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SECTION.

## JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD B.Tech II Year I Semester Examinations, February/March - 2016

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H.C.	23.5	THERMODYNAMICS	Adaman Top Xina Top You							
		(Common to ME, AE, AME)								
	Tin	ne: 3 hours Max. Marks: 75								
	MNLtel PACISE EXX	Ancrea Ancrea any five avections								
. "KITS M.	. 5844	All questions carry equal marks	CEAN AND AND AND AND AND AND AND AND AND A							
		an questions carry equal marks								
Deduc Top 8.	1.å)	What is meant is and all is a series of the								
	1.49	The state process and explain any practical example of such	Ç# Ç							
	<b>L</b> )	process.								
	b)	The state of the s								
77 <b>5</b>		constant volume process and rejects heat of 260 kJ at constant pressure when								
		an adiabatic process. Calculate the adiabatic work and value of internal energy at								
	* 1.	salient points. [5+10]								
2014			1707 G							
	2.a)	What is a PMMI? Why is it impossible?	s and de							
	b)	A turbine operates under steady flow conditions, receiving steam at the following								
20.0000		state: pressure 1.2 MPa, temperature 188°C, enthalpy 2785 kJ/kg, velocity								
		33.3 m/s and elevation 3 m. The steam leaves the turbine at the following state:								
		pressure 20 kPa, enthalpy 2512 kJ/kg, velocity 100 m/s, and elevation 0 m. Heat	, norn no							
		is lost to the surroundings at the rate of 0.29 kJ/s. If the rate of steam flow through								
,85-88%b	. KATERAD	the furbing to 0.40 mass 1. 22 miles								
Delbur 1450 Ts		the curome is 0.32 kg/s, what is the power output of the turbine in kW? [7±8]								
• .	3.a)	Write the difference to the state of the sta								
	5.4)	Write the differences between refrigerator and heat pump? Describe the COP for both of them?								
	Lan.									
197%.	b);	The capacity of refrigerator is 280 tons. Determine the quantity of ice produced at	STANK.							
		0°C within 24 hours when water is supplied at a temperature of 20°C. [6+9]								
<u>er</u>	4.a)	Explain pressure-temperature diagram for a pure substance.								
Material Its	<b>b</b> ) *	A vessel contains one kg of steam which contains 1/3 liquid and 2/3 vapour by								
:		volume. The temperature of the steam is 151.86°C. Find the quality, specific								
		volume and specific enthalpy of the mixture. [5+10]								
		(2007) (2007), (2007), (2007)	ed woo							
	5.	An ideal gas cycle of three processes uses Argon (Mol. wt. 40) as a working	Appendi XIVA							
÷		substance. Process 1-2 is a reversible adiabatic expansion from 0.015 m <sup>3</sup> ,								
		650 kPa, 270°C to 0.066 m <sup>3</sup> . Process 2-3 is a reversible isothermal process.								
		Process 3-1 is a constant pressure process in which heat transfer is zero. Sketch								
dia di		the cycle in the P-V and T-s planes, and find	\$055.4f							
		a) The work transfer in manager 1.2								
	•	a) The work transfer in process 1-2,								
额	28 15 A	b) The work transfer in process 2-3, and	x11x249s							
		c) The net work of the cycle. Take $\gamma = 1.67$ . [5+5+5]								
		[3,3,3]								
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W. I	578° K		AN COLUMN							
			79F8 %L							
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•	6.a)	Write sh	ort notes	on:						* ,
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•		11) Volu iii) Dry l	metric and bulb tempe	llysis erature			208 2	And L	No. 5.	(Second)
-85-mas	b)	An air w	ater vapou	ır mixture	has a rela	tive humidi	ity of 60 %	at I atmosr	here and	
	Property of	20 0.130	etermine p of water va	CL TOOME.C	f the mixt	ure:	BIT	exponent exp	SEC	Subject.
	e e e e e e e e e e e e e e e e e e e	ii) Mass	of dry air.	rbom				i de la companya de La companya de la co	[6+9]	
23.2 23.23	7.a)	Draw P	V on Fr			500 AAA. - 570 C.	24 Ang. 24 Ang.	dit San		dnikan.
	7.47	Processor	, constitui	me me cvo	ne.		ion cycle			2027E,
,845,;;x864	b)	Derive a	n expres	sion for	efficiency	and mea	ın effectiv	e pressure	of Dual	
ŞIR.		comousti	on cycle.	200 a. s.	10 E.S.	4% 18% 23% E	STATE STATE		[7+8]	erice.
	8.a)	Derive th	e expressi	on for CC	P of Bell	Coleman c	ycle when	the compre	ession and	
	<b>b)</b> *	AWART STOT	i aic isemu	ODIC.						
		DIMITE TO "	2 WHL THE	. IPHIDPEST		015 onto	r and 8 bar		•	E. M. T.
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	£98518	are polytr input for t	ODIO WILL	exponent	$n \neq 1.35$	. Determin	ession and ne the COI	and the	net power	40 Min.
	•	.1	Plants		$A_{j-1}$	7			[6+9]	- TET 9 18
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