# SAINIK SCHOOL CHITTORGARH

## AUTUMN BREAK
## HOLIDAY HOMEWORK

# CLASS : XII

| BIOLOGY | |
|---|---|
| CLASS & SECTION: **XII** | SUBJECT TEACHER NAME:     **Mr. MANJIT SINGH** |

INSTRUCTIONS: Prepare a separate copy for doing following questions.

## ASSIGNMENT

CHAPTER 1: **HUMAN HEALTH AND DISEASES**
*Very short answer type Questions*
1. Name the type of cells that produce antibodies?
2. Give the scientific name of causative germ of elephantiasis?
3. Name the fish that help in eradication of mosquito larvae.
 4. Name the test performed for the diagnosis of AIDS?
5. Give an example of vaccine produced by recombinant DNA technology?
6. What is the name given to the infectious stage of plasmodium?
7. Name the cells of immune system that are affected by HIV.
8. When is a tumour referred to as malignant?
  9. Why does an AIDS patient suffer from many infections?
10. Name two curable sexually transmitted diseases?
*Short answer type Questions*
11. Enumerate the two properties of cancer cells that distinguish them from normal cell.
12. What are allergens? How do they cause inflammatory  response inside human body?
13. What are autoimmune diseases? Give two examples?
14. Differentiate between two different types of tumours?
15. How does cell – mediated immune system works when our body is infected?
16. Why is Second exposure to the same antigen elicits a quick & intense response?
17. Draw a well – labeled diagram of antibody molecule.
18. What is metastasis?
19. What are the various routes by which transmission of HIV takes place?
20. What do you mean withdrawal Symptoms? What are its characteristics?
21. Differentiate between active & passive immunity?
22. What are carcinogens? What are the different types of carcinogens? Also mention the different methods of treatment of cancer?
23. Describe the ill  – effects of drug abuse in males & females. Also mention the preventive measures that is to be taken to reduce such effects.
24. How does humoral immune system works when our body is infected?
25. It was diagnosed by a specialist that the immune System of the body of a patient has been suppressed. Describe the infection & the mechanism of its proliferation in the body.
26. What is vaccination? What type of immunity is provided by vaccination?
*Long  answer type Questions( 05Mark) Do any One*
27. Discuss the role of lymphoid organs in the immune response. Explain the different types of lymphoid organs giving two examples of each type in humans.
28. With the help of a well – labelled diagram, Describe the life cycle of malarial parasite.
29.  Differentiate between communicable & non – communicable diseases?
30. Name the body part & the host in which following events takes place in life cycle of plasmodium.
a) fertilization   b) Development of Gametophyte :-   c) Release of sporozoites :-   d) Asexual Reproduction.
CHAPTER 2: **Microbes in Human Welfare**

*Very short answer type Questions*

1. What is the medical use of cyclosporin A.
2. Name the pests that lady bird & dragon flies help to get rid off respectively?
3. Give an example to prove that microbes release gases during metabolism?
4. What are interferons?
5. Expand LAB?
6. Name the first antibiotic manufactured & also name its source microorganism.
7. Name any two fungus which are used in production of antibiotics?
8. Name the enzyme which is used as clot buster" to remove blood clot from blood vessels of patients.
9. Name any two free – living nitrogen fixing bacteria.
10. Name organism used in dough for making bread.
11. Name the fungus used as a biocontrol of plant diseases.
12. Name any two gases produced during secondary treatment of Sewage?

*Short answer type Questions*

13. What are statins? Where are they produced from? How are they useful to man?
14. What is VAM? How does it act as biofertiliser?
15. How does small amount of curd added to fest milk convert it into curd?
16. Why bottled fruit juices are appear clearer than home-made ones?
17. A farmer adds Azotobacter to the soil before sowing maize. How does it increase the yield of maize?
18. Mention the dual functions of LAB that are useful to man?
19. What are methanogens? Give an example.
20. What is the key difference between primary & secondary sewage treatment.

