

पत्र

- एक कार्यालय-पत्र
- एक शिकायती पत्र
- संपादक को पत्र
- एक औपचारिक पत्र

निबंध

- पर्वों का देश भारत
- मेरे लिए कंप्यूटर की उपयोगिता
- भारत की सामाजिक समस्याएं
- स्वाभिमान चाहिए, अभिमान नहीं
- विकास के लिए शिक्षा आवश्यक

परियोजना कार्य किसी एक विषय पर बनाएं-

- भारत में महिलाओं की स्थिति
- बाजार और उपभोक्तावाद
- भीमराव अंबेडकर

Summer Holidays Homework-2019-20
Class-XII **Subject: Physics**

- 1) Solve all the questions of chapter 1, 2 and 3 have been asked in CBSE All India and Delhi Examinations 2016, 2017, 2018 and 2019.
- 2) Derive the following formulae and solve two numerical based on each formula
 - I. Electric field at a point on axial line of an electric dipole.
 - II. Electric field at a point on Equatorial line of an electric dipole.
 - III. Torque on a dipole in uniform electric field.
 - IV. Electric field due to a line of charge using gauss's law.
 - V. Capacitance of a parallel plate capacitor with and without dielectric slab.
 - VI. Energy and energy density of a capacitor.
 - VII. Write and prove electrostatic properties of conductors.
 - VIII. Resistivity of the material of a wire.
 - IX. Find the electric potential on inner and outer surface of concentric conducting shells of radii r_1 and r_2 with surface charge densities σ_1 and σ_2 .
 - X. Balancing condition of Wheatstone bridge.
 - XI. Use of potentiometer to determine the internal resistance of a cell.

HOLIDAY HOME WORK CLASS XII SCIENCE COMPUTER SC

- ➔ REVISION OF CHAPTER 1,2,3
- ➔ MAKE POWERPOINT ON DATA TYPES AND FLOW OF CONTROLS , LIST , TUPLE, DICTIONARY
- ➔ COMPLETE ALL THE PRACTICAL ASSIGNMENT IN PRACTICLE FILE
- ➔ ALL STUDENT WILL MAKE A PPT ON DATA FILE HANDLING
- ➔ MAKE A SIMPLE PROJECT ON DATA FILE HANDLING

Holiday's Home Work 12 A Biology

1. Complete all questions of exercise and extra questions of chapter 3 and chapter 4 in homework register.
2. Thoroughly prepare unit 1 (four chapters) for test after holiday.
3. Complete investigatory project.
4. Complete all the practicals done so far in practical file.
5. Read chapter 13 to 16 of unit of 10 and attempt the exercise questions in home work register.

1. PASTE ANY ONE INVITATION CARD [MARRIAGE OR BIRTHDAY PARTY OR MUNDAN CERMONY]. IN YOUR NOTEBOOK AND WRITE THE REPLY OF THE SAME. (NEGITIVE AND POSITIVE BOTH).
2. COMPLETE THE ALL QUESTION/ANSWER.THE LAST LESSON INTEXT.
3. WRITE THE SUMMARY OF ELEMENTRY SCHOOL IN CLASSROOM IN A SLAM ALONG WITH DIFFICULT WORDS WITH MEANING AND EXPLANATION OF LINE BY LINE STANZA BY STANZA.
4. REPEAT THE QUESTION /ANSWER THAT ARE ASKED IN THE TEST (MY MOTHER AT 66).
5. WRITE A LETTER TO THE KING OF MYSORE TELLING HIM .HOW THRONE WAS IN DANGER AND HOW HE SAVED IT.

HOLIDAY ASSIGNMENT (2019-20)

Summer Break CLASS: XII SUBJECT: MATHEMATICS

Solve the following questions:

1. Show that $A = \begin{bmatrix} 5 & 3 \\ -1 & -2 \end{bmatrix}$ satisfies the equation $x^2 - 3x - 7 = 0$. Thus find A^{-1} .
2. If $A = \begin{bmatrix} 3 & 1 \\ 7 & 5 \end{bmatrix}$, find x and y such that $A^2 + xI = yA$. Hence find A^{-1} .
3. Using properties of determinants, prove the following

$$\begin{vmatrix} a-b-c & 2a & 2a \\ 2b & b-c-a & 2b \\ 2c & 2c & c-a-b \end{vmatrix} = (a+b+c)^3$$

4. Using properties of determinants, prove the following :

$$\begin{vmatrix} 1 & 1 & 1 \\ a & b & c \\ a^3 & b^3 & c^3 \end{vmatrix} = (a-b)(b-c)(c-a)(a+b+c)$$

5. $\begin{vmatrix} b+c & c+a & a+b \\ c+a & a+b & b+c \\ a+b & b+c & c+a \end{vmatrix} = 0$ Show that either $a+b+c = 0$ or $a = b = c$.

