

# ଧରିତ୍ରୀ

DHARITRI

ଭୁବନେଶ୍ୱର, ବୁଦ୍ଧବାର, ଫେବୃଆରୀ ୧୩ /୨୦୧୯ (୨୦ ମୃଷ୍ଟା)

Bhubaneswar, Wednesday, February 13/ 2019

★★★★★

୪୪ ଭାଗ ୮୯ ସଂଖ୍ୟା

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ପାନ ମସାଳା

DS GROUP



## ଅପଣୀ ଧୂଗ କୌ ଭୁଗ କେ ଦେବୋ



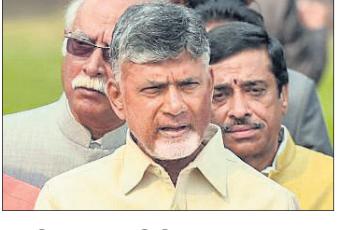
NO TOBACCO  
NO NICOTINE





## ସଂଖ୍ୟାପରେ

ଆଶ୍ରମ ସ୍ଵତନ୍ତ୍ର ରାଜ୍ୟ ପାହ୍ୟ  
ମାନ୍ୟତା ଦାବି  
ରାଷ୍ଟ୍ରପତିଙ୍କୁ ଡେଟିଲେ ରମ୍ଭାରୁ



ନୂଆଦିଲୀ, ୧୨୧୭ (ପି.ଟି.)

## ବଢ଼ିବ ଯୁଦ୍ଧମତ୍ତା

ନୂଆଦିଲୀ, ୧୨୧୭

ରାପାଳ ଯୁଦ୍ଧବିନାନ କିଣା ହୁଣ୍ଡରେ ଦୂର୍ଭାଗ୍ୟ ନେଇ କେନ୍ଦ୍ରର ଏମତିଏ ସରକାରଙ୍କୁ ବିରୋଧୀ ଗରେଟ କରୁଥିବାବେଳେ ଭାରତ ୭୭,୪୦୦ ସିର୍ ସରର ଆସିଲୁ ରାଜପାଲ କିଣିବା ପାଇଁ ଆମେରିକା ସହ କୁଣ୍ଡବର୍ଷ ହୋଇଛି। ଭାରତୀୟ ସେନା ପାଇଁ ଫାଷ୍ଟ-ଗ୍ରାନ୍ ପ୍ରକରିଯାରେ ଏହି ରାଜପାଲ ଅଶ୍ୟାଯିବ। ଏହା ସୀମାତରେ ମୁକ୍ତୟନ ଭାରତୀୟ ସ୍ବାମୀଙ୍କ ଯୁଦ୍ଧମତ୍ତା ଦୃଷ୍ଟି କରୁଥିବା ରାଷ୍ଟ୍ରପତିଙ୍କୁ ଭେଟିଛି। ରାଷ୍ଟ୍ରପତି ନେତୃତ୍ବରେ କେତେ ମୁକ୍ତୟନ ଦେଖିଲୁ ପାଇଁ ଏହି ପ୍ରକରିଯା କରିବାକୁ ପରିବର୍ତ୍ତନ କରିବାକୁ କରିଛି।

ପ୍ରତିରକ୍ଷା ମନ୍ତ୍ରାଳୟର ଭାରତ ବରିଷ୍ଟ ଅଧିକାରୀଙ୍କାରୁ ମିଳିଥିବା ସୂଚନାକୁ ଆମେରିକା ରାଜ୍ୟକୁ ପାଇଁ ପରିବର୍ତ୍ତନ କରିବାକୁ ଅନୁଭବ କରିଛି। ଏହା ପାଇଁ ଏହାର ଅନୁଭବ କରିବାକୁ ପରିବର୍ତ୍ତନ କରିବାକୁ କରିଛି। ଏହା ପାଇଁ ଏହାର ଅନୁଭବ କରିବାକୁ ପରିବର୍ତ୍ତନ କରିବାକୁ କରିଛି।

