



ଅର୍ଦ୍ଧ ପ୍ଲଟ୍ ବାର, ୧୩ ଡିସେମ୍ବର, ୨୦୧୮

୧୧

$$\pi(n) = \sum_{m=2}^n \left(\sum_{k=1}^m \frac{1}{k} \right)$$

$$A = \begin{pmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \dots & a_{mn} \end{pmatrix}$$

$$\alpha = f(z)$$

$$\beta = f(z)$$

FOR ANSWERS VISIT : www.dharitri.com

MOCK TEST PAPER # 1

CLASS-XII (CHEMISTRY)

Time Allowed : 3 hours

Maximum Marks: 70

GENERAL INSTRUCTIONS

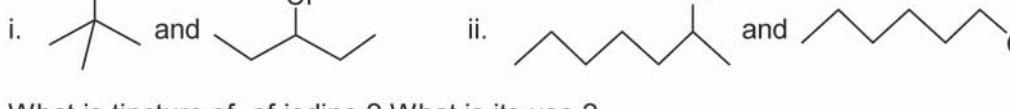
- i. All questions are compulsory
- ii. Q. No. 1 to 5 are very short answer questions and carry 1 mark each.
- iii. Q. No. 6 to 12 are short answer questions and carry 2 marks each.
- iv. Q. No. 13 to 24 are also short answer questions and carry 3 marks each.
- v. Q. No. 25 to 27 are long answer questions and carry 5 marks each.
- vii. Use log tables if necessary, use of calculators is not allowed.

1. What is activation energy ?
2. Write the name of enzyme, which converts starch into maltose.
3. Give an example of compounds in which nitrogen exhibits oxidation states of -3 and +3
4. Name the reagents used in the following reactions:
 - i. Oxidation of primary alcohol to carboxylic acid.
 - ii. Benzyl alcohol to benzoic acid.
5. Name one disease caused by the deficiency of
 - i. Vitamin E
 - ii. Vitamin D
6. Which of the following compounds has a lone pair of electrons at the central atom ?
 $H_2S_2O_3, H_2S_2O_7, H_2SO_3, H_2SO_4$
7. Give an example of Hell-Volhard-Zelinsky reaction.
8. Draw the structure of optical isomers of $[Cr(C_2O_4)_3]^{3-}$.
9. Define the following terms with suitable examples.
 - i. Primitive unit cell
 - ii. Ferromagnetism.

OR

Write any two differences between n-type and p-type semiconductors.

10. In the following pairs of halogen compounds, which compound undergoes faster S_N1 reaction ?



11. What is tincture of iodine ? What is its use ?
12. What are artificial sweetening agents ? Give two example.
13. For the complex $[Fe(en)_2Cl_2]Cl$, identify the following
 - i. Type of hybridization and geometry.
 - ii. IUPAC name of the complex.
14. An element with molar mass 2.7×10^{-2} kg mol $^{-1}$ forms a cubic unit cell edge length 405 pm. If its density is 2.7×10^3 kg m $^{-3}$ then what is the nature of the cubic unit cell ?
15. Write the structure and IUPAC name of DDT.
16. The following initial rate data were obtained at 300 K for the reaction $2P + Q \rightarrow R + S$.

	[P] mol L $^{-1}$	[Q] mol L $^{-1}$	Rate/mol L $^{-1}$ s $^{-1}$
I.	0.2	0.1	6.0×10^{-2}
II.	0.4	0.1	2.4×10^{-1}
III.	0.2	0.2	1.2×10^{-1}

- a. Deduce the rate law.
- b. If the half-life of a reaction is inversely proportional to initial concentration of the reactant then what is the order of reaction ?
17. Write the chemical reactions of the following:
 - i. Coupling reaction.
 - ii. Hoffmann bromamide reaction.
18. Explain the following terms:
 - i. Micelles
 - ii. Dialysis
 - iii. Hardy-Schulze rule.

OR

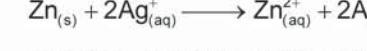
Explain the following observations:

- i. A beam of light passing through a colloidal solution is visible.
- ii. Passing an electric current through a colloidal solution removes colloidal particles from it.
- iii. Ferric hydroxide solution coagulates on addition of a solution of potassium sulphate.

19. Complete the following chemical reactions:
 - i. $F_2 + H_2O \rightarrow$
 - ii. $Ca_3P_2 + H_2O \rightarrow$
 - iii. $XeF_4 + H_2O \rightarrow$

20. a. What is the role of depressant in the froth floatation process ?
- b. Out of C and CO which is a better reducing agent for FeO ?
- i. In the lower part of blast furnace (higher temperature)
- ii. In the upper part of blast furnace (lower temperature).

21. The reaction occurs in galvanic cells is:



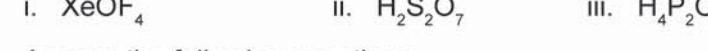
Give the answers of the following:

- i. Which of the electrode is negatively charged ?
- ii. The carriers of the current in the cell.
- iii. Individual reaction at each electrode.

