

SAMPLE PAPER

2019 NEET

CHEMISTRY

SET-1

Roll No.

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General Instructions

- (i) This test consists of 45 question.
- (ii) Each question is allotted 4 marks for correct response.
- (iii) Candidates will be awarded marks as stated above in instruction no. 2 for correct response of each question. 1 mark will be deducted for indicating incorrect response of each question. No deduction from the total score will be made if no response is indicated for an item in the answer sheet.
- (iv) There is only one correct response for each question. Filling up more than one response in any question will be treated as wrong response and marks for wrong response will be deducted according as per instructions.

1. How many grams of CH_3OH should be added to water to prepare 150 ml solution of 2 M CH_3OH ?
 - (a) 9.6×10^3
 - (b) 2.4×10^3
 - (c) 9.6
 - (d) 2.4.



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2. The longest wavelength of He^+ in Paschen series in "m", then shortest wavelength of Be^{+3} in Paschen series is (in terms of m):

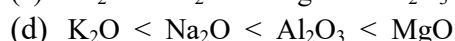
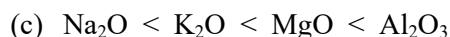
(a) $\frac{5}{36} m$

(c) $\frac{53}{8} m$

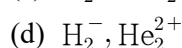
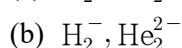
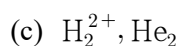
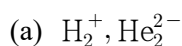
(b) $\frac{64}{7} m$

(d) $\frac{7}{64} m$

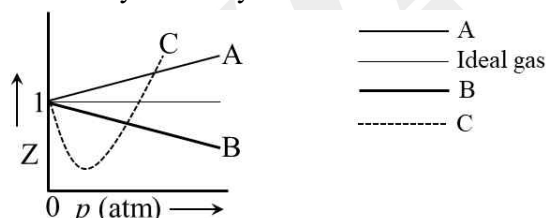
3. Which one of the following orders represents the correct sequence of increasing basic nature of the given oxides?



4. In which of the following pairs of molecules/ions both the species are not likely to exist?



5. The given graph represent the variations of z (compressibility factor $(Z) = \frac{pV}{nRT}$) versus p , for three real gas A, B and C. Identify the only incorrect statement.



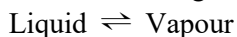
(a) For the gas A, $a = 0$ and its dependence on p is linear at all pressure

(b) For the gas B, $b = 0$ and its dependence on p is linear at all pressure

(c) For the gas C, which is typical real gas for which neither a nor $b = 0$. By knowing the minima and the point of intersection, with $Z = 1$, a and b can be calculated

(d) At high pressure, the slope is positive for all real gases

6. Consider the following liquid-vapour equilibrium



Which of the following relations is correct ?

(a) $\frac{d \ln P}{dT} = \frac{-\Delta H_V}{RT}$

(c) $\frac{d \ln P}{dT} = \frac{-\Delta H_V}{RT^2}$

(b) $\frac{d \ln P}{dT^2} = \frac{-\Delta H_V}{T^2}$

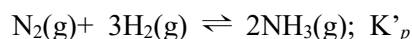
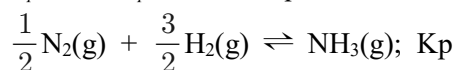
(d) $\frac{d \ln G}{dT^2} = \frac{-\Delta H_V}{RT^2}$



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7. K_p and K'_p are the equilibrium constants of the two reactions, given below:



Therefore, K_p and K'_p are related by

(a) $K_p = K'_p{}^2$

(c) $K_p = 2K'_p$

(b) $K_p = \sqrt{K'_p}$

(d) $K_p = K'_p$

8. Structure of a mixed oxide is cubic close packed (ccp). The cubic unit cell of mixed oxide is composed of oxide ions. One fourth of the tetrahedral voids are occupied by divalent metal A and the octahedral voids are occupied by a monovalent metal B. The formula of the oxide is



9. The degree of dissociation (α) of a weak electrolyte A_xB_y is related to van't Hoff factor (i) by the expression:

(a) $i\alpha = \frac{i-1}{(x+y-1)}$

(c) $\alpha = \frac{x+y-1}{i-1}$

(b) $\alpha = \frac{i-1}{x+y+1}$

(d) $\alpha = \frac{x+y+1}{i-1}$

10. The standard reduction potentials of Cu^{2+}/Cu and $\text{Cu}^{2+}/\text{Cu}^+$ are 0.337 and 0.153 V respectively. The standard electrode potential of Cu^{2+}/Cu half cell is

(a) 0.184 V

(c) 0.521 V

(b) 0.827 V

(d) 0.490 V

11. The rate law for a reaction between A and B is given by:

$$\text{Rate} = k [\text{A}]^n [\text{B}]^m$$

on doubling the concentration of A and halving the concentration of B, the ratio of new rate to the earlier rate of the reaction will be as:

(a) $n - m$

(c) $2^{1/(n+m)}$

(b) 2^{n-m}

(d) none of these

12. For adsorption of a gas on a solid, the plot of $\log \frac{x}{m}$ vs $\log p$ is linear with slope equal to (n being a whole number)

(a) k

(c) n

(b) $\log k$

(d) $\frac{1}{n}$

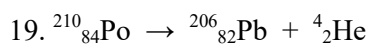


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13. The reaction of white phosphorus with aqueous NaOH gives phosphine alongwith another phosphorus containing compound. The reaction type, the oxidation states of phosphorus in phosphine and the other product respectively are:
- (a) redox reaction, -3 and -5 (c) disproportionation reaction, -3 and $+5$
 (b) redox reaction, 3 and $+5$ (d) disproportionation reaction, -3 and $+3$
14. Which of the following arrangements does not represent the correct order of the property stated against it?
- (a) $\text{Co}^{3+} < \text{Fe}^{3+} < \text{Cr}^{3+} < \text{Sc}^{3+}$: stability in aqueous solution
 (b) $\text{Sc} < \text{Ti} < \text{Cr} < \text{Mn}$: number of oxidation states
 (c) $\text{V}^{2+} < \text{Cr}^{2+} < \text{Mn}^{2+} < \text{Fe}^{2+}$: paramagnetic behaviour
 (d) $\text{Ni}^{2+} < \text{Co}^{2+} < \text{Fe}^{2+} < \text{Mn}^{2+}$: ionic size
15. Which among the following statements are true for the complex $[\text{Co}(\text{NH}_3)_6][\text{Cr}(\text{CN})_6]$?
- (i) It is a non-electrolyte
 (ii) The magnitude of the charge on each complex ion is three
 (iii) The complex will not conduct current in aqueous solution
 (iv) The complex will exhibit co-ordination isomerism
 (v) The magnitude of the charge on each complex ion is one
- (a) 1 and 4 (c) 3 and 5
 (b) 1 and 3 (d) 2 and 4
16. Select correct matching.
- (a) Pyrometallurgy : Extraction of Fe
 (b) Electrometallurgy : Extraction of Al
 (c) Hydrometallurgy : Extraction of Au
 (d) All above are correct
17. For a sample of perfect gas when its pressure is changed isothermally from p_i to p_f , the entropy change is given by
- (a) $\Delta S = nR \ln \left(\frac{p_f}{p_i} \right)$ (c) $\Delta S = nRT \ln \left(\frac{p_f}{p_i} \right)$
 (b) $\Delta S = nR \ln \left(\frac{p_i}{p_f} \right)$ (d) $\Delta S = RT \ln \left(\frac{p_i}{p_f} \right)$
18. Successive emission of an α -particle and two β -particles by an atom of a radioactive element results in the formation of its:
- (a) isobar (c) isotone
 (b) isomer (d) isotope





In above reaction, predict the position of Po in the periodic table when lead belongs to IVA group :

- (a) IIA (c) IVA
(b) VIA (d) VA

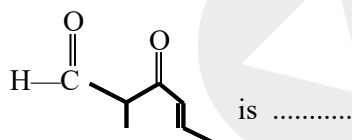
20. In the formation of N_2^+ from N_2 , the electron is removed from:

- (a) σ orbital (c) σ^* orbital
(b) π orbital (d) π^* orbital

21. The Cl-C-Cl angle in 1,1,2, 2-tetrachloroethene and tetrachloromethane respectively will be about

- (a) 120° and 109.5° (c) 109° and 90°
(b) 90° and 109.5° (d) 109.5° and 120°

22. The IUPAC name of the compound

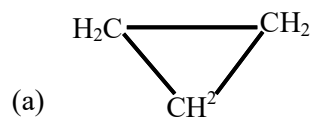


- (a) 3-keto-2methylhex-4-enal (c) 5-methyl-4-oxohex-2-en-5-al
(b) 5-formylhex-2-en-3-one (d) 3-keto-2-methylhex-5-enal

