

# DSSSB Chemical Assistant 2026

Sample Questions: 10 | Sections: 9

## Section overview

| Section                          | Questions | Count |
|----------------------------------|-----------|-------|
| Atomic Structure and Periodicity | 1         | 1     |
| Chemical Bonding and Solid State | 2         | 1     |
| Chemical Thermodynamics          | 3         | 1     |
| Chemical and Ionic Equilibrium   | 4         | 1     |
| Electrochemistry                 | 5         | 1     |
| Solutions and Phase Equilibria   | 6         | 1     |
| Inorganic Chemistry              | 7         | 1     |
| Organic Chemistry                | 8-9       | 2     |
| Analytical Chemistry             | 10        | 1     |

### Atomic Structure and Periodicity

Q.1 | 1 question

- Q.1** The Pauling electronegativity of gallium (1.81) is higher than that of aluminium (1.61) because
- (A) poor 3d shielding raises the effective nuclear charge of gallium
  - (B) gallium has fewer occupied electron shells than aluminium has
  - (C) gallium has fewer protons in its nucleus than aluminium
  - (D) gallium has a larger metallic radius than aluminium does

### Chemical Bonding and Solid State

Q.2 | 1 question

- Q.2** Ammonia has a larger dipole moment than  $\text{NF}_3$  mainly because
- (A) fluorine is less electronegative than hydrogen in these bonds
  - (B)  $\text{NF}_3$  is planar triangular in shape, whereas  $\text{NH}_3$  is pyramidal
  - (C)  $\text{NH}_3$  has two lone pairs on nitrogen whereas  $\text{NF}_3$  has one
  - (D) N-F dipoles oppose the lone pair dipole; N-H dipoles reinforce it

## Chemical Thermodynamics

Q.3 | 1 question

**Q.3** A bomb calorimeter has a heat capacity of  $8.0 \text{ kJ K}^{-1}$ . Combustion of a sample raises its temperature by  $2.5 \text{ K}$ . The heat released is

- (A) 20 kJ                      (B) 0.3 kJ                      (C) 3.2 kJ                      (D) 10.5 kJ

## Chemical and Ionic Equilibrium

Q.4 | 1 question

**Q.4** Which of the following pairs forms an acidic buffer solution?

- (A) NaOH and NaCl                      (B)  $\text{CH}_3\text{COOH}$  and  $\text{CH}_3\text{COONa}$   
(C)  $\text{NH}_4\text{OH}$  and  $\text{NH}_4\text{Cl}$                       (D) HCl and NaCl

## Electrochemistry

Q.5 | 1 question

**Q.5** The emf of the cell  $\text{Zn}|\text{Zn}^{2+}(0.01 \text{ M})||\text{Cu}^{2+}(1 \text{ M})|\text{Cu}$  at  $298 \text{ K}$  is ( $E^\circ_{\text{cell}} = 1.10 \text{ V}$ )

- (A) 1.22 V                      (B) 1.16 V                      (C) 1.04 V                      (D) 1.10 V

## Solutions and Phase Equilibria

Q.6 | 1 question

**Q.6** Assuming complete dissociation, which  $0.1 \text{ m}$  aqueous solution has the lowest freezing point?

- (A) NaCl                      (B) Glucose                      (C)  $\text{K}_2\text{SO}_4$                       (D)  $\text{AlCl}_3$

## Inorganic Chemistry

Q.7 | 1 question

**Q.7** Ozone reacts with moist potassium iodide solution to liberate

- (A) hydrogen iodide                      (B) iodate ions  
(C) potassium peroxide                      (D) iodine

## Organic Chemistry

Q.8–9 | 2 questions

**Q.8** The absolute configuration of D-(+)-glyceraldehyde according to the CIP rules is

- (A) meso                      (B) S                      (C) racemic                      (D) R

**Q.9** The  $\text{S}_{\text{N}}2$  reaction of a primary alkyl halide with a good nucleophile is fastest in

- (A) ethanol                      (B) methanol  
(C) dimethyl sulfoxide (DMSO)                      (D) water

## Analytical Chemistry

Q.10 | 1 question

- Q.10** To prepare 250 mL of 0.10 M HCl from a 10 M stock solution, the volume of stock needed is
- (A) 10 mL                      (B) 0.25 mL                      (C) 25 mL                      (D) 2.5 mL

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