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for

Medical Entrance Exams-2020

National Eligibility-cum-Entrance Test (NEET)

Physics | Chemistry | Biology

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Max Marks: 180



**Educating For
Transmission Of Civilization**

NEET
2020

PAPER

QUESTION WITH SOLUTION

Name of Candidate : -----
Roll No. : -----
Center : -----

Chemistry By:

Er. Jitendra Gupta Sir

Instructions:

This Paper has 180 questions. All questions are Compulsory.

The Maximum marks for each question is 4.

1 Marks will be deducted against each negative response from the total marks.

Use of calculator, Slide Rule, Graph paper and Trigonometric tables is Not Permitted.

1st Floor, Saiplaza, Opposite Vandna Furniture, shrinagar, Raipur.

Note: Answers have been highlighted in "Yellow" color

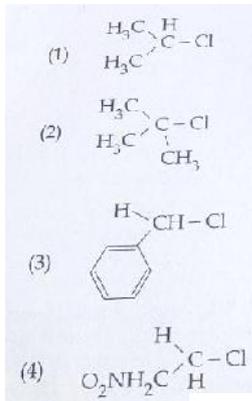
- Q.46 Which of the following species contains equal number of σ - and π bonds?
(1) HCO_3^- (2) XeO_4 (3) $(CN)_2$ (4) $CH_2(CN)_2$
- Q.47 The species Ar, K^+ and Ca^{2+} contains the same number of electrons. In which order do their radii increase?
(1) $Ar < K^+ < Ca^{2+}$ (2) $Ca^{2+} < Ar < K^+$ (3) $Ca^{2+} < K^+ < Ar$ (4) $K^+ < Ar < Ca^{2+}$
- Q.48 The function of "sodium pump" is a biological process operating in each and every cell of all animals. Which of the following biologically important ions is also a constituent of this pump?
(1) Ca^{2+} (2) Mg^{2+} (3) K^+ (4) Fe^{2+}
- Q.49 "Metals are usually not found as nitrates in their ores"
Out of the following two (a and b) reason which is/ are true for the above observation/
(a) Metal nitrates are highly unstable. (b) Metal nitrates are highly soluble in water.
(1) a and b are false (2) a and b are true (3) a is false but b is true (4) a is true but b is false
- Q.50 Solubility of the alkaline earth's metal sulphates in water decreases in the sequence:
(1) $Mg > Ca > Sr > Ba$ (2) $Ca > Sr > Ba > Mg$ (3) $Sr > Ca > Mg > Ba$ (4) $Ba > Mg > Sr > Ca$
- Q.51 Because of lanthanoid contraction, which of the following pairs of elements have nearly same atomic radii? (Numbers in the parenthesis are atomic numbers).
(1) Ti (22) and Zr (40) (2) Zr (40) and Nb (41) (3) **Zr (40) and Hf (72)** (4) Zr (40) and Ta (73)
- Q.52 Which of the following processes does not involve oxidation of iron?
(1) Rusting of iron sheets (2) Decolourization of blue $CuSO_4$ solution by iron
(3) **Formation of $Fe(CO)_5$ from Fe** (4) Liberation of H_2 from steam by iron at high temperature
- Q.53 Which of the following pairs of ions are isoelectronic and isostructural?
(1) CO_3^{2-}, SO_3^{2-} (2) ClO_3^-, CO_3^{2-} (3) SO_3^{2-}, NO_3^- (4) **ClO_3^-, SO_3^{2-}**
- Q.54 Which of the following option represents the correct bond order?
(1) $O_2^- > O_2 > O_2^+$ (2) **$O_2^- < O_2 < O_2^+$** (3) $O_2^- > O_2 < O_2^+$ (4) $O_2^- < O_2 > O_2^+$
- Q.55 Nitrogen dioxide and sulphur dioxide have some properties in common. Which property is shown by one of these compounds, but not by the other?
(1) forms 'acid-rain' (2) is a reducing agent (3) is soluble in water (4) **is used as a food - preservative**
- Q.56 maximum bond angle at nitrogen is present in which of the following?
(1) NO_2 (2) NO_2^- (3) **NO_2^+** (4) NO_3^-
- Q.57 Magnetic moment 2.84 B.M. is given by (At nos, Ni = 28, Ti = 22, Cr = 24, Co = 27)
(1) **Ni^{2+}** (2) Ti^{3+} (3) Cr^{2+} (4) Co^{2+}
- Q.58 Cobalt (III) chloride forms several octahedral complexes with ammonia. Which of the following will not give test for chloride ions with silver nitrate at 25 °C?
(1) **$CoCl_3 \cdot 3NH_3$** (2) $CoCl_3 \cdot 4NH_3$ (3) $CoCl_3 \cdot 5NH_3$ (4) $CoCl_3 \cdot 6NH_3$
- Q.59 Which of these statements about $[Co(CN)_6]^{3-}$ is true?
(1) **$[Co(CN)_6]^{3-}$ has no unpaired electrons and will be in a low-spin configuration.**
(2) $[Co(CN)_6]^{3-}$ has four unpaired electrons and will be in a low-spin configuration.
(3) $[Co(CN)_6]^{3-}$ has four unpaired electrons and will be in a high-spin configuration.
(4) $[Co(CN)_6]^{3-}$ has no unpaired electrons and will be a high-spin configuration.
- Q.60 The activation energy of a reaction can be determined from the slope of which of the following graphs?
(1) $\ln K$ vs. T (2) $\frac{\ln K}{T}$ vs. T (3) **$\ln K$ vs. $\frac{1}{T}$** (4) $\frac{T}{\ln K}$ vs. $\frac{1}{T}$
- Q.61 Which one is not equal to zero for an ideal solution?
(1) ΔH_{mix} (2) **ΔS_{mix}** (3) ΔV_{mix} (4) $\Delta P = P_{observed} - P_{Raoult}$
- Q.62 A mixture of gases contains H_2 and O_2 gases in the ratio of 1:4 (w/w). what is the molar ratio of the two gases in the mixture.
(1) 1:4 (2) **4:1** (3) 16:1 (4) 2:1
- Q.63 A given metal crystallizes out with a cubic structure having edge length of 361 pm. If there are four metal atoms in one unit cell, what is the radius of one atom?
(1) 40 pm (2) **127 pm** (3) 80 pm (4) 108 pm
- Q.64 When initial concentration of a reactant doubles in a reaction, its half-life period is not affected. The order of the reaction is:
(1) Zero (2) **First** (3) Second (4) More than zero but less than first

