## **COMMON ENTRANCE TEST - 2005**

DATE	SUBJECT	TIME
04 - 05 - 2005	CHEMISTRY	02.30 PM to 03.50 PM

MAXIMUM MARKS	TOTAL DURATION	MAXIMUM TIME FOR ANSWERING
60	80 MINUTES	70 MINUTES

MENTION YOU CET NUMBER		OKLET DETAILS SERIAL NUMBER
	A - 1	015953

## IMPORTANT INSTRUCTIONS TO CANDIDATES

(Candidates are advised to read the following instructions carefully, before answering on the OMR answer sheet.)

- 1. Ensure that you have entered your Name and CET Number on the top portion of the OMR answer sheet.
- 2. ENSURE THAT THE TIMING MARKS ON THE OMR ANSWER SHEET ARE NOT DAMAGED / MUTILATED / SPOILED.
- 3. This Question Booklet is issued to you by the invigilator after the 2<sup>nd</sup> Bell. i.e., after 02.35 p.m.
- Carefully enter the Version Code and Serial Number of this question booklet on the top portion of the OMR answer sheet.
- 5. As answer sheets are designed to suit the Optical Mark Reader (OMR) system, please take special care while filling the entries pertaining to CET Number and Version Code.
- 6. Until the 3rd Bell is rung at 02.40 p.m.:
  - Do not remove the staple present on the right hand side of this question booklet.
  - Do not look inside this question booklet.
  - Do not start answering on the OMR answer sheet.
- After the 3<sup>rd</sup> Bell is rung at 02.40 p.m., remove the staple present on the right hand side of this question booklet and start answering on the bottom portion of the OMR answer sheet.
- 8. This question booklet contains 60 questions and each question will have four different options / choices.
- 9. During the subsequent 70 minutes:
  - Read each question carefully.
  - Determine the correct answer from out of the four available options / choices given under each question.
  - Completely darken / shade the relevant circle with a BLUE OR BLACK INK BALLPOINT PEN
    against the question number on the OMR answer sheet.

## CORRECT METHOD OF SHADING THE CIRCLE ON THE OMR SHEET IS AS SHOWN BELOW:

 $\bigcirc$ 





- 10. Please note that:
  - For each correct answer

ONE mark will be awarded.

• For each wrong answer

QUARTER (1/4) mark will be deducted.

If more than one circle is shaded

ONE mark will be deducted.

- Even a minute unintended ink dot on the OMR sheet will also be recognised and recorded by the scanner. Therefore, avoid multiple markings of any kind.
- 11. Use the space provided on each page of the question booklet for Rough work AND do not use the OMR answer sheet for the same.
- 12. After the last bell is rung at 03.50 p.m., stop writing on the OMR answer sheet.
- 13. Hand over the OMR ANSWER SHEET to the room invigilator as it is.
- 14. After separating and retaining the top sheet (CET Cell Copy), the invigilator will return the bottom sheet replica (Candidate's copy) to you to carry home for self-evaluation.
- 15. Preserve the replica of the OMR answer sheet for a minimum period of One year.

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## **CHEMISTRY**

	1)	$\Delta H > \Delta E$		•				·		
	2)	$\Delta H < \Delta E$	-						•	•
	3)	$\Delta H = \Delta E$		٠.			. •			, • •
	4)	the relationship depends	s on the ca	apaci	ity of	the ves	sel			
2.	The cool	ing in refrigerator is due	to	•			·			
	1)	Reaction of the refrigera	tor gas							
	2)	Expansion of ice				,	٠.			•
	3)	The expansion of the gas	s in the re	frige	erator				• .	,
	4)	The work of the compres	ssor							•
3.	For a sys	stem in equilibrium, $\Delta G$ =	= 0, under	con	dition	s of co	nstant .		<i>?</i>	
	1)	temperature and pressu	re	2)	temp	peratu	e and	volume	•	
	3)	pressure and volume	,	4)	ener	gy and	volum	е		•
4.	Molar h	eat of vaporisation of a lic	juid is 6 k	Jmo	ole <sup>-1</sup> . l	f the e	ntropy	change	e is	
		$e^{-1} K^{-1}$ , the boiling point of								
	1)	$375^{\circ}\mathrm{C}$		2)	375]	K				
	3)	273 K		4)	$102^{0}$	C				•