23. Which one is the correct order of acidity?

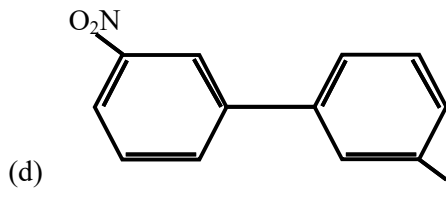
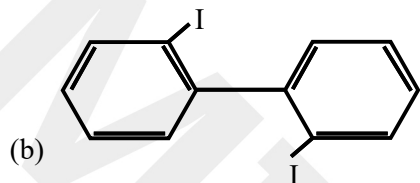
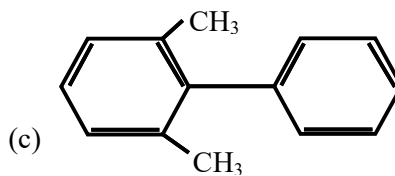
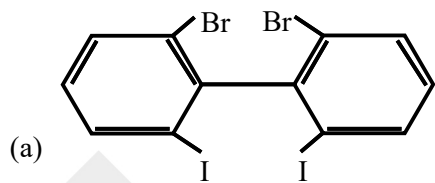
- (a) $\text{CH}_2 = \text{CH}_2 > \text{CH}_3 - \text{CH} = \text{CH}_2 > \text{CH}_3 - \text{C} \equiv \text{CH} > \text{CH} \equiv \text{CH}$
(b) $\text{CH} \equiv \text{CH} > \text{CH}_3 - \text{C} \equiv \text{CH} > \text{CH}_2 = \text{CH}_2 > \text{CH}_3 - \text{CH}_3$
(c) $\text{CH} \equiv \text{CH} > \text{CH}_2 = \text{CH}_2 > \text{CH}_3 - \text{C} \equiv \text{CH} > \text{CH}_3 - \text{CH}_3$
(d) $\text{CH}_3 - \text{CH}_3 > \text{CH}_2 = \text{CH}_2 > \text{CH}_3 - \text{C} \equiv \text{CH} > \text{CH} \equiv \text{CH}$

24. Which of the following compounds shall not produce propene by reaction with HBr followed by elimination or direct only elimination reaction?

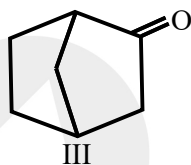
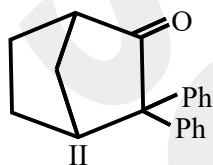
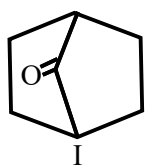


- (b) $\text{H}_3\text{C}-\overset{\text{H}_2}{\text{C}}-\text{CH}_2\text{OH}$
(c) $\text{H}_2\text{C} = \text{C} = \text{O}$
(d) $\text{H}_3\text{C}-\overset{\text{H}_2}{\text{C}}-\text{CH}_2\text{Br}$

25. Which of the following biphenyls is optically active?



26. Which among the given molecules can exhibit tautomerism?



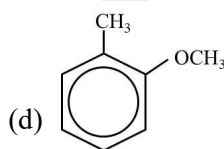
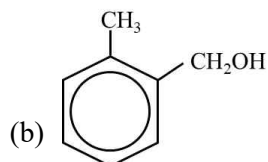
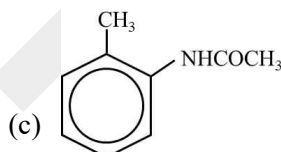
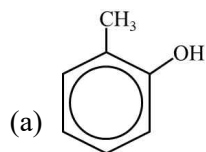
(a) III only

(b) Both I and III

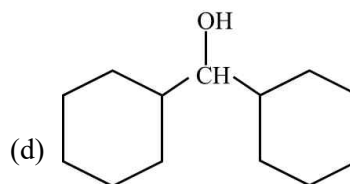
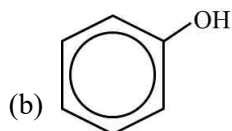
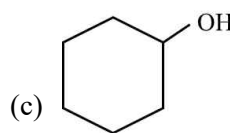
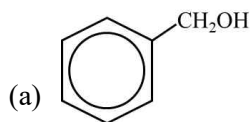
(c) Both I and II

(d) Both II and III

27. Which one is most reactive towards electrophilic reagent?



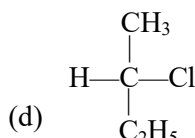
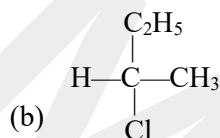
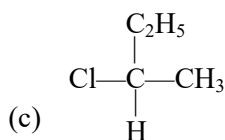
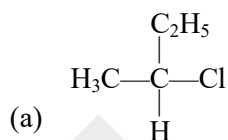
28. Which one of the following compounds has the most acidic nature?



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29. $\text{CH}_3\text{—CHCl—CH}_2\text{—CH}_3$ has a chiral centre. Which one of the following represents its R-configuration?



