



SAINIK SCHOOL CHITTORGARH

UNDER THE AEGIS OF THE SAINIK SCHOOLS' SOCIETY, MINISTRY OF DEFENCE, GOVERNMENT OF INDIA

AUTUMN BREAK
HOLIDAY HOMEWORK

CLASS : XI



SAINIK SCHOOL CHITTORGARH
AUTUMN VACATION HOLIDAY HOMEWORK

BIOLOGY

CLASS & SECTION: **XI**

SUBJECT TEACHER NAME:

Mr. MANJIT SINGH

INSTRUCTIONS: Prepare a separate copy for doing following questions.

ASSIGNMENT

CHAPTER 1: BREATHING AND EXCHANGE OF GASES

Very short answer type questions:

1. Define: a) Tidal volume b) Residual volume c) Asthma
2. Write the name and important function of the fluid-filled double membranous layer surrounding the lungs.
3. Name the site for the exchange of gases in human body?
4. How does smoking cigarette cause emphysema?
5. Write the organs of respiration in the entities given below:
a) Flatworm b) Frog c) Birds d) Cockroach
6. Mention the main parts involved in the initiating a pressure gradient between the lungs and the atmosphere during normal respiration.
7. What are the formulae of Respiratory Quotient (RQ)?

Short answer type questions:

8. Write the various modes of transportation of carbon dioxide in the blood.
9. List the following steps in a sequential manner for the completion of the respiration process.
 - a) Diffusion of oxygen and CO₂ across the alveolar membrane
 - b) Transportation of gases by blood
 - c) Pulmonary ventilation through which atmospheric air is drawn in and carbon dioxide-rich alveolar air is given out

Long answer type questions:

10. Write a note on the mechanism of breathing

CHAPTER 2: BODY FLUIDS AND CIRCULATION

Very short answer type questions:

1. Name the following disorders related to blood circulation
 - a) Acute chest pain due to failure of oxygen supply to heart muscles
 - b) Increased systolic pressure.
2. Name the coronary artery disease that is caused as a result of narrowing of the lumen of arteries.
3. What happens if the blood does not coagulate?
4. What is the role of the time gap in the passage of action potential from the sino-atrial node to the ventricle?

5. Expand ECG. Draw the ECG chart

Short answer type questions:

6. Give a reason why the walls of ventricles are thicker than atria.

7. State the differences between the following:

- (a) Lymph and blood
- (b) Eosinophils and Basophils
- (c) Bicuspid valve and tricuspid valve

8. Answer the questions below:

- a) Which is the site where RBCs are formed?
- b) Name the part of the heart that initiates and maintains the rhythmic activity
- c) What is the heart of crocodiles is specific amongst reptilians?

9. Why are thrombocytes necessary for blood coagulation?

Long answer type questions:

10. Describe the Rh-incompatibility in humans.

CHAPTER 3: EXCRETORY PRODUCTS AND THEIR ELIMINATION

Very short answer type questions:

1. Name the site where the selective reabsorption of filtrate from Glomerular occurs.
2. Name the excretory product of reptiles from the kidneys.
3. Write the composition of the sweat secreted by the sweat gland.
4. Which gland in the prawns performs excretory functions?
5. Expand the following: a) ANF b) ADH c) GFR d) DCT
6. Write the significance of the sebaceous gland.

Short answer type questions:

7. Describe the role of Renin-Angiotensin in the management of Kidney function.
8. Explain why the composition of glomerular filtrate is not the same as urine.
9. What is the remedial measure advised for the correction of acute renal failure? Explain briefly.

Long answer type questions:

10. What is the role of tubular secretion in maintaining acid-base and ionic balance in the body fluids?

CHAPTER 4: LOCOMOTION AND MOVEMENT

Very short answer type questions:

1. List the name of the human body cells/tissues that:
 - a) Display ameboid movement
 - b) Display ciliary movement
2. How is locomotion different from movement?
3. List the correct order of the middle ear bones called ear ossicles starting from the eardrum.
4. State the difference between the matrix of bones and cartilage.
5. Where in the body is the ball and socket joint present?
6. What is locomotion?

