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10.	CORRECT METHOD O Please note that :	F SHADING 7	THE CIRCLE O		SHEET IS AS SHOWN BEL	.OW :	
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11.					n work AND do not use the OM	IR answer	
12.	After the last bell is run	-					
13. 14.	Hand over the OMR AN				lator will return the bottom sh	eet replica	
	(Candidate's copy) to yo	u to carry home	e for self-evaluat	ion.		• · · · ·	
15.	Preserve the replica	or the OMR ar	iswer sneet for	r a minimum j	periou of One year.		

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#### CHEMISTRY

- 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  $\Delta H$  is the enthalpy change and  $\Delta E$  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 the capacity of the vessel
- 2. The cooling in refrigerator is due to .....
  - 1) Reaction of the refrigerator gas
  - 2) Expansion of ice
  - 3) The expansion of the gas in the refrigerator
  - 4) The work of the compressor

**3.** For a system in equilibrium,  $\Delta G = 0$ , under conditions of constant .....

- 1) temperature and pressure 2) temperature and volume
- 3) pressure and volume 4) energy and volume

4. Molar heat of vaporisation of a liquid is 6 kJ mole<sup>-1</sup>. If the entropy change is 16 J mole<sup>-1</sup> K<sup>-1</sup>, the boiling point of the liquid is .....

1)	375°Č		2)	$375\mathrm{K}$
3)	273 K		4)	102º C

5. The temperature of the system decreases in an .....

- 1) adiabatic compression 2) isothermal compression
- 3) isothermal expansion 4) adiabatic expansion

#### (Space for Rough Work)

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15 moles of  $H_2$  and 5.2 moles of  $I_2$  are mixed and allowed to attain equilibrium at 500°C. At 6. equilibrium, the concentration of HI is found to be 10 moles. The equilibrium constant for the formation of HI is ..... 1) 50 2) 15 3) 100 254) If, in the reaction  $N_2O_4 \leftrightarrow 2NO_2$ , x is that part of  $N_2O_4$  which dissociates, then the number . **7.** ' of molecules at equilibrium will be 1) 1 2) 3 3) (1+x) · 4)  $(1+x)^2$ . 81 A 8. Which of these does not influence the rate of reaction? 1) Nature of the reactants 2) Concentration of the reactants 3) Temperature of the reaction 4) Molecularity of the reaction 9. For the reaction  $A + B \rightarrow C$ , it is found that doubling the concentration of A increases the rate by  $\dot{4}$  times, and doubling the concentration of B doubles the reaction rate. What is the overall order of the reaction? 2)  $\frac{3}{2}$ 1) 4 3) 3 4) 1 The rate at which a substance reacts depends on its ..... 10. 1) atomic weight 2) atomic number 3) molecular weight 4) active mass (Space for Rough Work)

