CHEMISTRY

BOOKS - TS EAMCET PREVIOUS YEAR PAPERS

TS EAMCET 2018 (7 MAY SHIFT 1)

Chemistry

1. The wavelength (in $\mathring{A}$) of a photon having energy 3 eV is approximately.

$[1eV = 1.6 \times 10^{-12} erg]$

$[h = 6.626 \times 10^{-27} ergs]$

A. 3000

B. 4000

C. 4141

D. 7824

Answer: C

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2. Which of the following set of radiations can not be seen in hydrogen atomic spectrum ?

$(i)\gamma - \text{radiation} \quad (ii)UV$
$(iii)\text{X-rays} \quad (iv)\text{Infrared}$

A. $(i), (iii), (iv)$

B. $(iii), (iv)$

C. $(i), (iii)$

D. $(I), (iv)$

Answer: C

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3. Which of the following are correct ?

(i) First ionisation enthalpy of He $<$ second ionization euthalpy of Li.

(ii) Li has the highest second ionisation enthalpy.

(iii) All d-block elements are transition elements.

(iv) The only alphabet not found in the periodic table is the letter 'J'

(v) Francium concentration is $!10^{-18}$ ppm on Earth.

A. $(i), (iii), (iv)$

B. $(i), (ii), (iv), (v)$

C. $(i), (ii), (v)$

D. $(iv), (v)$

Answer: B

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4. The correct increasing order of ionisation enthalpy of He, Li^+, Be^{2+} is

A. $He < Li^+ < Be^{2+}$

B. $Be^{2+} < Li^+ < He$

C. $Li^+ < Be^{2+} < He$

D. $Be^{2+} < He < Li^+$

Answer: A

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5. The hybridisation of N in O_2^+, NO_3^- and NH_4^+ respectively is

A. sp, sp^2, sp^3

B. sp, sp^3, sp^3

C. sp^2, sp^3, sp^3

D. sp, sp, sp^3

Answer: A

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6. The bond orders of He_2^+ and He_2 are respectively

A. $\frac{1}{2}, 0$

B. $0, \frac{1}{2}$

C. $0, 1$

D. $1, 0$

Answer: A

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7. Kinetic energy in Kj of 280 g of $N_2 at 27^\circ C$ is approximately $\left(R = 8.314 J mol^{-1} K^{-1}\right)$

A. 18.7

B. 37.4

C. 56.1

D. 74.8

Answer: B

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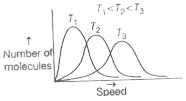
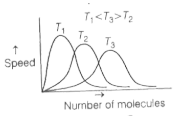
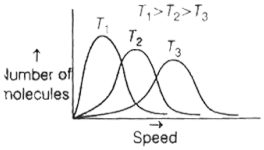
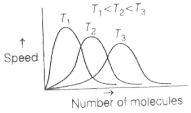
8. The correct plot of Maxweel-Boltzmann distribution at different temperatures (T) is speed = number of molecules =

A. 

B. 

C. 

D. 

Answer: A

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9. $CaCO_3$ reacts with HCl to produce $CaCl_2, CO_2$ and H_2O. The approximate mass (in g) of $CaCO_3$ required t react completely with 25 mL of 0.75 M HCl is (atomic mass of $Ca = 40, C = 12O = 16, Cl = 35.5$ and $H = 1$)

A. 94

B. 9.4

C. 0.94

D. 0.094

Answer: C

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10. Calculate the approximate mas (in g) of H_2S required for the following reaction when 15 L of oxygen at STP reacts completely.

$xH_2S(g) + yO_2(g) \rightarrow aSO_2(g) + bH_2O(g)$

(molar mass of $H_2S = 34.\ gmol^{-1}$)

A. 12.11

B. 15.16

C. 34.12

D. 68.12

Answer: B

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11. For the following process

$H_2O(l)(1 \text{ bar } 373.15K) \Leftrightarrow H_2O(g)$

(1 bar, 373.15 K) identify the correct set of thermodynamic parameters.