ପାଇଁ ଏହାର ଅନୁଭବ କରିବାକୁ କରିଛି।

# ଧରିତ୍ରୀ

DHARITRI

ଭୁବନେଶ୍ୱର, ଭୁବନେଶ୍ୱର, ଫେବୃଆରୀ ୧୩ / ୨୦୧୯

Bhubaneswar, Wednesday, February 13/ 2019

DSPL-402



ଓଡ଼ିଶା ସରକାର



ବିଜୁ ଯୁବ ବାହିନୀ  
Biju Yuva Vahini



## ସୁବ ସମାବେଶ ସ୍ନେହାସେବାର ଉତ୍ସବ

ବାଲେଶ୍ୱର, ୧୩ ଫେବୃଆରୀ ୨୦୧୯

‘ବିଜୁ ସୁବ ବାହିନୀ’ ସ୍ନେହାସେବାଙ୍କ ଅଂଶଗ୍ରହଣ  
ଜିଞ୍ଚା: ବାଲେଶ୍ୱର, ପାଞ୍ଚପୁର, ମଧ୍ୟଭାରତୀ, କେନ୍ଦ୍ରଭାରତ, ଭାରତ

ରାଜ୍ୟ ସୁବ କଲ୍ୟାଣ ପରିଷଦ, ଓଡ଼ିଶା ସରକାର

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ଓଡ଼ିଶା ସରକାର

## ନବୀନ ଓଡ଼ିଶା ପାଇଁ ବିକାଶର ନୂତନ କିରଣ



ସୁବର୍ଷରେଖାରୁ ଶୁଭାରମ୍ଭ ହେଉଛି  
ବନ୍ଦର ଉତ୍ତିତ୍ତୁମି ବିକାଶର ଆଉ ଏକ

### ସୁର୍ରମ ଅଧ୍ୟାୟ

ଓଡ଼ିଶା ସରକାର ଓ ଟାଟା ଶିଳଙ୍କ ସହଭାଗିତାରେ  
ସ୍ଥାପିତ ହେବାକୁ ଯାଉଛି

### ସୁବର୍ଷରେଖା ବନ୍ଦର

ଚଉମୁଖ, ବାଲିଆପାଳ, ବାଲେଶ୍ୱର

୫୦୦୦ କୋଟି ଟଙ୍କାର ବନ୍ଦର

୧୨ ଟି ବର୍ଥ

୨୫ରୁ ୫୫ ମିଲିଯନ ମେଟ୍ରିକ୍ ଟନ୍  
ବାଣ୍ଶୀକ ପଣ୍ୟ କାରବାର କ୍ଷମତା

୧୨ ହଜାର ଯୁବକ ଯୁବତୀଙ୍କ ପାଇଁ ନିଯୁକ୍ତ ସୁଯୋଗ

ଶିଳାନ୍ୟାସ କରୁଛନ୍ତି  
ଓଡ଼ିଶାର ମାନ୍ୟବର ମୁଖ୍ୟମନ୍ତ୍ରୀ

### ଶ୍ରୀଯୁକ୍ତ ନବୀନ ପକ୍ଷନାୟକ

୧୩ ଫେବୃଆରୀ ୨୦୧୯  
ଅପରାହ୍ନ ୩.୧୫ ମିନିଟ୍



















ଯଦି ଦୁହକାଳ ଧରି କିଛି କାମରେ ନ ଲାଗିଲା,  
ତେବେ ଦୁରୀରେ ମଧ୍ୟ କଳିକି ଲାଗିଯିଥାଏ।  
- ସାବମନ୍ ବୋଲିଯିରୁ



ସାମିତି ପ୍ଲାନ ଯୋଗୁ ଏଠାରେ ସମସ୍ତ ସେଲଟି ଛାପି ହେଉନାହିଁ ।  
ଅଧିକ ସେଲଟି ଦେଖିବା ପାଇଁ ଯାଆକୁ ଆମ ହେବସାଇର  
[www.dharitri.com/main/selfie\\_list/](http://www.dharitri.com/main/selfie_list/)