*Long  answer type Questions*

21. Describe the procedure involved in Sewage treatment?
22. What is Biogas? How is it produced & Name the microbes  invaded in Biogas production.
23. Microbes can be used to decrease the use of chemical fertilizers & pesticides. Explain how can this be accomplished?
24. How do Biofertilisers enrich the fertility of soil? How does cyanobacteria acts as biofertilizer?
25. Describe the role of microbes in production of fermented beverages. Differentiate between the

# SAINIK SCHOOL CHITTORGARH
## AUTUMN VACATION HOLIDAY HOMEWORK 2024-25

| SUBJECT NAME- CHEMISTRY | |
|---|---|
| CLASS & SECTION: XII | SUBJECT TEACHER NAME: TONY ABRAHAM |

**INSTRUCTIONS:**

**1.** Strictly adhere to the projects given against your school number. This is for CBSE practical evaluation carrying 4 marks

2. Make a separate note book for the HW

## ASSIGNMENT

**CHAPTER 1: Aldehydes, Ketones and Carboxylic Acids**

Q 1. Why is there a significant difference in the boiling points of butanal and butanol?

Q 2. Write a test to differentiate between pentan-2-one and pentan-3-one.

Q 3. Which electrophile is produced in the reaction of benzene with benzoyl chloride in the presence of anhydrous $AlCl_3$. Name the reaction also.

Q 4. Oxidation of ketones involves carbon-carbon bond cleavage. Name the products formed on oxidation of 2, 5-dimethyl hexane-3-one.

Q 5. Arrange the following in decreasing order of their acidic strength and give the reason for your answer.

Q 6. What product will be formed on the reaction of propanal with 2-methyl propanal in the presence of NaOH? What products will be formed? Write the name of the reaction also.

Q 7. $CH_3Br$ reacts with Mg to form compound A which on reacting with $CO_2$ and water produce B. Compound B reacts with $C_2H_5OH$ to produce C. Identify the compounds A, B and C in the reaction.

Q 8. Why are carboxylic acids more acidic than alcohols or phenols, although they all have hydrogen atoms attached to an oxygen atom (-0-H)?

Q 9. An alkene 'A' (Mol. formula $C_5H_{10}$) on ozonolysis gives a mixture of two compounds, 'B' and 'C'. Compound B' gives positive Fehling's test and forms iodoform on treatment with $I_2$ and NaOH. Compound C' does not give Fehling's test but forms iodoform. Identify the compounds A, B, and C. Write the reaction for ozonolysis and formation of iodoform from B and C.

Q 10. An aromatic compound "A' (Molecular formula $C_8H_8O$) gives a positive 2, 4-DNP test. It gives a yellow precipitate of compound 'B' on treatment with iodine and sodium hydroxide solution. Compound A' does not give Tollen's or Fehling's test. On severe oxidation with potassium permanganate forms a carboxylic acid 'C' (Molecular formula $C_7H_6O_2$), which is also formed along with the yellow compound in the above reaction. Identify A, B and C and write all the reactions involved.

**CHAPTER 2: Alcohols, Phenols and Ether**

Q 1. Name the factors responsible for the solubility of alcohols in water.

Q 2. Out of 2-chloroethanol and ethanol which is more acidic and why?

Q 3. Out of o-nitrophenol and p-nitrophenol, which is more volatile? Explain.

Q 4. Out of o-nitrophenol and o-cresol which is more acidic?

Q 5. When phenol is treated with bromine water, a white precipitate is obtained. Give the structure and the name of the compound formed.

Q 6. What happens when benzene diazonium chloride is heated with water?

Q 7. How can propan-2-one be converted into tert-butyl alcohol?

Q 8. Explain why the OH group in phenols is more strongly held as compared to OH group in alcohols.

Q 9. Why is the reactivity of all the three classes of alcohols with conc.HCl and $ZnCl_2$ (Lucas reagent) different?

Q 10. Arrange water, ethanol and phenol in increasing order of acidity and give reason for your answer.

## CHAPTER 3: Haloalkanes and Haloarenes

**Q1.** Aryl chlorides and bromides can be easily prepared by electrophilic substitution of arenes with chlorine and bromine respectively in the presence of Lewis acid catalysts. But why does the preparation of aryl iodides require the presence of an oxidising agent?

**Q2.** Out of o-and p-dibromobenzene which one has a higher melting point and why?

**Q3.** Why does iodoform have appreciable antiseptic properties?

**Q4.** Discuss the role of Lewis acids in the preparation of aryl bromides and chlorides in the dark.

**Q5.** Write the structures and names of the compounds formed when compound 'A' with the molecular formula C7H8 is treated with Cl2 in the presence of FeCl3.