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11.	equilibri	um concentrations of	$\implies 2NO_{(g)},$ both the react	the ant	e value of $K_c$ at 800°C is 0.1. When the s is 0.5 mol, what is the value of $K_p$ at the
·		nperature ? 0.5		2)	0.1
	3)	0.01		-/ 4)	0.025
12.	1	nt of adsorption of a g	as on a solid d	lepe	ends on
12.	1)	nature of the gas	, ,		pressure of the gas
٠	. 3)	temperature of the g	as	4)	all are correct
10	•	sifier is a substance w			
13.	An emui 1)	stabilises the emulsi		2)	homogenises the emulsion
	(1) (3)	coagulates the emuls		4)	accelerates the dispersion of liquid in liquid
14. 15.	((* 1) ((* 3)	alkali metals transition metals		2) 4)	most efficient catalysts ? alkaline earth metals all the above as an acid and a base is
	•	$HSO_{4}^{\Theta}$			$SO_{4}^{2^{-}}$
	3)	$H_3 O^{\oplus}$	. *	4)	$Cl^{\ominus}$
			(Space for Ro	ugh	Work)
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	1)	10		2)	9	• .				
	3)	4	•	4)	7			•	•	,
7.	The hyd value of	rogen electrode i 2.303 RT/F is 0.0	is dipped in a sol 059 V)		of pH 3		. The po	tentia	l would	be (th
	1)	0.177 V	an tha an	2)	0.087	V		• • • •	43 <b>1</b> 7	
,	3)	0.059 V 1.0	entra de la composition de la composition Entra de la composition de la compositio	4)	- 0.17	7 V		- 		
8. <sup>:</sup>	20 ml of	0.5 N <i>HCl</i> and 3	35 ml of 0.1N <i>Na</i>	<i>OH</i> ar	e mixed	The r	esulting	r soluti	ion will	:*
	• 1)	be neutral				basic		, sorae		•••••
	1)	De neutrai			2) DC					
		turn phenolpht	thalein solution j	pink			hyl orar	nge rec	1	
9.	3)	turn phenolpht n of iron is esse	<b>X</b>	· . ·	4) tu	rn met		- ·		eactio
9.	3) Corrosio are	turn phenolpht n of iron is esse	entially an elect	rochen	4) tu nical pł	rn met nenome	non wh	ere th	e cell re	eactio
9.	3) Corrosio are	turn phenolpht n of iron is esse  <i>Fe</i> is oxidised to	entially an elect	rochen lved oz	4) tu nical pl xygen in	rn met nenome n water	non wh	ere th	e cell re	eactio
9.	3) Corrosio are 1)	turn phenolpht n of iron is esse  <i>Fe</i> is oxidised to <i>Fe</i> is oxidised to	entially an elect 0 $Fe^{2+}$ and disso	rochen lved oz is red	4) tu nical ph xygen in uced to	rn met nenome n water O2 <sup>2-</sup>	non wh	ere th	e cell re	eactio
9.	<ul> <li>3)</li> <li>Corrosic are</li> <li>1)</li> <li>2)</li> <li>3)</li> </ul>	turn phenolpht n of iron is esse  <i>Fe</i> is oxidised to <i>Fe</i> is oxidised to	entially an elect 0 $Fe^{2+}$ and disso 0 $Fe^{3+}$ and $H_2O$ 0 $Fe^{2+}$ and $H_2O$	rochen lved oz is red is redu	4) tu nical ph xygen in uced to uced to	rn met nenome n water $O_2^{2-}$ $O_2^{-}$	non wh	ere th	e cell re	eactio
	<ul> <li>3)</li> <li>Corrosic are</li> <li>1)</li> <li>2)</li> <li>3)</li> <li>4)</li> </ul>	turn phenolpht n of iron is esse  Fe is oxidised to Fe is oxidised to Fe is oxidised to Fe is oxidised to	entially an elect o $Fe^{2+}$ and disso o $Fe^{3+}$ and $H_2O$ o $Fe^{2+}$ and $H_2O$ o $Fe^{2+}$ and $H_2O$	rochen lved o: is red is redu is redu	4) tu nical ph xygen in uced to uced to uced to	rn met nenome n water $O_2^{2-}$ $O_2^{-}$	non wh	ere th	e cell re	eactio
9.	<ul> <li>3)</li> <li>Corrosio are</li> <li>1)</li> <li>2)</li> <li>3)</li> <li>4)</li> <li>The star</li> </ul>	turn phenolpht n of iron is esse  <i>Fe</i> is oxidised to <i>Fe</i> is oxidised to <i>Fe</i> is oxidised to	entially an elect o $Fe^{2+}$ and disso o $Fe^{3+}$ and $H_2O$ o $Fe^{2+}$ and $H_2O$ o $Fe^{2+}$ and $H_2O$	rochen lved oz is red is red is red ured by	4) tu nical ph xygen in uced to uced to uced to	rn met nenome n water $O_2^{2-}$ $O_2^{-}$ $O_2^{-}$	non wh	ere th	e cell re	eactio

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21.	A precipitate of $AgCl$ is formed when equal volumes of the following are mixed. $\left[K_{S} \text{ for } AgCl = 10^{-10}\right]$
	1) $10^{-4} M A_g NO_3$ and $10^{-7} M HCl$ 2) $10^{-5} M A_g NO_3$ 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 defect2) Schottky defect3) F-centres4) 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
	3) 1 g 4) 1.5 g
24.	
•	1) $\alpha$ - particle2) $\beta$ - particle3) Protons4) Neutrons
25.	In which of the following nuclear reactions neutron is emitted ?
	1) $\frac{27}{13}Al + \frac{4}{2}He \rightarrow \frac{30}{15}P$ 2) $\frac{12}{6}C + \frac{1}{1}H \rightarrow \frac{13}{7}N$
	3) $\frac{30}{15}P \rightarrow \frac{30}{14}Si$ 4) $\frac{241}{96}Am + \frac{4}{2}He \rightarrow \frac{245}{97}Bk$

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(Space for Rough Work)