A. $\Delta G = 0, \Delta S = +ve$

B. $\Delta G = 0, \Delta S = -ve$

C. $\Delta G = +ve, \Delta S = 0$

D. $\Delta G = -ve, \Delta S = +ve$

Answer: A

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12. $PCl_5 \Leftrightarrow PCl_3 + PCl_3$

If the equilibrium cnstant (K_c) for the above reaction at 500 K

is 1.79 and the equilibrium concentration of PCl_5 and PCl_3 are 1.41 M and $1.59M$, respectively, then the concentration of Cl_2 is approximately.

A. $1.26M$

B. $3.59M$

C. $0.59M$

D. $1.59M$

Answer: D

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13. What is the pH of acetic acid at equilibrium, given that acetic acid concentration is 0.1 M and it is $30\,\%$ dissociated at

equilibrium ?

$(\log 3 = 0.47)$

A. 2.00

B. 1.53

C. 3.53

D. 3.00

Answer: B

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14. Assertion (A) Ferricyanide ion oxidises H_2O_2 to H_2O in basic medium.

Reason ® Oxidation product of H_2O_2 is O_2, Which of the following is true ?

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true, but (R) is not correct

C. (A) is true, but (R) is false

D. (A) is false, but (R) is true

Answer: D

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15. Highest melting point among the following is displayed by

A. Be

B. Ca

C. Sr

D. Ba

Answer: A

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16. Diborane reacts with ammonia to from X, which on heating gives H_2 and borazine, X is

A. $\left[BH_2(NH_3)_2\right]\&^+[BH_4]^-$

B. $B_3N_3H_6$

C. $BH_3.NH_3$

D. $\left[BH(NH_3)_3\right]^+[BH_4]^-$

Answer: A

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17. The stability of dihalides of Si,Ge, Sn and Pb follows the sequence.

A. $SiX_2 < GeX_2 < PbX_2 < SnX_2$

B. $SiX_2 < GeX_2 < SnX_2 < PbX_2$

C. $PbX_2 < SnX_2 < GeX_2 < SiX_2$

D. $GeX_2 < SiX_2 < SnX_2 < PbX_2$

Answer: B

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18. Which of the following statements about smog is/are correct ?

(i) Smog formed on sunny days contains oxidising molecules.

(ii) Photochemical smog contains many reactive molecules.

(iii) The main polluting components of smog are oxides of carbon.

(iv) The presence of carbon monoide in air leads to the formation of ozone in smog.

A. $(i), (iii)$

B. $(I), (ii)$

C. $(ii, (iv)$

D. Only (ii)

Answer: B

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19. Which of the following statements about TLC are correct ?

(i) Glycine is identified on TLC plate due to its colour.

(ii) Amino acids can be detected by spraying the TLC plate with Ninhydrin solution.

(iii) The retardatin factor is the ratio of the distance travelled by the solute to that of the solvent from the base line.

(iv) Sodium chloride is commonly used as an adsorbent.

A. (ii), (iii)

B. $(i), (ii), (iii)$

C. $(ii), (iii), (iv)$

D. $(i), (iii)$

Answer: A

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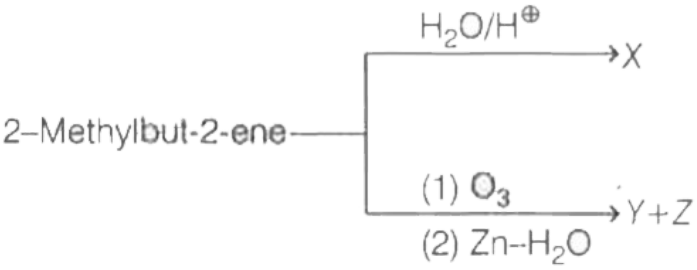
20. Identify X,Y and Z in the following reactions



A. $(H_3C)_3\overset{X}{C}CH_2OH \quad CH_3\overset{Y}{C}HOCH_3\overset{Z}{C}H_2CHO$

B. $(H_3C)_2\overset{X}{C}HCH(OH)CH_3 \quad (CH_3)_2\overset{Y}{C}O(\overset{Z}{C}H_3)_2CO$

C. $(H_3C)_2\overset{X}{C}(OH)CH_2CH_3 \quad (CH_3)_2\overset{Y}{C}OCH_3\overset{z}{C}HO$

D. $CH_3CH_2\overset{X}{C}H(OH)Ch._2CH_3\overset{Y}{C}H_2\overset{Y}{C}H_2CHO \quad CH_3\overset{Z}{C}OOH$

Answer: C

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21. Which of the following statements are correct with respect to benzene ?