- Q.65** If the value of an equilibrium constant for a particular reaction is 1.6×10^{12} , then at equilibrium the system will contain:
- (1) all reactants. (2) mostly reactants (3) **mostly products** (4) similar amount of reactants and products
- Q.66** A device that converts energy of combustion of fuels like hydrogen and methane, directly into electrical energy is known as:
- (1) **Fuel Cell** (2) Electrolytic Cell (3) Dynamo (4) Ni-Cd cell
- Q.67** The boiling point of 0.2 mol kg⁻¹ solution of X in water is greater than equimolar solution of Y in water. Which one of the following statements is true in this case?
- (1) **X is undergoing dissociation in water.**
 (2) Molecular mass of X is greater than the molecular mass of Y.
 (3) Molecular mass of X is less than the molecular mass of Y.
 (4) Y is undergoing dissociation in water while X undergoes no change.
- Q.68** Which one of the following electrolytes has the same value of van't factor (i) as that of Al₂(SO₄)₃ (if all are 100% ionised)?
- (1) K₂SO₄ (2) K₃[Fe(CN)₆] (3) Al(NO₃)₃ (4) **K₄[Fe(CN)₆]**
- Q.69** The number of d-electrons in Fe²⁺ (Z = 26) is not equal to the number of electrons in which one of the following?
- (1) s-electrons in Mg (Z = 12) (2) **p - electrons in Cl (Z = 17)**
 (3) d - electrons in Fe (Z = 26) (4) p - electrons in Ne (Z = 10)
- Q.70** The correct bond order in the following species is:
- (1) O₂²⁺ < O₂⁺ < O₂⁻ (2) O₂²⁺ < O₂⁻ < O₂⁺ (3) O₂⁺ < O₂⁻ < O₂²⁺ (4) **O₂⁻ < O₂⁺ < O₂²⁺**
- Q.71** The angular momentum of electron in 'd' orbital is equal to:
- (1) **$\sqrt{6} \hbar$** (2) $\sqrt{2} \hbar$ (3) $\sqrt{3} \hbar$ (4) 0 \hbar
- Q.72** The K_{sp} of Ag₂CrO₄, AgCl, AgBr and AgI are respectively, 1.1×10^{-12} , 1.8×10^{-10} , 5.0×10^{-13} , 8.3×10^{-17} . Which one of the following salts will precipitate last if AgNO₃ solution is added to the solution containing equal moles of NaCl, NaBr, NaI and Na₂CrO₄?
- (1) AgI (2) AgCl (3) AgBr (4) **Ag₂CrO₄**
- Q.73** Which property of colloidal solution is independent of charge on the colloidal particles.
- (1) Coagulation (2) Electrophoresis (3) Electro-osmosis (4) **Tyndall effect**
- Q.74** Which of the following statements is correct for a reversible process in a state of equilibrium?
- (1) $\Delta G = 2.30 RT \log K$ (2) $\Delta G = 2.30 RT \log K$
 (3) **$\Delta G^\circ = - 2.30 RT \log K$** (4) $\Delta G^\circ = 2.30 RT \log K$
- Q.75** Bithional is generally added to the soaps as an additive function as a/an:
- (1) Softener (2) Dryer (3) Buffering agent (4) **Antiseptic**
- Q.76** The electrolytic reduction of nitrobenzene in strongly acidic medium produces:
- (1) **p-Aminophenol** (2) Azoxybenzene (3) Azobenzene (4) Aniline