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26.	Gold is extracted by hydrometallurgical process, based on its property
	1) of being electropositive
•	, 2) of being less reactive
	3) to form complexes which are water soluble
	4) to form salts which are water soluble
27.	In blast furnace, iron oxide is reduced by
•	1) Hot blast of air 2) Carbon monoxide
	3) Carbon 4) Silica
28.	Which of the following pairs of elements cannot form an alloy ?
	1) $Zn, Cu$ 2) $Fe, Hg$
	3) Fe, C 4) Hg, Na
29.	Which compound is zero valent metal complex ?
o	1) $[Cu(NH_3)_4]SO_4$ 2) $[Pt(NH_3)_2 Cl_2]$
	3) $[Ni (CO)_4]$ 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 Rough Work)
	(Space for Rough 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
e.	oxidation, gives a monocarboxylic acid $B$ . A ca	
;	ethyl alcohol. A is	
	1) chloroform 2)	chloral

monochloro acetic acid 3) methyl chloride 4)

Which of the following haloalkanes is most reactive ? 32.

chloroform

1)

2) 1-bromopropane 1) 1-chloropropane

- 2-bromopropane 2-chloropropane 4) 3)
- The reaction in which phenol differs from alcohol is ..... 33.
  - 1) it undergoes esterification with carboxylic acid
  - 2) it reacts with ammonia
  - 3) it forms yellow crystals of iodoform
  - it liberates  $H_2$  with Na metal 4)

An organic compound A containing C, H and O has a pleasant cdour with boiling point of 34. 78°C. On boiling A with conc.  $H_2 SO_4$ , a colourless gas is produced which decolourises. bromine water and alkaline  $KMnO_4$ . The organic liquid A is .....

1)	$C_2H_5Cl$			2)	$C_2H_5COOC$	$CH_3$
3)	$C_{2}H_{5}OH$	·		4)	$C_2H_6$	•

Which of the following is an amphoteric acid? 35.

1)	Glycinc		• • •		2)	Salicylic acid
3)	Benzoic acid			· .	4)	Citric acid

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86.	Benzyl a benzalde	alcohol and sodi hyde. This react	um benzoa tion is know	te is obtair m as	ned by the act	ion of sodiı	ım hydro	xide or
	1) 3)	Perkin's reactio Sandmeyer's re		2) 4)	Cannizzaro's Claisen conde			
87.	Ethyl ch	loride on heating	; with AgCN	V, forms a c	ompound 'X'. Tl	ne functiona	al isomer o	of <i>'X</i> ' is
	. 1)	$C_2 H_5 NC$	•	2)	$C_2 H_5 NH_2$	•		· .
	3)	$C_2 H_5 CN$		4)	None of the a	bove	с. Х.	•
	•			5				
88.	On comp compour 1)	und, containing o lete oxidation it i id is an aldehyde	only carbon is converted	l into a com 2)	pound of molec	as a molecu ular weight	llar weigh t 60. The c	t of 44 origina
•	On comp compour 1) 3)	lete oxidation it i id is	is converted	l into a còn	pound of molec	as a molecu ular weight	lar weigh t 60. The c	t of 44 origina
•	On comp compour 1) 3) Grignard	lete oxidation it i id is an aldehyde an alcohol	is converted	l into a com 2) 4)	pound of molec	as a molecu ular weight	t 60. The c	t of 44 origina
3 <b>8.</b> 39.	On comp compour 1) 3) Grignard 1)	lete oxidation it i id is an aldehyde an alcohol l reagent adds to	is converted	l into a com 2) 4) 2)	pound of molec an acid an ether	ular weight	t 60. The c	t of 44 origina
	On comp compour 1) 3) Grignaro 1) 3)	elete oxidation it i ad is an aldehyde an alcohol d reagent adds to >C = 0	is converted	l into a com 2) 4) 2) 2) 4)	npound of molec an acid an ether -C = N all of the abov	ular weight 'e	60. The c	t of 44 origina
39.	On comp compour 1) 3) Grignaro 1) 3)	elete oxidation it i ad is an aldehyde an alcohol d reagent adds to >C = 0 >C = S	is converted	l into a com 2) 4) 2) 2) 4)	npound of molec an acid an ether -C = N all of the abov	ular weight 'e	60. The c	t of 44 origina

(Space for Rough Work)

