JEE MAIN 2022
PAPER-1 (B.Tech / B.E.)

QUESTIONS & SOLUTIONS
Reproduced from Memory Retention
📅 24 JUNE, 2022
⏰ 3:00 PM to 6:00 PM

SHIFT - 2

Duration: 3 Hours
Maximum Marks: 300

SUBJECT - CHEMISTRY

RESULT JEE ADVANCED 2021
द्वितीय वर्ष में अद्वितीय परिणाम
7 in Top 200 | 19 in Top 500 | 34 in Top 1000

AIR 67
ANKAN SARKAR
Classroom Student

Accomplish your DREAM with Reliable FACULTY TEAM

Course for JEE (MAIN+ADV.)
TARGET 2023
VIJAY
For Class XII Passed Students
6th & 13th JULY 2022
MEDIUM ENGLISH / हिंदी

Course for JEE (MAIN)
TARGET 2023
AJAY
For Class XII Passed Students
6th JULY 2022
MEDIUM ENGLISH

Avail Scholarship up to 90% through Reliable National Entrance Test (R-NET) on EVERY SUNDAY

Scholarship available for JEE (Main+Adv.) Course only

A-10, Road No.1, IPIA, Kota-324005 (Rajasthan), India
Tel.: +91-744-2665544 | Website: www.reliablekota.com | E-mail: info@reliablekota.com
1. Which of the following metals have highest melting point?
   (1) Ag    (2) Hg    (3) Ga    (4) Cs
   Ans. (1)

2. PCl₅ exists, but NCl₅ does not, why?
   Sol. Non-availability of vacant d-orbitals on Nitrogen.

3. Mn⁺⁶ undergoes disproportionation in acidic medium. Difference between oxidation states of Mn in both products?
   Ans. 3
   Sol. \[
   \text{MnO}_4^{2-} \rightarrow \text{MnO}_4^- + \text{MnO}_2
   \]

4. In industrial preparation of which of the following compounds H₂ gas is released?
   (1) NaCl   (2) NaOH   (3) Na    (4) NaHCO₃
   Ans. (2)

5. Which of the following compounds is used in fire extinguishing?
   (1) Caustic soda   (2) Baking soda   (3) Soda ash
   Ans. (2)

6. \[ \Delta H_f^o(C_2H_6) = ? \]
   \[ \text{Given : } \Delta H_f^o(C_2H_6) = a ; \Delta H_f^o(H_2) = b ; \Delta H_f^o(C) = c \]
   Sol. \[ 2C(s) + 3H_2(g) \rightarrow C_2H_6(g) ; \Delta H_f^o = \Delta H_f^o(C_2H_6) \]
   \[ = \Delta H_f^o(\text{reactant}) - \Delta H_f^o(\text{product}) \]
   \[ = (2c + 3b) - (a) \]

7. Which of the following one not a sulphide are:
   (1) Galena   (2) Baryte   (3) Zinc blend   (4) Copper pyrite
   Ans. (B)
8. Which of the following from does not exist in enamel?

- (1) F⁻
- (2) Ca²⁺
- (3) P³⁺
- (4) P⁵⁺

Ans. (C)

9. The order of bond order of the following:

- C₂²⁻, N₂²⁻, O₂²⁻

- (1) C₂²⁻ > N₂²⁻ > O₂²⁻
- (2) C₂²⁻ < N₂²⁻ < O₂²⁻
- (3) C₂²⁻ > O₂²⁻ > N₂²⁻
- (4) N₂²⁻ > O₂²⁻ > C₂²⁻

Ans. (1)

Sol. Bond order

<table>
<thead>
<tr>
<th></th>
<th>Bond order</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₂²⁻</td>
<td>3</td>
</tr>
<tr>
<td>N₂²⁻</td>
<td>2</td>
</tr>
<tr>
<td>O₂²⁻</td>
<td>1</td>
</tr>
</tbody>
</table>

10. What is the energy of 1 mole of photon of wavelength 300 nm.

Sol.

\[ E = \frac{1240}{\lambda} = \frac{1240}{300} \text{ eV} \]

\[ = 4.13 \times 96 \text{ kJ/mol} \]

\[ = 396.8 \text{ kJ/mol} \]

11. For the equilibrium A(g) ⇌ B(g), \( \Delta H = -42 \) kJ/mol if the ratio of the activation energy of forward & backward reaction is \( \frac{2}{3} \) then find \( E_f \) and \( E_b \)

Sol.

\[ \frac{E_f}{E_b} = \frac{2}{3} \Rightarrow E_f = \frac{2}{3} E_b \]

\[ E_f - E_b = -42 \Rightarrow -\frac{1}{3} E_b = -42 \]

\[ E_b = 126 \text{ kJ/mol} \]

\[ E_f = 126 - 42 \]

\[ = 84 \text{ kJ/mol.} \]

12. The CFSE is maximum for:

- (1) \([\text{Mo(H}_2\text{O)}_6]^{3+}\)
- (2) \([\text{Cr(H}_2\text{O)}_6]^{3+}\)
- (3) \([\text{Os(H}_2\text{O)}_6]^{3+}\)
- (4) \([\text{Fe(H}_2\text{O)}_6]^{3+}\)

Ans. (3)

13. Hall heroult equation is:

Ans. \( 2\text{Al}_2\text{O}_3 + 3\text{C} \rightarrow 4\text{Al} + 3\text{CO} \)
ORGANIC CHEMISTRY

1. The given structure is

(1) Cimetidine   (2) Ranitidine
(3) Codeine      (4) Histamine

Ans. (1)

2. Which of the following is not condensation polymer:

(1) Buna-N    (2) Nylon-6    (3) Dacron    (4) Bakelite

Ans. (1)
Sol. Buna-N is addition polymer

3. Which of the following does not cause global warming

(1) N₂       (2) H₂O       (3) CH₄       (4) CO₂

Ans. (1)
Sol. N₂ is not a greenhouse gas.

4. Stability of carbocation

(A) O⁺     (B) O⁺     (C) O⁺

(1) A > B > C      (2) A > C > B       (3) B > C > A       (4) C > A > B

Ans. (2)
5. Final product in the given reaction

Ans. But–2–ene

6. Reagent will be

(i) B₂H₆–THF/H₂O₂–OH⁻
(ii) PCC

7. Number of π e⁻ in the product.

Ans. (2)

8. How many peptide bonds in

Glycinevalinealaninelysineasparagine

Ans. (4)

Sol. It is a peptideptide
ADMISSIONS OPEN
(Session 2022-23)
JEE (Main + Adv.) | JEE (Main)
Junior Division (VI to X)

Appear in ONLINE
Reliable National Entrance Test (R-NET)
Test on Every
SUNDAY
Scholarship up to 90%