ଆମରୁ ପଠାଇଁ ଆପଣଙ୍କ ସେଲଟି : metroselfie@gmail.com



ହେମ



ଗୁଡ଼ି



ତ୍ରିଲୋକ



ଶୁଭରଞ୍ଜନ

ରାମ

## SHORT TENDER NOTICE

### DIRECTORATE OF MINES BHUBANESWAR, ODISHA

Tender No. 1131

Dated : 11.02.2019

No. 19-G: Sealed tenders are invited from established and accredited original Equipment Manufacturer (OEM) / authorised dealers for supply, installation and commissioning of RDBMS Software- MS-SQL Server 2017, Enterprise edition with 16nos. dual core licenses to The Directorate of Mines, Bhubaneswar.

For details of tender schedule, eligibility criteria, scope of work, terms & conditions, cost of tender document, EMD & Payment details etc. Please visit our websites <http://www.odisha.gov.in> and <https://www.orissaminerals.gov.in>

There will be no manual sale of tender document. Interested bidders are requested to download the tender document from the website. The last date for receipt of the bid is 01.03.2019 upto 12.30 P.M. which shall be opened on 01.03.2019 at 04.00 P.M.

Director of Mines, Odisha reserves the right to accept / reject all or a part of the tenders without assigning any reason thereof.

3004/11/0008/1819

Sd./- Director of Mines, Odisha

## OFFICE OF THE MUNICIPAL COUNCIL, SONEPUR “e” Procurement Notice

Bid Identification No. SNP-MUN-08/2018-19

Tender Call Notice No. 294/ Date : 12.02.2019

Bid Documents consisting of Work, Estimated Cost, Cost of Tender Paper, EMD, Time of Completion, Class of contractors and the set of terms and conditions of contract & other necessary documents can be seen in Govt. website i.e. [www.tendersodisha.gov.in](http://www.tendersodisha.gov.in)

1	Name of the Work	: As per DTCN
2	No. of Works	: 24 Nos
3	Amount put to Tender	: As per DTCN
4	Period of Completion	: As per DTCN
5	Starting Date & Time of Bidding	: From Dt. 15.02.2019 from 11.00 A.M.
6	Last Date & Time for receipt of tenders through online	: Upto Dt. 25.02.2019 up to 05.00 PM
7	Submission of Original Document	: On or Before Dt. 26.02.2019 within 05.00 PM
8	Bids received online shall be opened on	: On Dt. 27.02.2019 at 11.00 AM
9	Name and address of the Officer inviting Bid	: Executive Officer, Sonepur Municipality

Further details can be seen from the procurement portal i.e. [www.tendersodisha.gov.in](http://www.tendersodisha.gov.in)

Sd./- Executive Officer  
Sonepur Municipality

## DIRECTORATE GENERAL FIRE SERVICES, HOME GUARDS & CIVIL DEFENCE, ODISHA

### SHORT TENDER CALL NOTICE

NO.-11/2018-19.

1. Sealed tenders are invited from the fabricators having own fabrication unit for fabrication of Water Tanker (15,000 Ltrs Capacity) and Mini Motor Fire Engine for Fire Service Organization during the year 2018-19.

- Fabrication of Water Tanker (15,000 Ltrs Capacity) on chassis model: - Tata LPT 2518/48 Tilt Sleeper Cab Chassis 6x2 BSIV
- Fabrication of Mini Motor Fire Engine on chassis model: - Ashok Leyland LCV Truck Partner 6 Tyre 3955 mm Wheel Base Cabin Chassis-17 feet.
- Sale of tender document w. e. f. dt. 13-02-2019.
- Last date for sale of tender document dt. 26-02-2019, 5.00 P.M.
- Last date for receipt of tender document dt. 26-02-2019, 5.00 P.M.
- Date for opening of tenders/Technical Bids dt. 27-02-2019, 11.30 AM onward.
- The tender document with detail technical specification, condition may be seen from the state website [www.odisha.gov.in](http://www.odisha.gov.in) and Odisha Fire Service website [www.odishafshgscd.gov.in](http://www.odishafshgscd.gov.in). The tender document may be obtained by depositing Rs. 500/- (Rupees five hundred) only between 11.00 A.M to 5.00 P.M each working days.
- Address:  
Directorate General of F.S. H.Gs & C.D, at-3rd Floor of Vigilance Directorate, Nuapatna, Cuttack, Pin-753001, FAX-0671-2300201/ 2303387.

