Consortium of Medical Engineering and Dental Colleges of Karnataka

(COMEDK-2005)

CHEMISTRY

			CHEM	ISTRI
1.	A mixture of two moles of carbon monoxide and one mole of oxygen, in a closed vessel is ignited to convert the carbon monoxide to carbon dioxide. If ΔH is the enthalpy change an ΔE is the change in internal energy, then,			- -
	1)	$\Delta H > \Delta E$		
	2)	$\Delta H < \Delta E$		
	3)	$\Delta H = \Delta E$		
	·4)	the relationship depends on t	he capac	ty of the vessel
2.	The cool	ing in refrigerator is due to		
	1)	Reaction of the refrigerator ga	as	
	2)	Expansion of ice		
	3)	The expansion of the gas in th	ne refrige	erator
	4)	The work of the compressor		
3.	For a sy	stem in equilibrium, $\Delta G = 0$, us	nder cond	litions of constant
	1)	temperature and pressure	2)	temperature and volume
	3)	pressure and volume	4)	energy and volume
4.	Molar he	eat of vaporisation of a liquid is	s 6 kJ mo	le ⁻¹ . If the entropy change is
	16 J mol	$e^{-1}K^{-1}$, the boiling point of the	liquid is	
	1)	375°℃	2)	375 K
	3)	273 K	4)	102°C
5.	The tem	perature of the system decreas	es in an	
	1)	adiabatic compression	2)	isothermal compression
	3)	isothermal expansion	4)	adiabatic expansion
		(Space fo	or Rough	Work)

6.	equilibri			allowed to attain equilibrium at 500° C. At be 10 moles. The equilibrium constant for
	1)	50	2)	15
	3)	100	4)	25
, 7.		reaction $N_2O_4\leftrightarrow 2NO_2$, x is that ules at equilibrium will be	t part (of $N_2 O_4$ which dissociates, then the number
	1)	1	2)	3
	3)	(1+x)	4)	$(1+x)^2$
8.	Which of	f these does not influence the rate	of rea	action?
	1)	Nature of the reactants	2)	Concentration of the reactants
	3)	Temperature of the reaction	4)	Molecularity of the reaction
9.	rate by 4			ubling the concentration of A increases the of B doubles the reaction rate. What is the
	1)	4	2)	3/2
	3)	3	4)	1
10.	The rate	at which a substance reacts depe	ends or	n its
	1)	atomic weight	2)	atomic number
	3)	molecular weight	4)	active mass
		(Space for F	Rough	Work)

11.	For the reaction $N_{2(g)} + O_{2(g)} \rightleftharpoons 2NO_{(g)}$, the value of $K_{\rm C}$ at 800°C is 0.1. When the equilibrium concentrations of both the reactants is 0.5 mol, what is the value of $K_{\rm P}$ at the same temperature?				
	1)	0.5	2)	0.1	
	3)	0.01	4)	0.025	
12.	The exte	nt of adsorption of a gas on a solid o	depe	ends on	
	1)	nature of the gas	2)	pressure of the gas	
	3)	temperature of the gas	4)	all are correct	
13.	An emul	sifier is a substance which			
	1)	stabilises the emulsion	2)	homogenises the emulsion	
	3)	coagulates the emulsion	4)	accelerates the dispersion of liquid in liquid	
14.	Which of	the following types of metals form	the	most efficient catalysts?	
	((·, 1)	alkali metals	2)	alkaline earth metals	
	3)	transition metals	4)	all the above	
15.	The spec	ies among the following, which can	act	as an acid and a base is	
	1)	$HSO_4^{ \ominus}$	2)	SO_4^2	
	3)	H_3O^{\oplus}	4)	Cl^{Θ}	

16.		solution has equal volumes of 0. The pH is	2M <i>N</i>	NH ₄ OI	H and 0.0	2 M NH ₄ Cl	. The p ^{kb} of the
	1)	10	- 2)	9			
	3)	4	4)	7			
17.		rogen electrode is dipped in a solu 2.303 RT/F is 0.059 V)	tion o	of pH	3 at 25°C.	The potentia	al would be (the
	1)	0.177 V	2)	0.08	7 V	[** { * *	
	3)	0.059 V	. (4)	- 0.1	177 V		
18.	· 1)	0.5 N <i>HCl</i> and 35 ml of 0.1N <i>NaC</i> be neutral turn phenolphthalein solution p		2) ł	oe basic	••	. in the second second
19.	Corrosio	n of iron is essentially an electr	ochen	nical _]	phenomen	ion where th	ne cell reaction
	1)	Fe is oxidised to Fe^{2+} and dissol	ved o	xygen	in water	is reduced to	$\overset{\hookrightarrow}{O}H$
	2)	Fe is oxidised to Fe^{3+} and H_2O	is red	uced 1	to O_2^{2-}		
	3)	Fe is oxidised to Fe^{2+} and H_2O i	s redi	uced t	o O_2^-		
	4)	Fe is oxidised to Fe^{2+} and H_2O	is red	uced 1	to O_2		
20.	The stan	dard electrode potential is measu	red b	y	:••		
	1)	Electrometer.			meter		
		Pyrometer	4)	Galv	anometer	•	

