

PART 1 - CHEMISTRY

Topic : Electrochemistry

SECTION-A : (Maximum Marks : 4)

This section contains **ONE** question.

Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four option(s) is(are) correct answer(s).

For each question, choose the option(s) corresponding to (all) the correct answer(s).

Answer to each question will be evaluated according to the following marking scheme :

Full Marks : +4 ONLY if (all) the correct option(s) is(are) chosen;

Partial Marks : +3 If all the four options are correct but ONLY three options are chosen;

Partial Marks : +2 If three or more options are correct but ONLY two options are chosen, both of which are correct;

Partial Marks : +1 If two or more options are correct but ONLY one option is chosen and it is a correct option;

Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);

Negative Marks : -1 In all other cases.

For example, in a question, if (A), (B) and (D) are the ONLY three options corresponding to correct answers, then choosing ONLY (A), (B) and (D) will get +4 marks; choosing ONLY (A) and (B) will get +2 marks; choosing ONLY (A) and (D) will get +2 marks; choosing ONLY (B) and (D) will get +2 marks; choosing ONLY (A) will get +1 mark; choosing ONLY (B) will get +1 mark; choosing ONLY (D) will get +1 mark; choosing no option (i.e. the question is unanswered) will get 0 marks; and choosing any other combination of options will get -1 marks.

1. An aqueous solution of hydrazine (N_2H_4) is electrochemically oxidized by O_2 , thereby releasing chemical energy in the form of electrical energy. One of the products generated from the electrochemical reaction is $\text{N}_2(\text{g})$.

Choose the correct statement(s) about the above process

[JEE Advanced 2024 Paper 2]

- (A) OH^- ions react with N_2H_4 at the anode to form $\text{N}_2(\text{g})$ and water, releasing 4 electrons to the anode.
- (B) At the cathode, N_2H_4 breaks to $\text{N}_2(\text{g})$ and nascent hydrogen released at the electrode reacts with oxygen to form water.
- (C) At the cathode, molecular oxygen gets converted to OH^- .
- (D) Oxides of nitrogen are major by-products of the electrochemical process.

Scan or tap for the full solution



Space for Rough Work

JEE ADVANCED ELECTROCHEMISTRY — FUEL CELLS - HYDRAZINE-O₂ CELL — PYQS

Test Pattern : **JEE (Advanced)**

ANSWER KEY

SECTION-A

[illegible]