22. How are the following conversions carried out ?

- i. Propene \rightarrow Propan-2-ol.
- ii. Benzyl chloride \rightarrow benzyl alcohol
- iii. Ethyl magnesium chloride \rightarrow propan-1-ol.

23. Draw the structure of the following species:



24. Answer the following questions.

- i. What are biodegradable polymer ?
- ii. Identify the aliphatic biodegradable polyester which is used in packaging and orthopaedic devices. Write its full form.
- iii. Write the name and structure of the monomer of nylon 6.

25. a. Define (i) Mole fraction (ii) Molality

How are these two related ?

- b. What is the value of van't Hoff factor for a solute which undergo dimerisation upto 40%?

OR

- a. State the following

- i. Henry's law about partial pressure of a gas in a mixture.
- ii. Raoult's law in its general form in reference to solutions.
- b. A solution prepared by dissolving 8.95 mg of a gene fragment in 35.0 mL of water has an osmotic pressure of 0.335 torr at 25°C. Assuming the gene fragment is a non-electrolyte, determine its molar mass.

26. a. Write chemical equations for the following reactions:

- i. Oxidation of nitrite ion by MnO_4^- in acidic medium.
- ii. Acidification of potassium chromate solution.
- iii. Disproportionation of manganese (VI) in acidic solution.

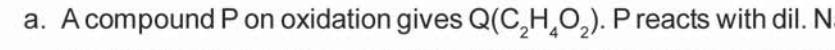
- b. Explain the following observations.

- i. Transition elements generally form coloured compounds.
- ii. Zinc is not regarded as a transition element.

OR

- a. Account for the following

- i. Europium (II) is more stable than cerium (II)
- ii. Transition metals have high enthalpies of atomization.
- b. Write the steps involved in the preparation of



27. a. A compound P on oxidation gives $Q(C_2H_4O_2)$. P reacts with dil. NaOH and on subsequent heating forms R. R on catalytic hydrogenation gives S. Identify P, Q, R, S and write down the reaction involved.

- b. Write chemical equations to carry out the following conversions.

- i. Benzene to benzyl alcohol.

- ii. Propane nitrile to 1-phenyl propanone.

OR

- a. Two moles of organic compound 'W' on treatment with a strong base give two compounds 'X' and 'Y'. Compound 'X' on dehydrogenation of 'Y' yields carboxylic acid 'Z' having molecular formula of CH_2O_2 .

- b. Explain why:

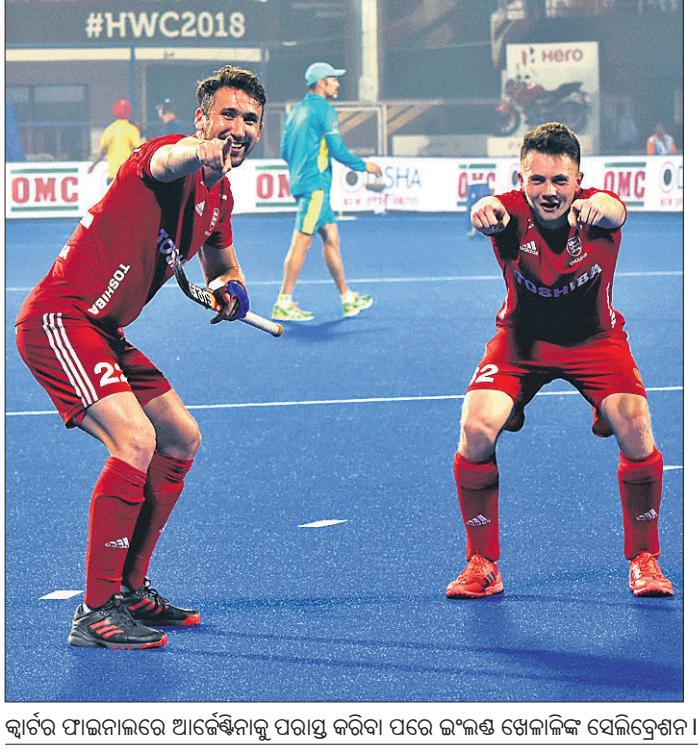
- i. The aldol and ketol readily lose water molecules to give, α, β -unsaturated carbonyl compounds?
- ii. Benzaldehyde is less reactive than acetaldehyde towards nucleophilic substitution reaction ?

For Answers visit: www.dharitri.com

ଆର୍ଦ୍ରଷ୍ଟନାର ବିଦ୍ୟାୟ

ଭୁବନେଶ୍ୱର, ୧୩ ୧୨ (କ୍ରାତା ପ୍ରତିନିଧି)