21.	A precipitate of	f AgCl is	formed	when	equal	volumes	of the	following	are	mixed.
	K_{S} for $AgCl = 1$	10 ⁻¹⁰								

1) $10^{-4} M AgNO_3$ and $10^{-7} M HCl$ 2) $10^{-5} M AgNO_3$ and $10^{-6} M HCl$

3) $10^{-5} M AgNO_3$ and $10^{-4} M HCl$

4) $10^{-6} M AgNO_3$ and $10^{-6} M HCl$

22. Which one of the following defects in the crystals lowers its density?

1) Frenkel defect

2) Schottky defect

3) F-centres

4) Interstitial defect

23. A radioactive isotope has a half life of 10 days. If today 125 mg is left over, what was its original weight 40 days earlier?

1) 2 g

2) 600 mg

3) 1 g

4) 1.5 g

Which of the particles cannot be accelerated? 24.

1) α - particle

2) β - particle

3) Protons

4) Neutrons

In which of the following nuclear reactions neutron is emitted? **25.**

1)
$$\frac{27}{13}Al + \frac{4}{2}He \rightarrow \frac{30}{15}P$$

2)
$${12 \atop 6} C + {1 \atop 1} H \rightarrow {13 \atop 7} N$$

3)
$$\frac{30}{15}P \rightarrow \frac{30}{14}Si$$

4)
$$\frac{241}{96}$$
 Am + $\frac{4}{2}$ He $\rightarrow \frac{245}{97}$ Bk

26.	Gold is e	extracted by hydrometallurgical pro	ocess	s, based on its property					
	1) of being electropositive								
	2)	2) of being less reactive							
	3)	to form complexes which are water	er so	luble					
	4)	to form salts which are water solu	ıble						
27.	In blast	furnace, iron oxide is reduced by							
	1)	Hot blast of air	2)	Carbon monoxide					
	3)	Carbon	4)	Silica					
28.	Which of	f the following pairs of elements ca	nnot	form an alloy?					
	1)	Zn, Cu	2)	Fe, Hg					
	3)	Fe, C	4)	Hg, Na					
29.	Which co	ompound is zero valent metal comp	lex ?	•					
	1)	$[Cu(NH_3)_4]SO_4$	2)	$\left[Pt\left(NH_{3}\right)_{2}Cl_{2}\right]$					
	3)	$[Ni\ (CO)_{\!\scriptscriptstyle 4}]$	4)	$K_3[Fe\ (CN)_6]$					
30.	Alum is	a water purifier because it							
	1)	coagulates the impurities.							
	2)	softens hard water							
	3)	gives taste							
	4)	destroys the pathogenic bacteria							
		(Space for Ro	ugh	Work)					

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31.	A compound A has a molecular formula $C_2 Cl_3 OH$. It reduces Fehling's solution and or oxidation, gives a monocarboxylic acid B . A can be obtained by the action of chlorine or ethyl alcohol. A is			•
	1)	chloroform	2)	chloral
	3)	methyl chloride	4)	monochloro acetic acid
32.	Which o	f the following haloalkanes is most	reac	tive?
	1)	1-chloropropane	2)	1-bromopropane
	3)	2-chloropropane	4)	2-bromopropane
33.	The reac	ction in which phenol differs from a	lcoh	ol is
	1)	it undergoes esterification with ca	rbox	rylic acid
	2)	it reacts with ammonia		
	3)	it forms yellow crystals of iodoform	n	
	4)	it liberates H_2 with Na metal		
34.	78ºC. Or	•	colo	has a pleasant cdour with boiling point of urless gas is produced which decolourises. aic liquid A is
	1)	C_2H_5Cl	2)	$C_2H_5COOCH_3$
	3)	C_2H_5OH	4)	C_2H_6
35.	Which of	f the following is an amphoteric aci	d ?	
	1)	Glycinc	2)	Salicylic acid
	3)	Benzoic acid	4)	Citric acid