(i) It forms triozonide with O_3.

(ii) It is non-planar.

(iii) It forms only one monosubstituted product with CH_3COCl in the presence of anhyd. $AlCl_3$,

(iv) If forms hexachlorobenzene on heating with Cl_2 under photochemical condition.

A. $(i), (ii)$

B. $(ii), (iii)$

C. $(i), (iii)$

D. $(iii), (iv)$

Answer: C

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22. A compound having elements X and Y crystallises in a cubic structure, where X is at the corneer position and Y is at the center of the cube. The correct formula of the compound is

A. XY

B. X_3Y

C. XY_2

D. XY_3

Answer: A

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23. If the degree of association is 70% for the reaction $2A \Leftrightarrow (A)_2$ the van't Hoff factor for the solute A is

A. 0.30

B. 0.70

C. 0.35

D. 0.65

Answer: D

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24. 0.1 mole of NaCl is dissolved in 100g of water. The mole fraction of NaCl is

A. 0.0213

B. 0.0177

C. 0.2290

D. 0.0330

Answer: B

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25. What is the approximate standard free energy change per mole of Zn (in Kj mol^{-1}) for a Daniel cell at 298 K?

A. -212.3

B. 230.0

C. 0.0

D. -1.10

Answer: A

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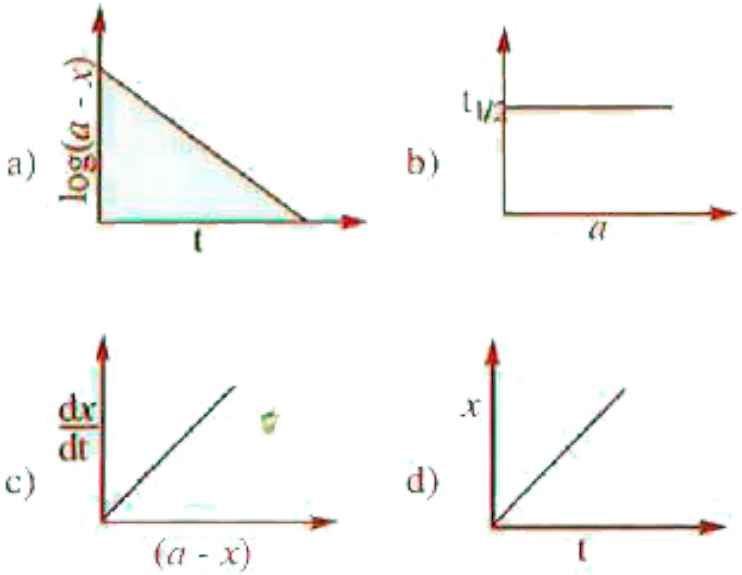
26. Which of the following graphs represent a first order reaction (a=initial concentration of reactant, x=concentration of reactant consumed, t=time)



A. $(i), (ii), (iv)$

B. $(iii), (iv)$

C. $(ii), (iii)$

D. $(i), (ii)$

Answer: A

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27. In the Freundlich isotherm $\left(\frac{x}{m} = k_p^{1/n}\right)$ plot of log $\frac{x}{m}$ vs log p, the intercept is (where, x,m,p and k are mass of the gas, mass of adsorbent, pressure and constant which depend on the nature of the adsorbent, respectively)

A. k

B. $\log k$

C. e^k

D. $\ln \frac{1}{k}$

Answer: B

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28. Which of the following element is extracted using I_2 as the reactant ?

A. Ni

B. Zr

C. Al

D. Cu

Answer: B

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29. The equatin and axial P-Cl bond length (in pm) respectively in PCl_5 are

A. 202, 240

B. 240, 202

C. 200, 400

D. 200, 410

Answer: A

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30. In reactin (1), XeF_6 hydrolysis to form HF and X. In reaction (2), XeF_6 on partial hydrolysis from HF, Y and Z.