Short answer type questions:

7. Define the following terms with respect to the rib cage:

- a) False Ribs
- c) True ribs
- c) Floating ribs

8. Old people usually suffer from inflamed and stiff joints, name the condition. State the reasons for the symptoms.

9. Enumerate bones of Hind Limb and Fore Limb.

Long answer type questions:

10. Describe the significance of Ca^{2+} ions in the contraction of muscles.

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AUTUMN VACATION HOLIDAY HOMEWORK

SUBJECT NAME

CLASS & SECTION: XI

SUBJECT TEACHER NAME: Mr GYANESHWAR SINGH

INSTRUCTIONS: Write the balanced chemical equations if possible in the question.

ASSIGNMENT

CHAPTER 1: Some Basic Concepts of Chemistry

- 25% of 250g of sugar solution and 40% of 500g of sugar solutions are mixed, find out mass percentage of solution.
- Calculate the mass of Ag_2S formed by reaction of 10g of Ag with 1g of sulphur. [Atomic mass of Ag=108u, S= 32u]

CHAPTER 2: Structure of Atom

- What are degenerate orbitals?
- Why degenerate orbitals are first single filled then pairing of electron takes place?

CHAPTER 3: Classification of Elements and Periodicity in Properties

- Why is Fe^{2+} smaller than Mn^{2+} ? (Fe=28, Mn= 25)
- Why does Fe^{2+} get oxidised to Fe^{3+} in atmosphere very easily?

CHAPTER 4: Chemical bonding and Molecular Structure

- Draw electron dot diagram of SCl_2 .
- What is the shape of PCl_5 ?

CHAPTER 5: Chemical Thermodynamics

- State third law of thermodynamics and give its application.
- Why does NH_4NO_3 dissolve in water spontaneously even when the process is endothermic?

CHAPTER 6: Equilibrium

- $\text{A}_2\text{B}_3(\text{g}) \rightleftharpoons 2\text{A}(\text{g}) + 3\text{B}(\text{g})$
If initial concentration is 'C', Equilibrium Constant 'K', derive 'α' in terms of K and C.
- Ionic product of water (K_w) is 1×10^{-12} at 373K. Calculate pH of H_2O at this temperature. State nature of water. Give reason.

CHAPTER 7: Redox Reactions

- Balance the following redox reactions by ion-electron method:
 $\text{MnO}_4^-(\text{aq}) + \text{I}^-(\text{aq}) \rightarrow \text{MnO}_2(\text{s}) + \text{I}_2(\text{s})$ [in basic medium]
- $\text{Cr}_2\text{O}_7^{2-}(\text{aq}) + \text{SO}_2(\text{g}) \rightarrow \text{Cr}^{3+}(\text{aq}) + \text{SO}_4^{2-}(\text{aq})$ [in acidic medium]

PROJECT WORK: Complete the project file on the topic assigned to the cadets individually in the class.

Note: Kindly allocate the required number of questions.*

SAINIK SCHOOL CHITTORGARH

AUTUMN VACATION HOLIDAY HOMEWORK

SUBJECT: COMPUTER SCIENCE (083)

CLASS & SECTION : XI-A

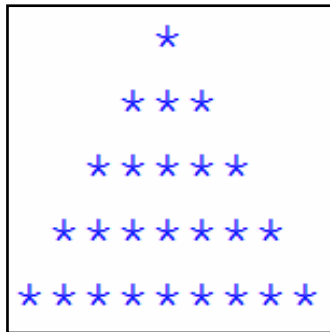
SUBJECT TEACHER: MR ABHISHEK BHARDWAJ

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 **sscomputerscience@gmail.com**

Chapter 9 : Flow of Control

- 1. Explain 'for' loop and 'while' loop with the help of syntax and example.
- 2. Write a program in Python to print Fibonacci Series up to a given number.
- 3. Write a Program in Python to print table of a given number using 'for' loop.
- 4. Write a program in Python to print Stars '*' in Pyramid Shape given below.