(Space for Rough Work)

adiabatic compression
 isothermal expansion

2) isothermal compression

4) adiabatic expansion

6.	15 moles of $H_2$ and 5.2 moles of $I_2$ are equilibrium, the concentration of $HI$ the formation of $HI$ is	mixed a	and l to	l allowed to attain equilibrium at $500^{\circ}$ C. At be 10 moles. The equilibrium constant for
	1) 50		2)	15
	3) 100	•	4)	25
, <b>7.</b>	If, in the reaction $N_2O_4\leftrightarrow 2NO_2$ , $x$ is of molecules at equilibrium will be	s that pa	rt.	of $N_{2}O_{4}$ which dissociates, then the number
	1) 1		2)	3
,	(1+x)		4)	$(1+x)^2$
8.	Which of these does not influence the	rate of	rea	action ?
	1) Nature of the reactants	•		Concentration of the reactants
	3) Temperature of the reaction			Molecularity of the reaction
9.	For the reaction $A+B\to C$ , it is four rate by 4 times, and doubling the concoverall order of the reaction?	nd that centrati	do on	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	depends	s or	n its
	1) atomic weight	5	2)	atomic number
	3) molecular weight	. 2	4)	active mass

11.	equilibri	reaction $N_{2(g)} + O_{2(g)} =$ um concentrations of both nperature?	$\geq 2NO_{(g)}$ , the react	the ant	value of $K_{\rm C}$ at 800°C is 0.1. When the s is 0.5 mol, what is the value of $K_{\rm P}$ at the
		0.5		2)	0.1
•	3)	0.01		4)	0.025
12.	The exte	nt of adsorption of a gas o	n a solid c	lepe	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 whicl	ı		
•	1)	stabilises the emulsion		2)	homogenises the emulsion
	<b>3</b> )	coagulates the emulsion		4)	accelerates the dispersion of liquid in liquid
14.	Which o	f the following types of me	tals form	the	most efficient catalysts?
	٠ ۴ ٠	alkali metals		2)	alkaline earth metals
•	3)	transition metals	•	4)	all the above
15.	The spe	cies among the following,	which can	act	as an acid and a base is
•	,	HSO <sup>⊖</sup> 4	•		$SO_4^2$
	3)	$H_3O^{\oplus}$		4)	$Cl^{\Theta}$

	base is a	5. The pH is		$VH_4OH$ and 0.02 M		
	1)	10	2)	9		
	3)	4	4)	7		•
17.	The hyd value of	rogen electrode is dippe 2.303 RT/F is 0.059 V)		of pH 3 at 25°C. The	potential would	be (the
		0.177 V	2)		****	•
	3)	0.059 V 124 1 (* 45 m )				71
18.	20 ml of	$0.5~\mathrm{N}~HCl$ and $35~\mathrm{ml}$ of	0.1N <i>NaOH</i> ar	e mixed. The resulti	ng solution will	
	1)	be neutral		2) be basic	ingin	
	· 3)	turn phenolphthalein s	solution pink	4) turn methyl or	ange red	
19.	are	on of iron is essentially $Fe$ is oxidised to $Fe^{2+}$ $Fe$	ing in Standard. Tagangan	្រាស់ (១០៦៦) ម៉ាស់ (១៩០១) ព ពិភព្វ		eaction
	•		* **		idced to OII	
	2)	Fe is oxidised to $Fe^{3+}$	and $H_2O$ is red	uced to $O_2^{2-}$	: : : : : : : : : : : : : : : : : : : :	•
	3)	$Fe$ is oxidised to $Fe^{2+}$	and $H_2O$ is redu	$ced to O_2^-$		
•	4)	$Fe$ is oxidised to $Fe^{2+}$	and $H_2O$ is red	uced to $O_2$		•
20.	The stan	dard electrode potentia	l is measured by	<b>у</b>		
	·. 1)	Electrometer	41 . 15 <b>2)</b>	Voltmeter		
•						
grage and the	•	Pyrometer	4)	Galvanometer		