Sd./- I.G of Police, Fire Service,  
Home Guards & Civil Defence,  
Odisha, Cuttack

12013/11/0022/1819

## ODISHA BRIDGE & CONSTRUCTION CORPORATION LTD.

(A Government of Odisha Undertaking)  
SETU BHAVAN, NAYAPALLI, BHUBANESWAR-12  
PH.NO. 0674-2390043, FAX NO. 0674-2396326, E Mail: mdobcc@gmail.com



No.CAD-1406:

BID INVITATION NOTICE

1. General Manager(Civil), Odisha Bridge & Construction Corporation on behalf of the Governor of Odisha, invites 'online' tender in double cover system for the toll gate under the Category-1 & in single cover system for the toll gates under Category-2 and bid will be received in sealed tender box for the toll gates under category-3, as detailed in the table below from the intending bidders for collection of toll for a period of one year.

Sl. No.	Name of the (R&B) toll gate.	Upset Price (In Rs.)	E.M.D. (In Rs.) (online submission)	Cost of Bid document (In Rs.) (online submission)	Operation Period.
1	2	3	4	5	6
<b>CATEGORY-1 (Double Cover System)</b>					
1.	Mohanadi Bridge toll gate near Sonepur on Sambalpur-Sonepur road.	2,29,52,224/-	22,95,222/-	10,000/-	01.05.19 to 30.04.20
<b>CATEGORY-2 (Single Cover System)</b>					
2.	Toll gate on Bridge over river Bansadhara on Gunupur-Bisamkatak road.	38,00,000/-	3,80,000/-	6,000/-	01.04.19 to 31.03.20
3.	Badaguputi Bridge toll gate on Baruan-Balichandrapur road.	14,24,786/-	1,42,480/-	6,000/-	06.04.19 to 05.04.20
4.	Veden Bridge toll gate on Saida-Kalpada road. (R.D. Dept. toll gate)	5,83,583/-	58,358/-	4,000/-	15.04.19 to 14.04.20
5.	Toll gate on H.L.Bridge over river Pithaguda on Similiguda-Handiput road.	19,92,244/-	1,99,224/-	6,000/-	01.05.19 to 30.04.20
6.	Balasore- Mitrapur- Baincha road toll gate, Balasore	44,75,237/-	4,47,524/-	6,000/-	One year from the effective date of Agmt.
<b>CATEGORY-3</b>					
7.	R.D. Dept. Toll gate				
8.	Toll gate on Bridge over Sono on Uda- Dihirakar Road.	3,41,500/-	34,150/-	2,000/-	07.05.19 to 06.05.20
9.	Toll gate over river Budhabalanga Bridge on Bangiriposi-Shyamsundarpur Road, Mayurbhanj	3,08,500/-	30,850/-	2,000/-	10.05.19 to 09.05.20
10.	Date and time for online bidding for toll gates under Category-1 & 2 (Sl. 1 to 6) starts From 2.00 P.M. of dt. 18.02.2019 to 5.00 P.M. of dt. 01.03.2019.				
11.	EMD and Cost of bid document as specified against each toll gate in the above table Column-4 & 5 under category-1&2 (Sl. 1 to 6) will be transferred through online only as per the procedure mentioned in the DTCN. Further details can be seen from the website <a href="https://tendersodisha.gov.in">https://tendersodisha.gov.in</a> .				
12.	The sale of bid document for toll gates under Category-3(Sl. from 7 to 8) starts from dt. 18.02.2019 to dt. 28.02.2019 up to 4.00 P.M. during working days within office hours at Head Office and Sr.Project Manager's offices and will be opened on dt. 01.03.2019 at 12.00 Noon at Head Office. The details can be seen from the bid documents. The bid documents can also be downloaded from Odisha Govt. Web site <a href="http://www.odisha.gov.in">www.odisha.gov.in</a> .				
13.	Any changes/corrigendum will be displayed in the website only.				
14.	Officer-in-charge of Tender:-General Manager(Civil), O.B. & C.C. Ltd., Bhubaneswar.				

