	Enrollm	ent No:	Exam Seat No:				
	2111 01111		H UNIVERSIT				
	Summer Examination-2017						
	Subject Name: Heat and Thermodynamics						
	Subject Code: 4SC03PHC1		Branch: B.Sc.(Chemistry)				
	Semester	r: 3 Date: 31/03/2017	Time: 10:30 To 1:30	Marks: 70			
	Instruction	ons:					
	(1) Use of Programmable calculator & any other electronic instrument is prohibited.						
	(2) Instructions written on main answer book are strictly to be obeyed. (3) Draw part diagrams and figures (if pagessary) at right places.						
	(3) Draw neat diagrams and figures (if necessary) at right places.(4) Assume suitable data if needed.						
Q-1	Attempt the following questions:			(14)			
	a)	State Wien's law.					
	b)	Give the statement of Zeroth	law of thermodynamics.				
	c)	State the first law of thermod					
	d) Give the third law of thermodynamics.						
	e)	Define heat.					
	f)	Define temperature.					
	g)	Define radiant heat.	C 11 C1 1				
	h) What is Kelvin's statement of second law of thermodynamics?						
	i) What do you mean by atmosphere lapse rate?j) Define absorbing power.						
	j) k)	Define absorbing power. Define reflecting power.					
	l)	Define transmitting power.					
	m)	What do you mean by a black	k hody?				
	n)	Give the expression for Claus	-				
Atte	,	four questions from Q-2 to Q	• •				
Q-2		Attempt all questions			(14)		
	a)	What is specific heat? Derive	e the relation Cp-Cv=R.		(07)		
	b)	Discuss 1 st and 2 nd order phase	e transition.		(07)		
Q-3		Attempt all questions			(14)		
	a)	Explain Carnot engine and its	s efficiency.		(07)		



Derive the formula of work done during an adiabatic process.

Write a short note on Carnot cycle.

Derive Differential form of First law of thermodynamics.

What is a TDS equation? Derive 1st and 2ndTDS equations.

b)

a) b)

c)

a)

Q-4

Q-5

Attempt all questions

Attempt all questions

Explain temperature-entropy diagram.

(07)

(14)

(04)

(05)

(05)

(14)

(07)

	b)	Explain the Maxwell's relation.	(07)
Q-6		Attempt all questions	(14)
	a)	Discuss the main properties of radiant heat	(07)
	b)	Write short notes on (1) Rayleigh-Jeans law and (2) Plank's law.	(07)
Q-7		Attempt all questions	(14)
	a)	Discuss Stefan's law	(04)
	b)	Derive Maxwell's thermodynamic relation.	(05)
	c)	Explain the applications of First law of thermodynamics.	(05)
Q-8	·	Attempt all questions	(14)
_	a)	Discuss the energy distribution of black body.	(04)
	b)	Explain Joule-Kelvin coefficient for ideal and Van der wall gases.	(05)
	$\hat{\mathbf{C}}$	Derive 1 st and 2 nd order energy equations.	(05)