Q.77 In Duma's method for estimation of nitrogen, 0.25 g of an organic compound gave 40 mL of nitrogen collected at 300 K temperature and 725 mm pressure. If the aqueous tension at 300 K is 25 mm, the percentage of nitrogen in the compound is :

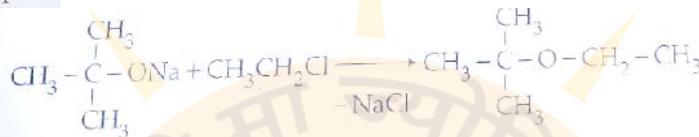
- (1) 17.36 (2) 18.20 (3) **16.76** (4) 15.76

Q.78 In which of the following compounds, the C - Cl bond ionization shall give most stable carbonium ion?



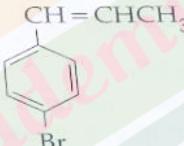
(3) is the correct option

Q.79 The reaction is called:

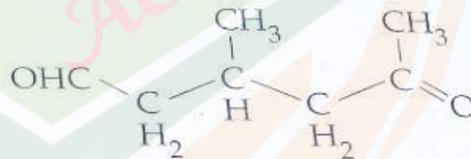


- (1) **Williamson synthesis** (2) Williamson continuous etherification process
 (3) Etard reaction (4) Gatterman-Koch reaction

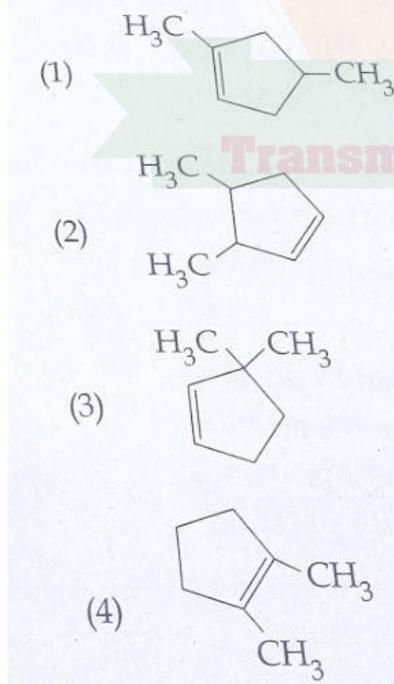
Q.80 The reaction of $\text{C}_6\text{H}_5\text{CH}=\text{CHCH}_3$ with HBr produces:

- (1)  (2) 
 (3) $\text{C}_6\text{H}_5\text{CH}_2\text{CH}_2\text{CH}_2\text{Br}$ (4) 

Q.81 A single compound of the structure



is obtained from ozonolysis of which of the following cyclic compounds?

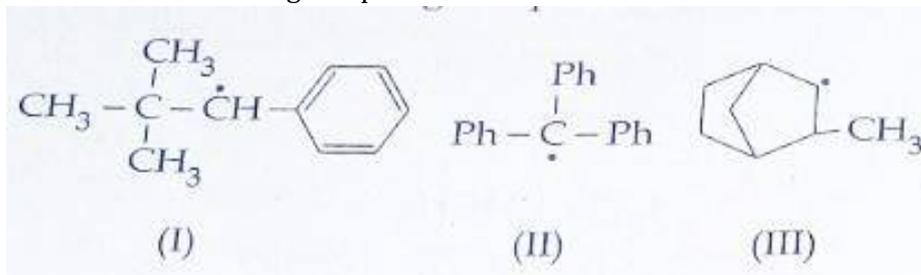


(1) is the correct option

Q.82 Treatment of cyclopentanone  with methyl lithium gives which of the following species?