6. A matrix of order 3×3 has determinants 5 . what is the value of $|3A|$ & $|A A'|$?
7. Find the value of $a, b, c,$ and $d,$ if

$$\begin{bmatrix} a-b & 2a+c \\ 2a-b & 3c+d \end{bmatrix} = \begin{bmatrix} -1 & 5 \\ 0 & 13 \end{bmatrix}$$

8. Write the following in simplest form :

$$(i) \tan^{-1} \left(\frac{\sqrt{1+x^2}-1}{x} \right), x \neq 0$$

$$(ii) \tan^{-1} \left(\frac{x}{\sqrt{a^2-x^2}} \right), |x| < a$$

$$(iii) \tan \frac{1}{2} \left[\sin^{-1} \frac{2x}{1+x^2} + \cos^{-1} \frac{1-y^2}{1+y^2} \right]$$

$$(iv) \cos \left[2 \tan^{-1} \left(\sqrt{\frac{1-x}{1+x}} \right) \right]$$

9. Prove the following :

$$(i) \text{ Prove that } \tan^{-1} \left(\frac{\sqrt{1+x}-\sqrt{1-x}}{\sqrt{1+x}+\sqrt{1-x}} \right) = \frac{\pi}{4} - \frac{1}{2} \cos^{-1} x, \quad x \in \left[-\frac{1}{\sqrt{2}}, 1 \right]$$

$$(ii) \cos^{-1} \frac{4}{5} + \cos^{-1} \frac{12}{13} = \cos^{-1} \frac{33}{65}$$

$$(iii) \cot^{-1} \left(\frac{\sqrt{1+\sin x} + \sqrt{1-\sin x}}{\sqrt{1+\sin x} - \sqrt{1-\sin x}} \right) = \frac{x}{2}, \quad x \in \left(0, \frac{\pi}{4} \right)$$

$$(iv) \text{ Prove that } \tan^{-1} \left(\frac{x}{y} \right) - \tan^{-1} \left(\frac{x-y}{x+y} \right) = \frac{\pi}{4}$$

10. Solve the following :

$$(i) \tan^{-1} \frac{x-1}{x-2} + \tan^{-1} \frac{x+1}{x+2} = \frac{\pi}{4}$$

$$(ii) 2 \tan^{-1}(\cos x) = \tan^{-1}(2 \operatorname{cosec} x)$$

$$(iii) \tan^{-1} \frac{1-x}{1+x} = \frac{1}{2} \tan^{-1} x$$

$$(iv) \sin^{-1}(1-x) - 2 \sin^{-1} x = \pi/2$$

$$(v) \tan^{-1} 2x + \tan^{-1} 3x = \pi/4$$

$$(vi) \tan^{-1}(x+1) + \tan^{-1}(x-1) = \tan^{-1} \frac{8}{31}$$

11. Evaluate the following :

$$(i) \cot[\tan^{-1} a + \cot^{-1} a]$$

$$(ii) \sin^{-1} \left(\sin \frac{2\pi}{3} \right)$$

$$(iii) \tan^{-1} \left(\tan \frac{3\pi}{4} \right)$$

$$(iv) \cos^{-1} \left(\cos \frac{7\pi}{6} \right)$$

12. Find the principal value of the following :

$$(i) \sin^{-1} \left(-\frac{1}{2} \right)$$

$$(ii) \tan^{-1}(-\sqrt{3})$$

$$(iii) \cos^{-1} \left(-\frac{1}{\sqrt{2}} \right)$$

$$13. \text{ Simplify } \tan^{-1} \left(\frac{\cos x - \sin x}{\cos x + \sin x} \right)$$

14. Write the range of one branch of $\tan^{-1} x$, other than the principal branch.

15. Find the value of $\operatorname{cosec}(\tan^{-1} x + \cot^{-1} x)$

16. Prove that
$$\begin{vmatrix} 1+a^2-b^2 & 2ab & -2b \\ 2ab & 1-a^2+b^2 & 2a \\ 2b & -2a & 1-a^2-b^2 \end{vmatrix} = (1+a^2+b^2)^3$$