30. Heavy water is qualified as heavy because it is:

- (a) a heavy liquid
 (b) an oxide of a heavier isotope of oxygen
 (c) an oxide of deuterium
 (d) denser than water

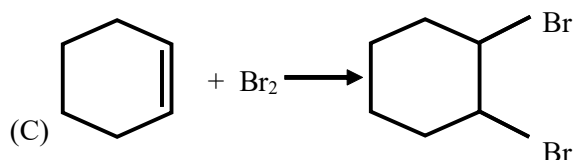
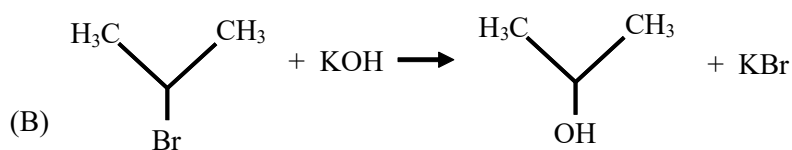
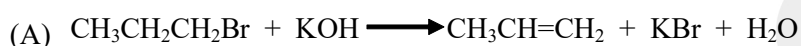
31. Which is the correct order of thermal stability?

- (a) $\text{LiBH}_4 > \text{LiAlH}_4 > \text{LiGaH}_4$
 (b) $\text{CaBeF}_4 > \text{SrBeF}_4 > \text{BaBeF}_4$
 (c) $\text{CaH}_2 > \text{SrH}_2 > \text{BaH}_2$
 (d) All of these

32. Orthoboric acid contains :

- (a) pyramidal BO_3^{3-} units
 (b) linear BO_3^{3-} units
 (c) T-shaped BO_3^{3-} units
 (d) triangular BO_3^{3-} units

33. or the following reactions:



Which of the following statements is correct?

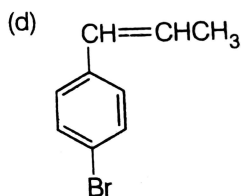
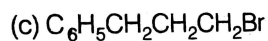
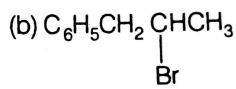
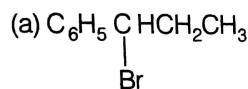
- (a) (A) is elimination, (B) and (C) are substitution reactions.
 (b) (A) is substitution, (B) and (C) are addition reactions.
 (c) (A) and (B) elimination reactions and (C) is addition reaction
 (d) (A) is elimination, (B) is substitution and (C) is addition reaction.



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34. The reaction of $C_6H_5CH=CHCH_3$ with HBr produces



35. Aspirin is obtained by the reaction of salicylic acid with

(a) Acetic anhydride

(c) Acetyl chloride

(b) Acetaldehyde

(d) Methanol

36. A carbonyl compound reacts with hydrogen cyanide to form cyanohydrin which on hydrolysis form a racemic mixture of α -hydroxy acid. The carbonyl compound is

(a) acetaldehyde

(c) diethyl ketone

(b) acetone

(d) formaldehyde

37. Iodoform test is not given by

(a) 2-pentanone

(c) ethanal

(b) ethanol

(d) 3-pentanone

38. Self condensation of two moles of ethyl acetate in the presence of sodium ethoxide yields

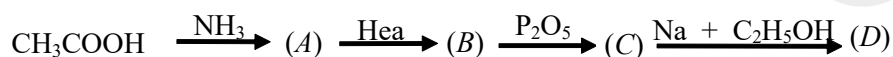
(a) ethyl butyrate

(c) methyl acetoacetate

(b) acetoacetic ester

(d) ethyl propionate

39. The product (D) in the following sequence of reactions is:



(a) ester

(c) acid

(b) amine

(d) alcohol

40. A primary amine is formed from an amide, by the treatment of bromine and alkali. The primary amine has:

(a) 1 carbon atom less than amide

(c) 1 hydrogen atom less than amide

(b) 1 carbon atom more than amide

(d) 1 hydrogen atom more than amide



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41. Which one given below is a non-reducing sugar?
- (a) Lactose (c) Sucrose
(b) Glucose (d) Maltose
42. Which of the following organic compounds polymerises to form the polyester dacron?
- (a) Propylene and *para* —HO—(C₆H₄)—OH
(b) Benzoic acid and ethanol
(c) Terephthalic acid and ethylene glycol
(d) Benzoic acid and *para*—HO—(C₆H₄)—OH
43. Mixture of chloroxylenol and terpineol acts as
- (a) analgesic (c) antipyretic
(b) antiseptic (d) antibiotic
44. The Lassaigne's extract is boiled with conc. HNO₃ while testing for halogens. By doing so it
- (a) helps in the precipitation of AgCl
(b) increases the solubility product of AgCl
(c) increases the concentration of NO₃⁻ ions
(d) decomposes Na₂S and NaCN, if formed
45. Equivalent mass of oxidising agent in the reaction,
 $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 3\text{S} + 2\text{H}_2\text{O}$ is
- (a) 32 (c) 16
(b) 64 (d) 8