Sd./- GENERAL MANAGER (CIVIL)

## OFFICE OF THE DIVISIONAL FOREST OFFICER BARIPADA FOREST DIVISION BARIPADA, DIST:- MAYURBHANJ

Tel-06792-252613/252622, FAX-06792-255770,  
E-mail- dfobaripada.od@gmail.com

No.27

Date.05.02.2019

### NOTICE INVITING TENDER

Sealed tenders are hereby invited from Registered Firms / Authorized dealers / DGS & D Rate contract holders having required statutory clearance for supply and installation of Furniture. The sealed offers are to be submitted on or before **20.02.2019 by 5 PM, by Speed Post only**. The details regarding tender documents, specifications and terms and conditions can be Downloaded from the standardised web portal of MAYURBHANJ District i.e. [www.mayurbhanj.nic.in](http://www.mayurbhanj.nic.in).

Sd./-

DIVISIONAL FOREST OFFICER  
BARIPADA FOREST DIVISION

## CORIGENDUM

The bids identification No. Jaipatna Block KID 02 / 2018-19 for the work "Completion of Bridge at Sastuguda G.P. Dhansuli" amounting of Rs. 49,83,669.00 is reschedule to be opened on dated 19.02.2019 instead of on Dated.16.02.2019 due to unavoidable circumstances.

Sd./- Block Development Officer, Jaipatna

**IISER** Indian Institute of Science Education and Research Berhampur  
Established by the Ministry of HRD, Govt. of India | Transit Campus: Govt. ITI Berhampur-760019  
No.IIISERBr/S&P/EoI/2018/19/05 February 12, 2019  
**Expression of Interest**  
IISER Berhampur is inviting Expression of Interest from individuals / companies for hiring of buildings / towers for student hostels on lease/rent basis. The last date for submission of EoI, complete in all respect and confirming entirely to the specifications along with all necessary documents through offline mode is, on or before 1600 hrs of February 26, 2019. Complete detail and the tender document is available on Institute website i.e. <http://www.iiiserbr.ac.in> and <https://eprocure.gov.in>. Any corrigendum etc will be notified on the above websites only.

क्रୟ ଏବଂ ପର୍ଯ୍ୟାପ୍ତ ଅଧିକାରୀ

## OFFICE OF THE DISTRICT MAGISTRATE AND COLLECTOR, BARGARH (ST & SC Development Section)

Ph. No.-06646-230956 email: dwobargarh@gmail.com

No. 346/ SSD Dated : 11.02.2019

### NOTIFICATION

No. 97-V: In pursuance of this office Advertisement No. 1991/SSD Dated 14.08.2018 and Notification No. 188/ SSD Dated 31.01.2019 the Draft merit list (150%) of candidates for the post of Sikhiya Sahayak is hereby published in the website [www.bargarh.nic.in](http://www.bargarh.nic.in). The same is also available in the notice board of District Welfare Office, Bargarh. The candidates of Draft merit list (150%) are hereby informed to attend this office in person on 18.02.2019 at 11.00 A.M. to 5.00 P.M. for verification of their original Certificates/ Mark sheets along with all other relevant certificates produced in the application. The candidates are also instructed to submit one set of self-attested copies of all certificates, mark sheets and two passport size photograph at the time of verification. The authority reserves the right to reject the candidatures of the candidates, if found absent on the date of certificate verification.

Sd./- Collector, Bargarh

## INTEGRATED TRIBAL DEVELOPMENT AGENCY : BARIPADA

(Ph. &amp; Fax No. (06792)



74.25 m<sup>3</sup>

$$\sqrt{r^2 + h^2} = \sqrt{\frac{81}{4}}$$

# Exam Mate



Mock Test Paper for Std X, XII CBSE Board, IIT - JEE Main &amp; Advanced.