17. Use product $\begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix} \begin{bmatrix} -2 & 0 & 1 \\ 9 & 2 & -3 \\ 6 & 1 & -2 \end{bmatrix}$ to solve the system of equation

$$x - y + 2z = 1$$

$$2y - 3z = 1$$

$$3x - 2y + 4z = 2$$

18. If $A = [a_{ij}]_{m \times n}$ and $B = [b_{ij}]_{r \times p}$, then (i) AB is possible if (ii) BA is possible if

19. Find x , if
$$\begin{vmatrix} 2 & 4 \\ 5 & 1 \end{vmatrix} = \begin{vmatrix} 2x & 4 \\ 6 & x \end{vmatrix}$$

20. If A is a square matrix of order 3 such that $|\operatorname{adj} A| = 64$, Find $|A|$.

21. find x , if
$$[x \quad -5 \quad -1] \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix} \begin{bmatrix} x \\ 4 \\ 1 \end{bmatrix} = 0$$

KENDRIYA VIDYALAYA KESHAVPURAM

HOLIDAY HOMEWORK CLASS – XII CHEMISTRY SECOND SHIFT

SURFACE CHEMISTRY

1. Physical and chemical adsorption respond differently to the rise in temperature?
2. When H_2S gas is passed through an aqueous solution of SO_2 gas, a yellow turbidity is formed? Why?
3. A reddish brown colloidal sol is formed when a small amount of FeCl_3 is added to freshly precipitated $\text{Fe}(\text{OH})_3$. Explain.

4. Why do colloidal solutions differ in colors?
5. There is decrease in the extent of adsorption after sometime while absorption proceeds at a uniform rate. Explain.
6. The addition of ferric hydroxide sol to arsenious sulphide sol results in the precipitation of both. Explain.
7. Lyophilic sols are called reversible colloids. Assign reason.
8. What is syneresis or weeping gels?
9. Delta is generally formed where river meets the ocean. How will you account for it.
10. Adsorption is always exothermic in nature. Do you agree?
11. How can you make dialysis fast?
12. Gold numbers of gelatin and hemoglobin are 0.005 and 0.03 respectively. Which of them is better protecting colloid?
13. What will happen when a small amount of NaCl solution is added to hydrate ferric oxide sol?
14. Define the term Tyndall effect?
15. Write the differences between adsorption and absorption?
16. What is a reversible sol?
17. Differentiate between peptization and coagulation?
18. Why is ferric chloride preferred over potassium chloride in case of cut leading to bleeding?
19. Write three distinct features of chemisorption which are not found in physisorption?
20. What type of emulsion is milk? Explain.

HALOALKANES AND HALOARENES

21. Which will have a higher boiling point: 1-chloropentane or 2-chloro-2-methylbutane?
22. What happens when bromine reacts with CH_3CCH ?
23. A solution of aqueous KOH hydrolyses $\text{CH}_3\text{CHClCH}_2\text{CH}_3$ and $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Cl}$. Which one of these is more easily hydrolysed?
24. Chloromethane reacts with KCN to form a nitrile as the main product and with AgCN to form methyl isocyanide as the chief product?
25. Propose the Mechanism of the reaction taking place:-
 - a) (-)-2-Bromooctane reacts with sodium hydroxide to form (+)-octane-2-ol
 - b) 2-Bromopentane is heated with KOH (alc) to form alkene.
26. Write the structure of the compound 1- bromo-4-sec-butyl-2-methylbenzene.
27. Why do haloalkanes dissolve in organic solvents?
28. What is a racemic mixture? Give an example.
29. Although chlorine is an electron withdrawing group, yet it is Ortho and para directing in electrophilic aromatic substitution. Explain why it is so?
30. Chlorobenzene is extremely less reactive towards nucleophilic substitution reaction .give two reasons for the same.
31. What are ambident nucleophiles?
32. How will you distinguish between the following pairs of compounds?
 - a) Chloroform and carbon tetrachloride

- b) Benzyl chloride and chlorobenzene.
33. What is meant by chirality of compound?
34. How will you convert methyl chloride to ethyl amine?
35. What happens when I do form is heated with silver powder?
36. Why are haloarenes less reactive than haloalkanes?
37. How do the following react with chloroform?
- Silver powders
 - Concentrated nitric acid
 - Acetone
38. Give of brief account of
- Saytzeff rule
 - Fittig's reaction
39. Write the differences between SN2 and SN1 reactions?
40. What are enantiomers? What is the necessary and sufficient condition for a molecule to show enantiomerism? Give example