ଚଲିତ ହକି ବିଶ୍ୱକପର କ୍ଵାର୍ଟର ପାଇନାଲାରୁ ଅଳିଶ୍ରୀଳ ବିଶ୍ୱକପର ଆର୍ଜେଣ୍ଟନାର ଅଭିଭାବ ଶେଷ ହେଲାଛି। କଳିଙ୍ଗ ଶ୍ଵତିଯମରେ ବାରିଥିବା ବିଶ୍ୱକପର ବୁଝିବାର ଅନୁଷ୍ଠାତ ପ୍ରୟମା କ୍ଵାର୍ଟର ପାଇନାଲାରେ ବିଶ୍ୱର ଓ ନମ୍ବର ଦଳ ଲଙ୍ଗଣ୍ଟ ଓ ନମ୍ବର ଆର୍ଜେଣ୍ଟନାରୁ ହାରାଇ ପ୍ରଥମ ଦଳରେ ସେମିଫାଇନାଲରେ ପ୍ରବେଶ କରିଛି। ୧୯୨୭ ବିଶ୍ୱକପ ଗୋପ୍ୟ ପଦକ ବିଜେତା ଲଙ୍ଗଣ୍ଟ କ୍ରୂମାଗର ଢୁକୀୟ ଏବଂ ମୋଟ ୪୨୪ ଅର୍ପାଳୀ ସେମିଫାଇନାଲ ଖେଳିବାରୁ ଯୋଗ୍ୟତା ପାଇଛି। ୨୦୧୦ ଓ ୨୦୧୪ ବିଶ୍ୱକପରେ ମଧ୍ୟ ଦଳ ସେମିଫାଇନାଲରେ ଖେଳି ହାରି ଯାଇଥିଲା। ଫଳରେ ୨୭ୟାବ ଅର ଦଳକୁ ୪୨୪ ଶ୍ଵତିଯମରେ ବିଜେତା ପାଇଛି। ୨୦୧୦ ରେ ଉଲଙ୍ଘଣ୍ଡ ସେମିଫାଇନାଲରେ କ୍ରୂମାଗର ୩୨୨-୪ ଗୋଲରେ ହାରିଥିବାବେଳେ କ୍ରୋଜ ପଦକ ପ୍ରଦାନ କରିବାରେ ନେବରିଲାଇସଟାରୁ ୩୨-୪ ଗୋଲରେ ପରାଜିତ ହେଇଥିଲା। ସେହିପର ୨୦୧୪ ବିଶ୍ୱକପରେ ଦଳ ୦-୨ ଗୋଲରେ ନେବରିଲାଇସଟାରୁ ହାରିଥିବାବେଳେ କ୍ରୋଜ ପଦକ ମାତ୍ରରେ ଆର୍ଜେଣ୍ଟନାରୁ ୦-୨ ଗୋଲରେ ପରାଜ୍ୟ ହେଇଥିଲା। ଏଥର ଦଳ ଆର୍ଜେଣ୍ଟନାରୁ



କ୍ଵାର୍ଟର ପାଇନାଲରେ ଆର୍ଜେଣ୍ଟନାରୁ ପରାଜ୍ୟ କରିବା ପରେ ଲଙ୍ଗଣ୍ଟ ଶେଳକିଳିଙ୍କ ସେମିଫାଇନାଲରେ କ୍ରୋଜ-ଆର୍ଜେଣ୍ଟନା ମାତ୍ରରେ ଏବଂ ବୋମାଅକର ମୁହଁରୀ।

ମଧ୍ୟ ପ୍ରତିଶୋଧ ନେବାସହ ସେମିଫାଇନାଲରେ ପ୍ରବେଶ କରିଥିବାରୁ ପୂର୍ବ ୨ ସଂଖ୍ୟର ବାଧା ଅଭିମାନ କରିବା ଲଙ୍ଗଣ୍ଟ ରହିଛି।

ଆର୍ଜେଣ୍ଟନାରୁ କଢା ଟର୍ଭର ଦେଇ

କଳିଙ୍ଗ କର୍ମଚାରୀ

ଉଦ୍‌ସାପନା ଉତ୍ସବରେ ସାଂକ୍ଷ୍ଟିକ କାର୍ଯ୍ୟକ୍ରମ ନାହିଁ

ଭୁବନେଶ୍ୱର, ୧୩ ୧୨ (କ୍ରାତା ପ୍ରତିନିଧି): ଭୁବନେଶ୍ୱରରେ କଳିଙ୍ଗବାଦୀ, ମାଲେଇଥା, ଅନ୍ତିମା, ବ୍ରାଜି, କଳିଙ୍ଗ, ଭୁବନେଶ୍ୱର ଓ ଖେଳିବାର ବାରିଥିଲା।

ଭୁବନେଶ୍ୱର ନାମୀ ଦାମା କଳାକାରଙ୍କୁ ଏହି ଉତ୍ସବରେ ଦେଖିବାକୁ ମିଳିଥିଲା।

ନିର୍ମାଣ ୨୭ରେ ଭୁବନେଶ୍ୱର ଏବଂ ୨୮ରେ କଟକରେ ଏହି ସମୀକ୍ଷାକାର ଆୟୋଜନ ହୋଇଥିଲା।

ତେଣୁ ଉତ୍ସବରେ କଟକରେ ଏହି ସମୀକ୍ଷାକାର ଆୟୋଜନ ହୋଇଥିଲା।

କଟକରେ ଉତ୍ସବରେ କଟକରେ ଏହି ସମୀକ୍ଷାକାର ଆୟୋଜନ ହୋଇଥିଲା।