Chapter 10 : String Manipulation

- 5. WAP in Python to Count all letters, digits, and special symbols from a given string using string built-in functions for alphabets and digits.
str1 = "P@#yn26at^&i5ve"
- 6. Write a program to traverse a given String.
Str1="Sainik School Chittorgarh"
- 7. Explain the following String's built-in functions.
(i) Capitalize() (ii) title() (iii) len() (iv) strip()
- 8. Write the output of following string slicing commands.
Str="Sainik School Chittorgarh"
(i) str[6:10] (ii) str[6:] (iii) str[3:-2] (iv) str[:5]

SAINIK SCHOOL CHITTORGARH

AUTUMN VACATION HOLIDAY HOMEWORK

SUBJECT NAME

CLASS & SECTION: XI A & B

SUBJECT TEACHER NAME: MRS. POOJA SINGH SISODIA

INSTRUCTIONS: Cadets are required to do this assignment using their creativity and add relevant pictures on A4 size sheet and compile it in a file.

ASSIGNMENT

Content: Prepare a project on the topic 'Generation Gap'. Ensure that the following sub-headings are included:

- a) Content
- b) Acknowledgment
- c) Introduction
- d) Causes of Generation Gap
- e) Ways to Overcome Generation Gap
- f) My Relationship with My Father (Include a picture with your parents)
- g) Conclusion (Express your personal views on the generation gap)
- h) Bibliography

Note:- This project is a part of internal assessment.

SAINIK SCHOOL CHITTOGARH

Autumn VACATION HOLIDAY HOMEWORK

INFORMATION

SUBJECT NAME: Mathematics

CLASS & SECTION: Class XI A & B

SUBJECT TEACHER NAME: Rakesh Rampuria & Manish Jain

INSTRUCTIONS: Compulsory to attempt all in Lab Manual/Record file.

ASSIGNMENT

Activity -1 To find the number of subsets of a given set and verify that if a set has n number of elements , then the total number of subsets is .

Activity -2 To verify that for two sets A & B , $n(A \times B) = pq$ and the total number of relations from A to B is , where $n(A) = p$ and $n(B) = q$

Activity -3 To represent set theoretic operations using Venn diagrams.

Activity - 4 To verify distributive law for three given non-empty sets A , B and C , that is

Activity- 5 To identify a relation and a function .

SAINIK SCHOOL CHITTORGARH

AUTUMN VACATION HOLIDAY HOMEWORK

SUBJECT NAME

CLASS & SECTION: XI (A, B)

SUBJECT TEACHER NAME: Bhandarkar C L, Onkar Singh.

INSTRUCTIONS: Complete the given work in separate note book.

Project work is compulsory for all Cadets marks will be included in final practical exam.

ASSIGNMENT

CHAPTER 1: UNITS AND MEASUREMENTS

Content 1. Assuming that the mass (m) of the largest stone that can be moved by flowing river depends only upon the velocity ' v ', the density ' ρ ' of water and the acceleration due to gravity ' g '. Show that ' m ' varies with the sixth power of the velocity of the flow.

Content 2. The equation $(P+a/v^2)(v-b) = \text{constant}$. 'P' is pressure and 'v' is volume, Find the units of 'a' and 'b'?

Content 3. Find the number of significant figures in 3400?

Content 4. Find the dimension of Planks constant, Gravitational potential, Stefan's constant

Content 5. What are the advantages of SI system of unit?

CHAPTER 2: MOTION IN A STRAIGHT LINE

Content 1. A body covers 12 m in 2 second and 20 m in 4th second. Find what distance the body will cover in 4 second after 5th second?

