Knowledge
	8. Write the equation of thermal conductivity.		CO1	Knowledge
	9. Give an example of radiation.		CO1	Knowledge
	10. Give an example of convection.		CO1	Knowledge
<b>Q.2</b>	A) State Fourier's law of heat conduction. Why negative sign is used?	<b>(03)</b>	<b>CO2</b>	<b>Understand</b>
	OR			
	A) Write expression for blackbody radiation.	<b>(03)</b>	<b>CO2</b>	<b>Knowledge</b>
	B) Application Areas of Heat transfer.	<b>(03)</b>	<b>CO2</b>	<b>Apply</b>
	OR			
	B) State Fourier's law of conduction. Explain what is Absorptivity.	<b>(03)</b>	<b>CO2</b>	<b>Understand</b>
	C) Write the difference between thermodynamics and heat transfer.	<b>(04)</b>	<b>CO2</b>	<b>Knowledge</b>
	OR			
	C) Explain what is reflectivity and transmissivity.	<b>(04)</b>	<b>CO2</b>	<b>Understand</b>
	D) What is Steady state and Unsteady state Heat transfer.	<b>(04)</b>	<b>CO2</b>	<b>Knowledge</b>
<b>Q.3</b>	A) Describe the mechanism of heat transfer by conduction	<b>(03)</b>	<b>CO1</b>	<b>Analyze</b>
	OR			
	A) Explain Thermal conductivity?	<b>(03)</b>	<b>CO2</b>	<b>Understand</b>
	B) State Stefan Boltzmann's law.	<b>(03)</b>	<b>CO2</b>	<b>Understand</b>
	OR			
	B) Describe the mechanism of heat transfer by convection.	<b>(03)</b>	<b>CO2</b>	<b>Analyze</b>
	C) What is a black body? How does it differ from a grey body?	<b>(04)</b>	<b>CO2</b>	<b>Knowledge</b>
	OR			
	C) Explain surface emission properties.	<b>(04)</b>	<b>CO2</b>	<b>Understand</b>
	D) Explain importance of Heat transfer in industries.	<b>(04)</b>	<b>CO1</b>	<b>Understand</b>