- 1)  $10^{-4} M AgNO_3$  and  $10^{-7} M HCl$
- 2)  $10^{-5}$  M AgNO<sub>3</sub> 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
- 24. Which of the particles cannot be accelerated?
  - 1)  $\alpha$  particle

2)  $\beta$ - particle

3) Protons

- 4) 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)  $\frac{30}{15}P \rightarrow \frac{30}{14}S$ 

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

<b>26.</b>	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 o	f the following pairs of elements cannot form an alloy?	
	1)	Zn, Cu 2) Fe, Hg	
	3)	Fe, C 4) Hg, Na	
29.	Which co	ompound is zero valent metal complex?	
o	1)	$\left[Cu\left(NH_{3}\right)_{4}\right]SO_{4} \qquad 2)  \left[Pt\left(NH_{3}\right)_{2}Cl_{2}\right] \qquad .$	
	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	

31.	A compo	$\operatorname{und} A$ has a molecular	formula $C_2Cl_3$	OH . It reduces Fehlin	ng's solution and on
6.		n, gives a monocarboxy	lic acid $B$ . $A$ ca	n be obtained by the a	ction of chlorine on
;	etnyi aid	${ m cohol.}\ A \ { m is} \$ ${ m chloroform}$	2)	chloral	
	3)	methyl chloride	4)	monochloro acetic aci	d
32.	Which o	f the following haloalka	nes is most rea	ctive?	
	1)	1-chloropropane	2)	1-bromopropane	
	3)	2-chloropropane	4)	2-bromopropane	
33.	The read	ction in which phenol di	iffers from alcol	ol is	
	1)	it undergoes esterifica	ition with carbo	xylic acid	
	2)	it reacts with ammoni	a		
	3)	it forms yellow crysta	ls of iodoform		
	4)	it liberates $H_2$ with $N_2$	a metal		
34.		nic compound $A$ contain			
		n boiling A with conc.		· ·	
	bromine	e water and alkaline KA	$MnO_4$ . The orga	nic liquid $A$ is	•
	1)	$C_2 H_5 C l$	2)	$C_2H_5COOCH_3$	
	3)	$C_2H_5OH$	4)	$C_2H_6$	
35.	Which o	of the following is an am	photeric acid?		<u></u>
	1)	Glycinc	2)	Salicylic acid	
	3)	Benzoic acid	4)	Citric acid	

	1)	ehyde. This reaction is know			•
	/	Perkin's reaction	2)		•
	3)	Sandmeyer's reaction	4)	Claisen condensation	
37.	Ethyl ch	loride on heating with AgCN	, forms a co	ompound ' $X$ '. The function	nal 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.	A compo On comp compour	ound, containing only carbon elete oxidation it is converted and is	, hydrogen l into a com	and oxygen, has a molec pound of molecular weigl	ular weight of 44. nt 60. The original
· .	1) 3)	an aldehyde an alcohol	2) 4)	an acid an ether	<u> </u>
	Grignard	l reagent adds to			CMs
<b>39.</b>					•
39.	_	C = 0	2)	$-C \equiv N$	
39.	_	>C=0 >C=S		$-C \equiv N$ all of the above	
<b>39. 40.</b>	3)		4)	all of the above	
	3)	C = S	4)	all of the above	

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<b>41.</b> :	Three di	mensional molecules with cross lin	ks a	re formed in the case of a
	1)	Thermoplastic	2)	Thermosetting plastic
	3)	Both was a second of the secon	4)	None
<b>42.</b>	Sucrose	molecule is made up of		•
	<sup>301</sup> 1)	a gluco pyranose and a fructo pyra	nos	e
	2)	a gluco pyranose and a fructo fura	nose	<b>)</b>
	3)	a gluco furanose and a fructo pyra	nose	
	4)	a gluco furanose and a fructo fura	nose	
<b>43.</b>	Water in	nsoluble component of starch is		
	1)	amylopectin	2)	amylose
	3)	cellulose	4)	none of the above
<b>14.</b>	An exan	pple for a saturated fatty acid, prese	ent i	n nature is
	1)	Oleic acid	2)	Linoleic acid
	. 3)	Linolenic acid	4)	Palmitic acid
<b>45.</b>	A Nanor	peptide contains peptide lin	kag	es.
	1)	10 the succession of the same the contract	2)	$\langle 8^{n}\rangle$ , then $\langle \gamma_{n}\rangle_{n}$ , $\langle \gamma_{n}\rangle_{n}$ , $\langle \gamma_{n}\rangle_{n}$ , $\langle \gamma_{n}\rangle_{n}$
	3)	9	4)	18
		(Space for Ro	ugh	Work)

37.