•••••••			11		A -1
41.	Three di	mensional molecules w	ith cross links a	re formed in the case of	a
	1)	Thermoplastic	2)	Thermosetting plastic	
	3)	Both	4)	None	
42.	Sucrose	molecule is made up of			
		a gluco pyranose and		• • • • • • • • • • • • • • • • • • •	·
	2)	a gluco pyranose and			
•	3)	a gluco furanose and a	a fructo pyranose	<b>e</b>	
	4)	a gluco furanose and a	a fructo furanose	:	
43.	Water in	soluble component of s	tarch is	•	an an an Arabana an Arabana Arabana Arabana an Arabana
•	1)	amylopectin	2)	amylose	
	3)	cellulose	4)	none of the above	· · · · · · · · · · · · · · · · · · ·
44.	An exam	ple for a saturated fatt	y acid, present i	n nature is	à.
	1)	Oleic acid	2)	Linoleic acid	
	3)	Linolenic acid	<b>4</b> )	Palmitic acid	
45.	A Nanop	eptide contains	peptide linkage	es.	
÷	1)	10 Jack Barris Barris	·····	8	and the state
	3)	9	4)	18	
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<b>46.</b>	An example of a sulphur con	taining amino acid	l is			•	• •
	1) Lysine	2)	· •				•
	3) Cysteine	4)	Tyrosine	•			
47.	Which of the following is not	present in a nucle	otide ?	. • · · · ·		÷	
	1) cytosinę	2)	guanine	•			
	3) adenine	4)	tyrosine				
<b>48.</b>	Antiseptic chloroxylenol is					•	
•	1) 4 - chloro - 3, 5 - dir		3 - chloro	- 4, 5 - din	nethyl p	ohenol	
	3) 4 - chloro - 2, 5 - dir					· • ·	
•	electrons in its outermost o be	rbit. The formula	of the com	pound be	tween	these tv	vo will
	1) $A_3 B_6$	2)	$A_2 B_3$				
	3) $A_3 B_2$	4)	$A_2 B$	2			
50.	Among $Na^+$ , $Na$ , $Mg$ and $M$	$g^{2+}$ , the largest part	article is			999 <b>8 8</b> 9 8 9 8 9	
•	1) $Mg^{2+}$	2)	Mg			1 D	
	3) <i>Na</i>	4)	Na +			·* • ·	
	· · · · · · · · · · · · · · · · · · ·	(Space for Rough	Work)				
				•			. `
		· · ·		• •			

•		· · ·		13		•	24 -	A -1	•
	Molarity	of $0.2 N H_2 SC$	), is		. •			k	
		0.2	•	2)	0.4	۰ ۵	. /	. •	
	3)	0.6	•	4)	0.1		:		
2.	In the ec	uation of state o	of an ideal gas <i>l</i>	PV = nF	T the value	of the univ	ersal gas co	onstant	
		epend only on	· -		, one (unde		orbar gab of	,	
		the nature of t		2)	the pressure	e of the gas		•	
		the units of the				-			
9	<b>A</b>	unial samula of		:do :o lob	alla'd ag 10 ua	lumo Itana	waanto ma'nt	mon orth	
3.	A comme is nearly	ercial sample of l	iyarogen peroxi	ide is lab	elled as 10 vo	lume. Its pe	ercentage st	rengtn	
•	1. j T. j	1%		2)	3%	· · ·	•		-,*.
	1) . 3)	1%		4)	3% 90%				
				. 4)	30 70		•		
54.		d charcoal is us	sed to remove	colourin	g matter from	m pure sub	stances. It	works	
	by				•		•		
	1)	oxidation	•	2)	reduction	·			
	3)	bleaching	• • •	4)	adsorption	•		· · ·	
	1)	ganic nitrogen i Ammonia		2)	Elements of	nitrogen	•	•	
	Ó					U	· · · ·		
	3)	Nitrates	•	4)	Nitrides				
	3)	4	(Space for					, 	
	3)	4	(Space for				· · · · · · · · · · · · · · · · · · ·	, ,	
	3)	4	(Space for				بر ب	<u>,</u>	
	. 3)	4	(Space for					· · · · · · · · · · · · · · · · · · ·	
	. 3)	4	(Space for					· · · · · · · · · · · · · · · · · · ·	
	3)	4	(Space for						•
	3)	4	(Space for						
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	3)	4	(Space for						
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	3)	4	(Space fo						

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	1) Ethane	2)	Methane							
	3) Ethene	4)	Acetylene							
•	$H_{3}C - C = CH - CH - CH_{3} \text{ is}$ $  \qquad   \qquad   \\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							
	Amongst the following, the compound that can most readily get sulphonated is ?									
	1) Benzene	2)	Toluene							
	3) Nitrobenzene	4)	Chlorobenzene							
	Household gaseous fuel (LPG) mainly contains									
	1) <i>CH</i> <sub>4</sub>	2)	$C_2H_2$							
	3) $C_2H_4$	4)	$C_4 H_{10}$							
•	Use of chlorofluoro carbons is not encourag	ed b	ecause							
	<ol> <li>they are harmful to the eyes of people that use it.</li> <li>they damage the refrigerators and air conditioners.</li> </ol>									
	3) they eat away the ozone in the atmosphere.									
	4) they destroy the oxygen layer.									

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