36.		alcohol and sodium benzoat ehyde. This reaction is know	ed by the action of sodium hydroxide on	
	1)	Perkin's reaction	2)	Cannizzaro's reaction
	3)	Sandmeyer's reaction	4)	Claisen condensation
37 .	Ethyl ch	loride on heating with AgCN	, forms a co	empound ' X '. The functional isomer of ' X ' is-
	1)	$C_2 H_5 NC$	2)	$C_2 H_5 NH_2$
	3)	$C_2\ H_5\ CN$	4)	None of the above
38.	On comp			and oxygen, has a molecular weight of 44. pound of molecular weight 60. The original
	1)	an aldehyde	2)	an acid
	3)	an alcohol	4)	an ether
39.	Grignar	d reagent adds to		
	1)	C = 0	2)	$-C \equiv N$
	3)	C = S	4)	all of the above
40.	Which o	f the following biomolecules	contain a n	on-transition metal ion ?
	1)	Vitamin B_{12}	- 2)	Chlorophyll
	3)	Haemoglobin	4)	Insulin

41.	Three di	mensional molecules with cross lin	ks a	re formed in the case of a
	1)	Thermoplastic	2)	Thermosetting plastic
	3)	Both	4)	None
42.	Sucrose	molecule is made up of		
	^{\11} 1)	a gluco pyranose and a fructo pyra	anos	e
	2)	a gluco pyranose and a fructo fura	anose	9 ·
	3)	a gluco furanose and a fructo pyra	nose	e
	4)	a gluco furanose and a fructo fura	nose	
43.	Water in	soluble component of starch is	,	
	1)	amylopectin	2)	amylose
	3)	cellulose	4)	none of the above
44.	An exan	aple for a saturated fatty acid, pres	ent i	n nature is
	1)	Oleic acid	2)	Linoleic acid
	3)	Linolenic acid	4)	Palmitic acid
45.	A Nanop	peptide contains peptide lir	ıkag	es.
	1)	10 , 4,	(2)	.8
	3)	9	4)	18

46.	An exam	iple of a sulphur containing amino	acid	is
	1)	Lysine	2)	Serine
	3)	Cysteine	4)	Tyrosine
47 .	Which of	f the following is not present in a n	ucle	otide?
	1)	cytosinę	2)	guanine
	3)	adenine	4)	tyrosine
48.	Antisept	ic chloroxylenol is		
	1)	4 - chloro - 3, 5 - dimethyl phenol	2)	3 - chloro - 4, 5 - dimethyl phenol
	3)	4 - chloro - 2, 5 - dimethyl phenol	4)	5 - chloro - 3, 4 - dimethyl phenol
49.	,			its outermost orbit and that of B has six of the compound between these two will
	1)	A_3B_6	2)	$A_2 B_3$
	3)	$egin{aligned} A_3B_6 \ A_3B_2 \end{aligned}$	4)	A_2B
50 .	Among I	Na^+ , Na , Mg and Mg^{2+} , the larges	st pa	rticle is
	1)	Mg^{2+}	2)	Mg
	3)	Na ·	4)	Na^+

51.	Molarity	of 0.2 N H ₂ SO ₄ is		
	1)	0.2	2)	0.4
	3)	0.6	4)	0.1
52.		quation of state of an ideal gas <i>PV</i> epend only on	= n I	RT , the value of the universal gs constant
	1)	the nature of the gas	2)	the pressure of the gas
	3)	the units of the measurement	4)	None of the above
53.	A commo		is lab	pelled as 10 volume. Its percentage strength
	·	1%	2)	3%
	•	10%	-/	90%
	· U)	10 //	4)	30 %
54.	Activate by		ourin	g matter from pure substances. It works
	1)	oxidation	2)	reduction
	3)	bleaching	4)	adsorption
55.	When pl	ants and animals decay, the organ	ic nit	rogen is converted into inorganic nitrogen.
		ganic nitrogen is in the form of		
	1)	Ammonia		Elements of nitrogen
	3)	Nitrates	4)	Nitrides

56.	_	colourised by $KMnO_4$ solution but is	t giv	es no precipitate with ammonical cuprous
	1)	Ethane	2)	Methane
	3)	Ethene	4)	Acetylene
57.	H_3C -	$C = CH - CH - CH_3 \text{ is}$ $Cl \qquad CH_3$		
	1)	2-chloro-4-methyl-2-pentene	2)	4-chloro-2-methyl-3-pentene
	3)	4-methyl-2-chloro-2-pentene	4)	2-chloro-4,4-dimethyl-2-butene
58.	Amongst	the following, the compound that o	can i	most readily get sulphonated is?
	1)	Benzene	2)	Toluene
	3)	Nitrobenzene	4)	Chlorobenzene
59.	Househo	ld gaseous fuel (LPG) mainly conta	ins .	
	1)	CH_4	2)	C_2H_2
	3)	C_2H_4	4)	$egin{aligned} C_2 H_2 \ C_4 H_{10} \end{aligned}$
60.	Use of ch	nlorofluoro carbons is not encourage	ed be	ecause

they are harmful to the eyes of people that use it.
 they damage the refrigerators and air conditioners.

3) they eat away the ozone in the atmosphere.

4) they destroy the oxygen layer.