The product X,Y,Z respectively, are

A. XeO_3, Xe, XeO_2F_2

B. XeO_3, $XeOF_4$, XeO_2F_2

C. Xe, $XeOF_4$, XeO_2F_2

D. XeO_3, O_2, XeO_2F_2

Answer: B

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31. Ethylendiamine (en)

A. monodendate ligand and can occupy one position in coordinatiion polyhedron

B. bidendate ligand and can occupy two positions in coordination polyhedron

C. polydendate ligand

D. tridendate ligand and occupy three positions in coordiantion polyhedron

Answer: B

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32. Which one of the followng is square planar in structure and has diamagnetic property ?

A. $\left[Ni(H_2O)_6\right]^{2+}$

B. $\left[Ni(CO)_4\right]$

C. $\left[Ni(CN)_4\right]^{2-}$

D. $p[NiCl_4]^{2-}$

Answer: C

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33. Examples for natural polymers are

A. cotton, silk, bakelite and wool

B. celiclose, polystyrene and neoprene

C. nylon, terylene and PVC

D. sil, cotton and proteins

Answer: D

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34. Which one of the following statements is correct?

A. Starch on complete hydrolysis gives fructose

B. Lactose on hydrolysis gives glucose and fructose

C. Glucose on slow oxidation to CO_2 and H_2O by enzyme docs not liberate energy

D. Cellulose is not digestible in human body

Answer: D

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35. The drug tetracycline is

A. an antibiotic

B. an antimalarial

C. an antiseptic

D. an analgesic

Answer: A

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36. Which of the following statements is correct for optically active alkyl halides, upon reaction with nucleophiles ?

	S_N1	S_N2
(a)	Retention of configuration	Inversion of configuration
(b)	Racemisation	Inversion of configuration
(c)	Inversion of configuration	Retention of configuration
(d)	Racemisation	Retention of configuration

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37. Which one of the following reactins gives phenol as a major product ?

A. Reaction of benzene with conc.HNO_3 and conc.H_2SO_4

B. Reaction of aniline with $NaNO_2 / HCl$ in warm water

C. Reaction of benzene with hot water

D. Sodium salt of benzoic acid with soda lime reaction

Answer: B

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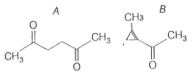
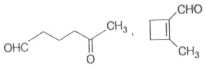
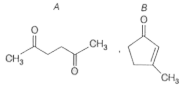
38. The products A and B of the below reaction sequence are

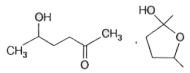
$$H - C = C - CH_2 - \overset{\overset{O}{||}}{C} - Ch_3$$

$$\xrightarrow[Dil.\,H_2SO_4]{HgSO_4} A \xrightarrow[EtOH]{EtONa} B$$

A. 

B. 

C. 

D. 

Answer: C

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39. The strongest acid among the following is

A. acetic acid

B. acrylic acid

C. benzoic acid

D. propionic acid

Answer: C

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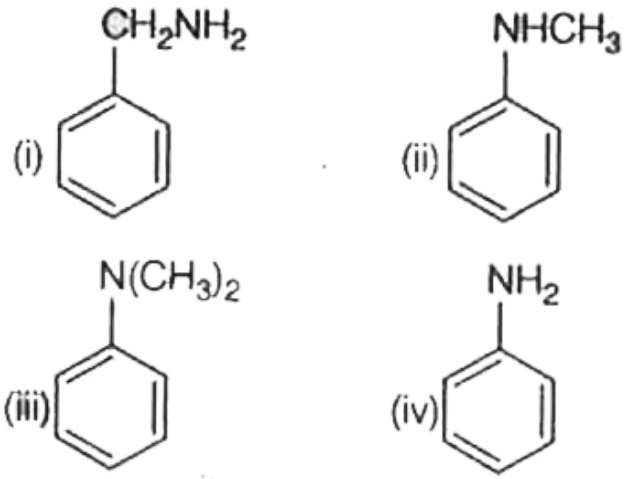
40. The order of basicity among the following nitrogen compounds is



A. $iv > i > iii > ii$

B. $iii > i > iv > ii$

C. $ii > i > iii > iv$

D. $i > iii > ii > iv$

Answer: D

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