FOR ANSWERS VISIT : [www.dharitri.com](http://www.dharitri.com)

## MOCK TEST PAPER # 9

### 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. Write the structure of 1-bromo-4-sec-butyl-2-methylbenzene.
2. For the reaction,  $X_2 + 2Y_2 \rightarrow 2XY_2$ , write the rate equation in terms of the rate of disappearance of  $Y_2$ .
3. Pick out the odd one amongst the following on the basis of their medicinal properties mentioning the reason. Chloroxylenol, Phenol, Chloramphenicol, Bithional.
4. Aniline is a weaker base than cyclohexylamine. Why ?
5. Account for the following; o-nitrophenol has lower boiling point than p-nitrophenol.
6. A compound forms hexagonal close-packed structure. What is the total number of voids in 0.5 mol of it ? How many of these are tetrahedral voids ?
7. Rate constant of the first order reaction is  $6.93 \times 10^{-3} \text{ s}^{-1}$ . Calculate
  - i. half-life
  - ii. time of 75% completion of reaction.
8. i. Give the electronic configuration of the d-orbitals of Ti in  $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$  ion in an octahedral crystal field.  
ii. Why is the given complex coloured ? Explain on the basis of distribution of electron in the d-orbitals.
9. Predict the products of electrolysis obtained at the electrodes in each case when the electrodes used are of platinum.
  - i. An aqueous solution of  $\text{AgNO}_3$
  - ii. An aqueous solution of  $\text{H}_2\text{SO}_4$ .
10. Explain how vacancies are introduced in an ionic solid when a cation of higher valency is added as an impurity in it.

**OR**

Ionic solids, which have anionic vacancies due to metal-excess defect, develop colour. Explain with the help of a suitable example.

11. a. What are the constituents of starch ?  
b. Write Zwitter ion form of aminoacetic acid.
12. a. What happens when protein is denatured ?  
b. Name the purines present in DNA.
13. Give reasons for the following.
  - i. Addition of  $\text{Cl}_2$  to  $\text{KI}$  solution gives it a brown colour, but excess of  $\text{Cl}_2$  turns it colourless.
  - ii. Phosphinic acid behaves as a monoprotic acid.
  - iii. White phosphorus is much more reactive than red phosphorus.
14. i. A given ore is a mixed sulphide of lead and zinc ( $\text{PbS-ZnS}$ ). Suggest a method to separate the mixture.  
ii. Write the chemical reactions involved in the extraction of gold by cyanide process.
15. Explain the following terms with a suitable example in each case:
  - i. Shape-selective catalysis
  - ii. Dialysis
  - iii. Multimolecular colloids.
16. i. Give the IUPAC name of  $[\text{PtCl}(\text{NH}_2\text{CH}_3)(\text{NH}_3)_2]\text{Cl}$ .  
ii. Compare the magnetic behaviour of the complex entities  $[\text{Fe}(\text{CN})_6]^{4-}$  and  $[\text{FeF}_6]^{3-}$ . [ $\text{Fe} = 26$ ]
17. A zinc rod is dipped in 0.1 M solution of  $\text{ZnSO}_4$ . The salt is 95% dissociated at this dilution at 298 K. Calculate the electrode potential ( $E_{\text{Zn}^{2+}/\text{Zn}}^0 = -0.76 \text{ V}$ )
18. Write the structure of A, B and C in the following reactions.
  - i.  $\text{CH}_3-\text{CH}-\text{CH}_3 \xrightarrow[\Delta]{\text{alc. KOH}} \text{A} \xrightarrow[\text{H}_2\text{O}_2/\text{OH}^-]{\text{B}_2\text{H}_6} \text{B} \xrightarrow{\text{SOCl}_2} \text{C}$
  - ii.  $\text{C}_6\text{H}_6 \xrightarrow[\text{anthy. AlCl}_3]{\text{CH}_2\text{COCl}} \text{A} \xrightarrow{\text{B}} \text{CH}_2\text{CH}_3 \xrightarrow[\text{OH}^-]{\text{KMnO}_4} \text{C}$