**Q6.** Why is it necessary to avoid even traces of moisture during the use of a Grignard reagent?

**Q7.** Diphenyls are a potential threat to the environment. How are these produced from aryl halides?

**Q8.** How will you obtain mono bromobenzene from aniline?

### PROJECT WORK:

To complete an Investigatory project and its write up in a separate file.

(List of investigatory projects is placed below. Cadets are supposed to submit the files of the projects cited against their names)

| S No | Sch No | Investigatory Project (To Investigate upon) |
|------|--------|---------------------------------------------|
| 1 | 5728 | Cement manufacturing process |
| 2 | 5733 | Petroleum Refining in refineries |
| 3 | 5741 | Manufacturing of glass |
| 4 | 5746 | Study of organic food colours |
| 5 | 5752 | Manufacturing of Polymer - PVC |
| 6 | 5753 | Manufacturing of Polymer – Bakellite |
| 7 | 5758 | Manufacturing of Polymer –Nylon |
| 8 | 5766 | Manufacturing of Polymer -Polyester |
| 9 | 5777 | Manufacturing of Ethanol |
| 10 | 5782 | Use and Effects of Fertilizers |
| 11 | 5786 | Manufacturing of Toilet soap |
| 12 | 5788 | Manufacturing of Detergents and its uses |
| 13 | 5804 | Varieties of alcohol and their uses |
| 14 | 5812 | Manufacturing of Soft drinks and its side effects |
| 15 | 5822 | Preparation and uses of biodegradable polymers |
| 16 | 5823 | Manufacturing of stainless steel and its uses |
| 17 | 5835 | Manufacturing of Aromatic compounds, its use |
| 18 | 5838 | Manufacturing of Paints – Oil Paints |
| 19 | 6120 | Manufacturing of Paints – Water Paints |
| 20 | 6213 | Manufacturing of Ammonia |
| 21 | 5729 | Study of catalysts and their uses |
| 22 | 5730 | Softening of hard water |
| 23 | 5732 | Secondary cells/ Ni – Cad Cell & Pb storage battery |
| 24 | 5742 | Primary Cells – Dry cell and Mercury cell |
| 25 | 5744 | Cement manufacturing process |
| 26 | 5748 | Petroleum Refining in refineries |
| 27 | 5755 | Manufacturing of glass |
| 28 | 5757 | Study of organic food colours |
| 29 | 5761 | Manufacturing of Polymer - PVC |
| 30 | 5767 | Manufacturing of Polymer – Bakellite |
| 31 | 5768 | Manufacturing of Polymer –Nylon |
| 32 | 5769 | Manufacturing of Polymer -Polyester |
| 33 | 5771 | Manufacturing of Ethanol |
| 34 | 5783 | Use and Effects of Fertilizers |

| 35 | 5790 | Manufacturing of Toilet soap |
| 36 | 5825 | Manufacturing of Detergents and its uses |
| 37 | 5826 | Varieties of alcohol and their uses |
| 38 | 6112 | Manufacturing of Soft drinks and its side effects |
| 39 | 6214 | Preparation and uses of biodegradable polymers |
| 40 | 5765 | Manufacturing of stainless steel and its uses |
| 41 | 5774 | Manufacturing of Aromatic compounds, its use |
| 42 | 5778 | Manufacturing of Paints – Oil Paints |
| 43 | 5781 | Manufacturing of Paints – Water Paints |
| 44 | 5843 | Manufacturing of Ammonia |
| 45 | 6114 | Study of catalysts and their uses |

Note: The Investigatory File should contain the following pages

Page:1 Aim

Page:2 Introduction

Page:3 Requirements

Page:4 Theory

Page:5 Diagrams/Figures

Page:6 Equations if any

Page:7 Industrial / Domestic uses

Page:8 Conclusion

Page:9 References

(Strictly adhere to the projects given against your school number. This is for CBSE practical evaluation carrying 4 marks)

