(asfan 14 00-61×3)	Reg. No. :				50404
(8) Argustracebo	Question P	aper Co	de : 5()404	IL a) U Wha
	Civ CY 6151 – ENGI mmon to all brand (Re	rst Semeste ril Engineerir NEERING C ches except M gulations 201	r ng HEMISTI Iarine Eng 3)	RY-I gineering)	
Time: Three Hours				Maxim	um: 100 Marks
		er ALL questi			
		PART – A			×2=20 Marks)
polymerization	e of polymerization and molecular weig tion expressing visco	ht.			RECOTAGE TO ANNACT OF 181
	ree criteria for spon				
4. Write any three	Maxwell's relation	ships.			
5. What are the flu	uorescence and pho	sphorescence	? Sadana		
6. Which among th	he following is (are)	IR active ? W	hy?		
a) CO ₂	b) N ₂	c) H ₂		sahart note	ilf Giv
7. Find the number	er of phases and con	ponents pres	ent in the f	ollowing eq	uilibria :
	ightharpoonup CaO (s) + CO ₂ (g)				
ii) ice (s) ⇌ wa	ater (I) 💳 vapour	(g)	to abodann		
8. What are the ch	aracteristics of eute	ectic point?			
9. What are nanoc	lusters and nanoro	ds?			
10. What are the ap	plications of CNT ?				

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			PART -	- B (5×16=80)	Marks)
11.	a)	i)	What is solution polymerization? Dis	cuss its advantages and disadvantag	es. (8)
		ii)	Give the expressions for the various (OR)	molecular weights of a polymer.	(8)
1	b)	Dis	scuss the various steps involved in ch	ain or vinyl or radical polymerizati	on. (16
12.	a)	i)	Derive Van't Hoff Isotherm and Van	t't Hoff equation.	(10
		ii)	Derive integrated form of Van't Hof	fequation.	(6
			(OR) (810) and		
	b)	i)	The free energy change Δ G for a re $\left(\partial\Delta G/\Delta T\right)$ is 14.39 Cal/deg. Find Δ		(8
(aaly		ii)	18 g of water at 95°C is placed in a the system (water) and for the surroheat capacity of water is $75.3 J K^{-1}$.	thermostat at 298 K. Calculate Δ S undings (thermostat) if the mean m	for olar (8
13.	a)	so	raw the block diagram of UV or vis or I curces, monochromators, sample hold ectrophotometers.		(10
			(OR)		
	b)	i)	Draw Jablonski diagram and indica	te the various photo processes.	(8
		ii)	Briefly discuss about different elect interaction with matter.	romagnetic radiations and their	(8
14.	a)	i)	How do the properties of metal imp	rove by alloying ?	(8
		ii)	Give short notes on ferrous and non	-ferrous alloys.	(8
			(OR)		
	b)		With phase diagram of lead-silver syst hases present in various parts of the		141
15.	a)	D	iscuss any three methods of synthesis (OR)		(10
	h)	i)	Give the distinction among molecul	es, nanoparticles and bulk materia	
	U)		How the properties of nanomateria		
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