- (1) Cyclopentanonyl anion (2) Cyclopentanonyl cation
 (3) Cyclopentanonyl cation (4) Cyclopentanonyl biradical

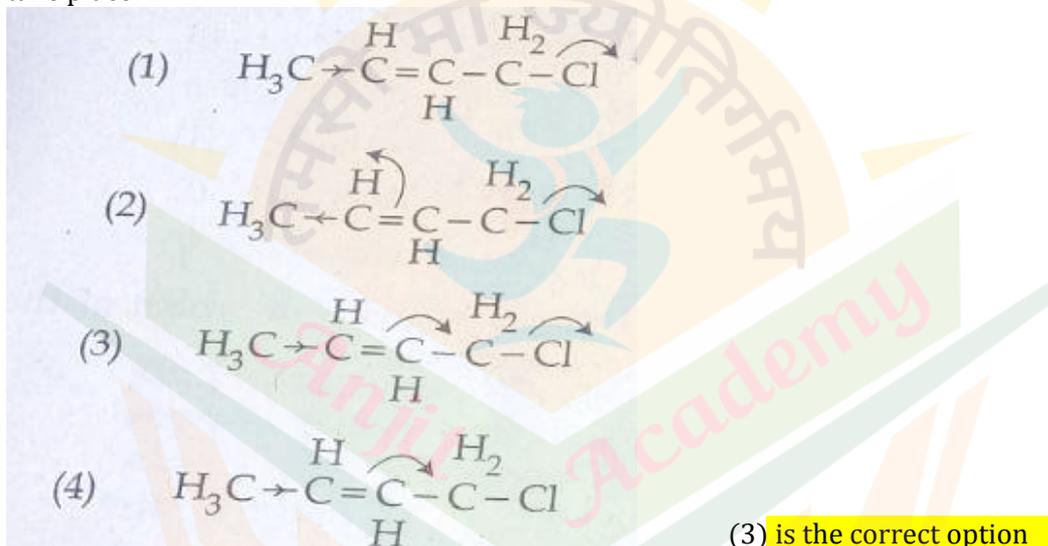
Q.83 Consider the following compounds



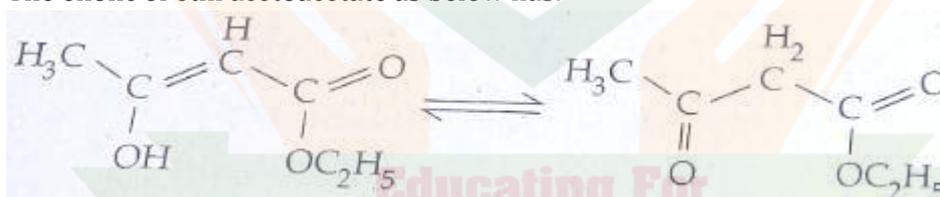
Hyperconjugation occurs in:

- (1) I only (2) II only (3) III only (4) I and III

Q.84 Which of the following is the most correct electron displacement for a nucleophilic reaction to take place?

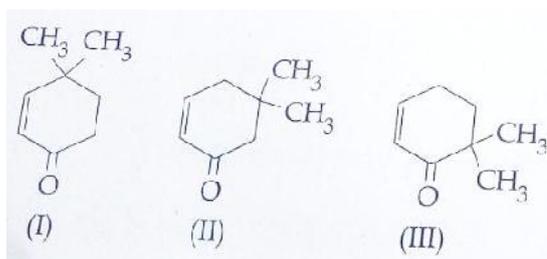


Q.85 The enolic of ethyl acetoacetate as below has:



- (1) 18 sigma bonds and 2 pi- bonds (2) 16 sigma bonds and 1 pi- bond
 (3) 9 sigma bonds and 2 pi- bonds (4) 9 sigma bonds and 1 pi-bonds

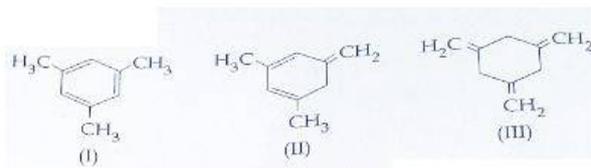
Q.86 Given:



Which of the given compounds can exhibit tautomerism?

- (1) I and II (2) I and III (3) II and III (4) I, II and III

Q.87 Given:



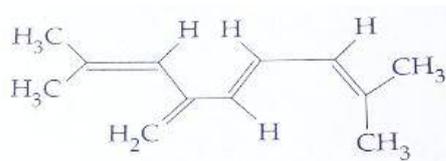
The enthalpy of hydrogenation of these compounds will be in the order is:

- (1) I > II > III (2) **III > II > I** (3) II > III > I (4) II > I > III

Q.88 Biodegradable polymer which can be produced from glycine and aminocaproic acid is:

- (1) **Nylon 2 - Nylon 6** (2) PHBV (3) Buna - N (4) Nylon 6, 6

Q.89 The total number of π - bond electrons in the following structure is :



- (1) 4 (2) **8** (3) 12 (4) 16

Q.90 An organic compound 'X' having molecular formula $C_5H_{10}O$ yields phenyl hydrazine and gives negative response to the Iodoform test and tollen's test. It produces n-pentane on reduction. 'X' could be:

- (1) pentanal (2) 2- pentanone (3) **3- pentanone** (4) n- amylalcohol

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