(Tony Abraham)
PGT Chemistry

*Note\*: Kindly allocate the required number of questions.*

| SAINIK SCHOOL CHITTORGARH |
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| **AUTUMN VACATION HOLIDAY HOMEWORK** |

| **SUBJECT:** COMPUTER SCIENCE (083) | **CLASS & SECTION :** XII-A |
|---|---|

**SUBJECT TEACHER:** MR ABHISHEK BHARDWAJ

## INSTRUCTIONS

*(i) Do your homework by yourself.*
*(ii) Use same notebook for holiday homework.*
*(iii) Don't use computer to find the output of a program.*
*(iv) Answers should be neat & clean with concepts.*
*(v) Do all work with date & day.*
*(vi) Try to do your written work regularly to enhance your writing power.*
*(vii) Pay special attention towards your health and caring.*
*(viii) Completed Homework notebook to be submitted on* **18 Nov 2024** *positively.*
*(ix) In case of any difficulty please mail me at* **ssccomputerscience@gmail.com**

### Chapter 9 : Data Structures – II : Stacks

1. Explain different types of Data Structures in Python with the help of its classification and hierarchy.
2. What do you mean by Stack? Write down operations which we can perform on Stack.

### Appendix E : Exception Handling

3. Explain Syntax, Logical and Run Time errors with the help of examples.
4. Write down the benefits of Exceptional Handling in Python.
5. Differentiate among keywords 'raise', 'assert' and 'try' used in Exception Handling.

### Chapter 11 : Relational Databases

6. What are DDL and DML commands in MySQL. Write one-one example of DDL and DML commands.
7. Draw neat and clean diagram of Database Management System (DBMS).

### Chapter 13 : Table Creation & Data Manipulation Commands

8. Write short notes on the following:
   (i) Primary Key  (ii) Candidate Key  (iii) Foreign Key  (iv) Alternate Key

### Chapter 14 : Grouping Records, Joining in SQL

9. Explain the following terms:
   (i) Cross Join  (ii) Equi Join

# SAINIK SCHOOL CHITTORGARH
## AUTUMN VACATION HOLIDAY HOMEWORK

| SUBJECT NAME | |
|---|---|
| **CLASS & SECTION: XII A & B** | **SUBJECT TEACHER NAME: MRS. POOJA SINGH SISODIA** |
| **INSTRUCTIONS:** Cadets are required to do this assignment in their notebook | |

## ASSIGNMENT

**Content 1:** Questions based on Report Writing:

**Q1.    Event Report:**
You are the Cultural Secretary of your school. Write a report in 150-200 words on the Annual Sports Day held at your school. Include details like the chief guest, events conducted, and the overall experience.

**Q2.    Accident Report:**
Write a report in 150-200 words for a local newspaper about a road accident you witnessed. Include the time, location, vehicles involved, injuries, and the response from the police and public.

**Q3.    School Activity Report:**
As the Secretary of the Science Club, write a report on the Science Exhibition conducted in your school. Mention the theme, participation, exhibits, and any awards given.

**Q4.    Report on Social Issue:**
Write a report on a Cleanliness Drive organized by your school in collaboration with a local NGO. Mention the activities, student involvement, and the impact on the neighborhood.

**Content 2:** Questions based on Article Writing :

**Q1.    Social Issue:**
Write an article in 150-200 words on "The Impact of Social Media on Youth." Discuss both the positive and negative aspects, and suggest ways to use it responsibly.

**Q2.    Environment Awareness:**
Write an article on "The Need for Environmental Conservation in the Modern World." Include reasons for environmental degradation and how individuals and communities can contribute to saving the environment.

**Q3.    Career Guidance:**
Write an article on "Choosing the Right Career Path after Class 12." Include tips for students

on identifying their interests, exploring various career options, and making informed decisions.

**Q4. Health Awareness:**
Write an article on "The Importance of Mental Health for Students." Discuss the pressures students face, how to maintain a healthy mind, and the importance of seeking help when needed.

# SAINIK SCHOOL CHITTORGARH

## Autumn VACATION HOLIDAY HOMEWORK

| INFORMATION | |
|---|---|
| SUBJECT NAME: Mathematics | CLASS & SECTION: Class XII A & B |
| SUBJECT TEACHER NAME: Rakesh Rampuria & Manish Jain | |
| INSTRUCTIONS: Compulsory to attempt all in Lab Manual/Record file. | |

## ASSIGNMENT

Activity -1  To verify that the relation R in the set L of all lines in a plane,  defined by R = {(l,m) : l Perpendicular to m } is symmetric but neither reflexive nor transitive.

Activity -2  To verify that the relation R in the set L of all lines in a plane , defined by R = { (l,m ) : l parallel to m } is an equivalence relation.

Activity -3  To demonstrate a function which is  not one-one but is onto.