50.	be	and $Mg^{2+}$ , the large	2)	$A_2 B_3$ $A_2 B$		ween th	ese two	wil
50.	be $1)  A_3  B_6$ $3)  A_3  B_2$ Among $Na^+$ , $Na$ , $Mg$	and $Mg^{2+}$ , the large	2) 4) est pa	$egin{aligned} A_2B_3 & & & & & & & & & & & & & & & & & & &$		ween di	ese two	wil
50.	be	and $Mg^{2+}$ , the large	2)	$A_2 B_3$ $A_2 B$		ween til	ese two	wil
	be		2)	$A_2B_3$		ween th	ese two	wil
	be		2)	$A_2B_3$		ween cir	ese two	wil
•	· ·			P	ouru bor	ween un	ese iwo	wil
					ouriu bou	ACCII (III	ese two	wil
49.	An atom of an element electrons in its outer	nt A has three electrons.  The form						
40								
		5, 5 - dimethyl phenol 2, 5 - dimethyl phenol					1.55	
40.	Antiseptic chloroxyler			2 ablama	4 5 3:	.4111.	176	
48.		a al i a				•		
	3) adenine		4)	tyrosine	. •			
<b></b>	1) cytosine	g is not present in a r		guanine				
47.	Which of the following	g is not present in a r						
	3) Cysteine		4)	Tyrosine				•
	1) Lysine		2)	Serine		,		

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Δ\_1

01.	1110101110	01 0.2 11 112	204 15	•••			. /		
	1)	0.2	•	2)	0.4	•		•	
	3)	0.6		4)	0.1		•		
<b>52.</b>	In the equation of state of an ideal gas $PV = nRT$ , the value of the universal gas constant								
	would de	epend only on	l						
	1)	the nature of	of the gas	2)	the pressure	e of the gas			
	3)	the units of	the measurem	ent 4)	None of the	above			
<b>53.</b>	A commercial sample of hydrogen peroxide is labelled as 10 volume. Its percentage strength								
	is nearly	7		,			,		
	1)	1%		2)	3%			.*	
	. 3)	10%	•	4)	90%		•	• •	
<b>54.</b>	Activate	d charcoal is	s used to remo	ove colourin	g matter fro	m pure subs	tances.	It work	
	by					•			
	1)	oxidation		2)	reduction				
	3)	bleaching		4)	adsorption	•			
<b>55.</b>	When plants and animals decay, the organic nitrogen is converted into inorganic nitrogen								
	The inor	The inorganic nitrogen is in the form of							
•	1)	Ammonia		2)	Elements of	nitrogen			
	3)	Nitrates		4)	Nitrides				
			(Spac	e for Rough	Work)				

- **56.** A gas decolourised by  $KMnO_4$  solution but gives no precipitate with ammonical cuprous chloride is ............
  - 1) Ethane

2) Methane

3) Ethene

- 4) Acetylene
- 57.  $H_3C C = CH CH CH_3$  is  $\begin{array}{c|c}
   & & \downarrow \\
   & & \downarrow \\
   & & CH_3
  \end{array}$ 
  - 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 can most readily get sulphonated is?
  - 1) Benzene

2) Toluene

3) Nitrobenzene

- 4) Chlorobenzene
- 59. Household gaseous fuel (LPG) mainly contains ......
  - 1) CH<sub>4</sub>

2)  $C_2H_2$ 

3)  $C_2H_4$ 

- 4)  $C_4H_{10}$
- 60. Use of chlorofluoro carbons is not encouraged because ......
  - 1) they are harmful to the eyes of people that use it.
  - 2) they damage the refrigerators and air conditioners.
  - 3) they eat away the ozone in the atmosphere.
  - 4) they destroy the oxygen layer.

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