Content 2. Show by graph that displacement can be obtained from velocity- time graph for constant acceleration.

Content 3. Derive the relation $S = ut + 0.5 at^2$ by the method of calculus.

Content 4. Derive the relation $v^2 - u^2$ by graphical method.

Content 5. What are the limitations of Dimensional analysis?

CHAPTER 3: MOTION IN A PLANE

Content 1. Calculate the area of a parallelogram whose adjacent sides are given by the vectors , .

Content 2. What is the change in momentum between the initial and final points of the projectile path. If the range is maximum?

Content 3. Can the flight of the bird, an example of composition of vectors. Why?

Content 4. At what angle of projection, the horizontal range of projectile fired at an angle with horizontal is equal to its maximum height attained by it.

Content 5. Derive an expression for centripetal acceleration.

CHAPTER 4: LAWS OF MOTION

Content 1. A man of mass 70 kg stands on a weighing scale in a lift which is moving (i) upwards with uniform speed of 10 m/s? (ii) Downward with a uniform acceleration of 5 m/s^2 (iii) if lift falling freely.

Content 2. A helicopter of mass 1000 kg rises with a vertical acceleration of 15 m/s^2 . The crew and the passengers weigh 300 kg. Give the magnitude and direction of the (i) force on floor by the crew and passengers. (ii) action of the floor of helicopter on the surrounding air? And (iii) the force of surrounding air on the Helicopter?

Content 3. Why Lubricants are used in the machines?

Content 4. Why it is easier to pull a lawn mover than to push it.

Content 5. A batsman deflects a ball by an angle 45° changing its initial speed, which is equal to 54 km/h. What is the impulse imparted to the ball? (Mass of the ball is 0.15 kg.)

CHAPTER 5: WORK, ENERGY AND POWER

Content 1. What do mean by conservative force? Write two example and prove why these forces are conservative.

Content 2. Mountain roads winds up gradually instead of going straight up the slope. Why?

Content 3. Obtain mathematically the work done by a variable force?

Content 4. In a ballistic demonstration. A police officer fires a bullet of mass 50.0 g. with speed 200 m/s on soft plywood of thickness 2 cm. The bullet emerges with only 10% of its initial kinetic energy. What is the emergent speed of the bullet?

Content 5. The bob of pendulum is released from a horizontal position. If the length of the pendulum is 1.5 m, What is the speed with which the bob arrives at the lowermost point, given that it dissipated 5% of its initial energy against air resistance?

CHAPTER 6. SYSTEM OF PARTICLES AND ROTATIONAL MOTION

Content 1. Derive the relation between torque and angular momentum?

Content 2. Define 'radius of gyration. On which factor it depends?

Content 3. Write two practical applications of law of conservation of angular momentum.

Content 4. What do mean by equilibrium of bodies? Also write about Rotational and translational equilibrium.

Content 4. Why it is easier to open a tap with two fingers than with one finger?

Content 4. Can a body in translational motion have angular momentum? Why?

CHAPTER 7. GRAVITATION

Content 1. Find the percentage decrease in the weight of a body when taken to a height of 32 km above the surface of the earth. Radius of the earth is 6400 km

Content 2. If the radius of the earth shrinks by 2%, mass remaining constant, then how would the value of acceleration due to gravity change?

Content 3. Show that the moon would depart for ever if its speed increased by 42%.

Content 4. Deduce the Newtons law of gravitation by Kepler's law.

Content 5. Find the potential energy of a system of four particles of mass 'm' placed at the vertices of a square of a side 'l'. Also, obtain the potential at the centre of the square?

PROJECT WORK: Prepare a project with **file** for the annual exam (3 marks) which is based on any topic from your syllabus, prepare **model** also. {eg. Lift working on pascals law, Toy based on centre of gravity etc. of

your choice.}

Notebook Assignment: All question and answers from exercise chapter 5,6 and 7 must be written in your homework notebook.

Note: Kindly allocate the required number of questions.*