19. Write structures and names of the monomers of the following polymers:

- i. Nylon 6, 6
- ii. Nylon 6
- iii. Urea formaldehyde resin

**OR**

- i. How will you differentiate between low density and high density polyethenes ?
- ii. Arrange the following polymers in order of increasing intermolecular forces:  
Bakelite, Nylon 6, 6, Polythene, Neoprene.
20. State Henry's law for solubility of a gas in a liquid and give its important applications.
21. Give plausible explanation for each of the following:
  - i. There are two  $-\text{NH}_2$  groups in semicarbazide. However, only one is involved in the formation of semicarbazone.
  - ii. Give the mechanism of esterification of carboxylic acids.
22. i. What is the structural difference between a nucleoside and a nucleotide ?  
ii. "The two strands of DNA are not identical but are complementary." Explain.  
iii. Differentiable between fibrous and globular proteins.
23. Mention the action of the following on the human body in bringing relief from a disease.
  - i. Brompheniramine
  - ii. Aspirin
  - iii. Equanil
24. Outline the principle of refining of metals by the following methods:
  - i. Zone refining
  - ii. van Arkel method
  - iii. Liquidation method
25. i. Give one chemical test to distinguish between the following pairs of compounds.
  - a. Methylamine and dimethylamine
  - b. Ethanal and propanal
  - c. Benzoic acid and ethyl benzoate
 ii. How will you bring about the following conversions in not more than two steps ?
  - a. Benzene to m-nitroacetophenone
  - b. 2-Methylpropanol to 2-methylpropene

**OR**

- i. An organic compound (A) [molecular formula  $C_8H_{16}O_2$ ] was hydrolyzed with dilute sulphuric acid to give a carboxylic acid (B) and an alcohol (C). Oxidation of (C) with chromic acid produced (B). (C) on dehydration gives but-1-ene. Write equations for the reactions involved.

- ii. Write the equations involved in the following reactions
  - a. Kolbe's reaction
  - b. Cannizzaro reaction

26. i. Why is freezing point depression of 0.1 M sodium chloride solution nearly twice that of 0.01 M glucose solution ?  
ii. At 300 K, 36g of glucose present per litre in its solution has an osmotic pressure of 4.98 bar. If osmotic pressure of solution is 1.52 bar at the same temperature, what would be its concentration ?  
iii. Osmotic pressure is more useful to calculate molecular mass than other colligative properties. Why ?

**OR**

- i. 15 g of an unknown molecular mass substance was dissolved in 450 g of water. The resulting solution freezes at  $-0.34^\circ\text{C}$ . What is the molar mass of the substance ? ( $K_f$  for water =  $1.86 \text{ K kg mol}^{-1}$ )

- ii. Non-ideal solutions exhibit either positive or negative deviations from Raoult's law. What are these deviations and why are they caused ? Explain with one example for which type.

27. Assign reason for the following:

- i. The enthalpies of atomisation of transition elements are high.
- ii. The transition metals and many of their compounds act as good catalyst.
- iii. Actinoid contraction is greater from element to element than the lanthanoid contraction.
- iv. The  $E^\circ$  value for the  $\text{Mn}^{3+}/\text{Mn}^{2+}$  couple is much more positive than that for  $\text{Cr}^{3+}/\text{Cr}^{2+}$ .
- v. Scandium ( $Z = 21$ ) does not exhibit variable oxidation states and yet it is regarded as transition element.

**OR**

- i. Write the steps involved in the preparation of
  - a.  $\text{K}_2\text{Cr}_2\text{O}_7$  from  $\text{Na}_2\text{CrO}_4$
  - b.  $\text{KMnO}_4$  from  $\text{K}_2\text{MnO}_4$
- ii. What is meant by lanthanoid contraction ? What effect does it have on the chemistry of the elements which follow lanthanoid contraction ?

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