Activity - 4  To demonstrate a function which is  one-one but not onto.

Activity- 5   To draw the graph of  using the graph of  and  demonstrate the concept of mirror reflection  (about the line  y = x )

PYQ of CBSE  Class XII Maths from last 3 years ( 2024, 2023&2022)

# SAINIK SCHOOL CHITTORGARH

## AUTUMN VACATION HOLIDAY HOMEWORK

| CLASS & SECTION | : | XII (A&B) | SUBJECT TEACHER | : | Mr ONKAR SINGH |
|---|---|---|---|---|---|

**E-mail Id of Subject Teacher: onkarsingh1967os@gmail.com**

| Q.1. | State and explain Coulombs Law in vector form in an electrostatics. Using this law calculate Intensity of Electric Field at a point due to a point charge. |
|---|---|
| Q.2 | What is an Electric Dipole and Dipole Moment? Calculate Intensity of electric field and Electric Potential due to an Electric Dipole at any point and hence Discuss the above results in the following situations: <br> (a) When point lies on the axial line <br> (b) When point lies on an equatorial line <br> (c) Calculate the torque on an electric dipole placed in an electric field and also defines electric dipole moment on the basis of it. |
| Q.3 | State and Prove Gauss's Law in electrostatics. Using this law, Calculate the intensity of Electric field. <br> (a) Due to an infinite thin plane sheet of charge <br> (b) Due to a charged spherical shell(Inside and Outside the shell) <br> (c) Two plane sheets of charge having surface charge density $\sigma_1$ and $\sigma_2$ are placed parallel to each other. Calculate the electric field intensity due to these sheets in the region <br> (i) to the left of first sheet (ii) in between the sheets (iii) to the right of second sheet |
| Q.4 | Prove that capacitance of a parallel plate capacitor is given by C = A$_0$K/d, where symbols have their usual meanings. <br> (i) Solve 05 problems based on the applications of Krichhoff's second rule. <br> (ii) Prove that the energy density of a capacitor is given by U=1/2 $E^2$. |
| Q.5 | State Biot- savart's law. Using this law calculate magnetic fields at the center of a circular coil carrying current. |
| Q.6 | State and prove ampere Circuital law. Using this law calculate magnetic field due to a solid cylinder carrying current. |
| Q.7 | Calculate force between two parallel wires carrying current and hence define one ampere on the basis of it. |
| Q.8 | Calculate magnetic field due to a short bar magnet at a point – <br> (i) on the axial line <br> (ii) on the equatorial line |
| Q.9 | What is shunt? Explain how a galvanometer can be converted into an Ammeter of range 0 to I. What is the resistance of an ideal Ammeter? |
| Q.10 | Explain Faradays law of EMI. |
| Q.11 | What is mutual induction? Calculate mutual induction between two plane coils and hence define one Henry. |
| Q.12 | What is an A.C. generator? Explain its principle and working and hence calculate expression for EMF. |
| Q.13 | Differentiate between alternating current and transient current. Prove that mean and average value of A.C. over a complete cycle is zero. |
| Q.14 | Prove that rms value of A.C. is 70.7% of its peak value. |
| Q.16 | Calculate impedance of LCR circuit and hence calculate frequency of the circuit at resonance. |
| Q.17 | What is a transformer? State its principle and working and hence explain various energy losses in the transformer. Why high voltage transmission is preferred? |

| Q.18 | What are EM waves? How they are produced? Prove that energy of these waves is divided equally between electric and magnetic field vector. |
|---|---|
| Q.19 | Derive Einstein's photo electric equation. Using this equation explain the laws of photo electric emission. |
| Q.20 | Define the following terms<br>(i) Work function             (ii) Cut off voltage<br>(iii) Threshold wavelength     (iii) Threshold frequency |
| Q.21 | Explain N type and P type semiconductors on the basis of energy band diagram. What are majority and minority charge carriers in N- type and P- type semiconductor? |
| Q.22 | What is rectification? Explain how P-N Junction diode acts as-<br> (i) Half wave rectifier     (ii) Full wave rectifier<br>Also draw input and output wave form. |
| Q.23 | Prepare a working model as allotted to you individually and make a record in the following form -<br>(a) Aim<br>(b) Theory/Formula<br>(c) Working Principle<br>(d) Labeled diagram<br>(e) Applications in daily life |