PHENOLS, ALCOHOLS, ETHERS

41. What happens when sodium salicylate is heated with soda lime?
42. How will you convert ethanol to propan-2-ol?
43. Write chemical equation to illustrate riemer tiemann reaction?
44. Give chemical test to distinguish between:
- Phenol and benzyl alcohol
 - Butan-2-OL and 2 methyl propane-2-ol
45. How will you convert
- Ethyl magnesium chloride to propan-1-ol
 - Benzyl chloride to benzyl alcohol
46. How will you convert propanone to tertiary butyl alcohol?
47. Name the reagent which can be used for the following conversions
- A primary alcohol to an aldehyde
 - Butane-2-one to butane-2-ol
 - Phenol to picric acid
48. Give possible explanation for the following
- Ortho-nitrophenol is more acidic than ortho-methoxy phenol
 - Alcohols are easily protonated in comparison to phenols
 - The relative ease of dehydration of alcohols: tertiary, secondary, primary.
49. Describe hydroboration oxidation reaction with an example?
50. Alkoxide ion is stronger base than hydroxide ion justify
51. Write the mechanism for the preparation of ethanol from ethane?
52. How will you convert methanol to ethanoic acid?
53. Explain esterification reaction?
54. Write any two differences between methyl alcohol and ethyl alcohol?

55. Explain mechanism of dehydration of alcohol to give alkenes.
56. Explain the acidic nature of phenol.
57. Which compound is formed when a secondary alcohol is oxidized?
58. Write the chemical reaction of ethanol with PCl_5 and PCl_3 separately.
59. Write the equation involved in the acetylation of salicylic acid.
60. Boiling point of an alcohol is more than its corresponding alkane explain?

ALDEHYDES, KETONES AND CARBOXYLIC ACID

61. What happens when ethyl benzene is heated with acidified potassium dichromate?
62. Convert acetone to tertiary butyl alcohol?
63. What is tollens reagent?
64. Write chemical equation to illustrate rosenmund reduction reaction.
65. Give a chemical test to distinguish between ethanal and propanal?
66. How are formalin and trioxane related to methanal?
67. Write the chemical equation of cannizzaro reaction?
68. How many Asymmetric carbon atoms are created during the complete reduction of benzyl with lithium aluminum hydride? Also write the number of possible stereoisomers formed as a product.
69. Why are lower members of aldehydes easy miscible with water?
70. What happens when methanal is treated with ethyl magnesium bromide and then hydrolysed?
71. How will you convert cyclohexanol to cyclohexanone?
72. Give a chemical test to distinguish benzaldehyde and acetophenone?
73. Give simple test to distinguish between propanol and propanone.
74. Illustrate cross aldol condensation with suitable example.
75. Why is acetaldehyde more reactive than acetone towards nucleophilic addition reaction?
76. Write the chemical equations for wolf kishner reduction reaction.
77. An organic compound A whose molecule formula is $\text{C}_3\text{H}_6\text{O}$, give idea form reaction and forms compound B, when heated with silver powder, converts into compound C. Compound C reacts with dilute sulphuric acid and mercuric sulphate to obtain compound D, which gives aldol condensation reaction. Write down the names of all compounds from A to D and also write the chemical equation for each step.
78. How will you convert propanone to propene?
79. Write short notes on aldol condensation and cannizzaro reaction.
80. Oxidation of aldehydes is easier than that of ketones.

ORGANIC COMPOUND CONTAINING NITROGEN.

81. Primary amines can be alkalinized to form secondary and tertiary amines and quaternary ammonium salts are also obtained products. Can you suggest the way to convert primary amine to secondary amine only?
82. How will you purify aniline containing non basic impurities?
83. How will you prepare ethylamine from acetaldehyde?
84. How do aromatic and aliphatic tertiary amines react with nitrous acid?
85. Tertiary butyl amine cannot be prepared by the action of ammonium on tertiary butyl bromide explain?
86. It is difficult to prepare pure amine by the ammonolysis of alkyl halides. Explain.
87. Aniline is a weaker base than cyclohexylamine. Assign reason.
88. Mineral acid is added in excess in diazotization of a carbamylamine. Explain.
89. Why is acetamide a weak base than ethylamine?
90. How will you convert nitrobenzene to aniline?
91. What happens when ice cold solution of benzene diazonium chloride is treated with aniline?
92. pK_b value for aniline is more than for ethylamine. Explain.
93. How will you convert an isocyanide to a secondary amine?
94. Give equation for Hoffmann bromide degradation reaction.
95. Write a brief on Gattermann reaction.
96. Why do primary amines have higher boiling point than tertiary amines?
97. Give a brief account of diazotization reaction?
98. Give an account of coupling reaction.
99. Why is methylamine more basic than aniline?
100. An aromatic compound A on treatment with ammonia followed by heating forms compound B which on heating with bromine forms a compound having molecular formula C_6H_7N . Give the structures of a, b and c and write the reactions involved.

Q101. PREPARE INVESTIGATORY PROJECT

-----THE END-----

-----HAPPY HOLIDAYS-----