CLASS XI B

HOLIDAY HOME WORK

General Instructions:

➢Academic HW is to be done by all the students of all the subjects.

➢SDG projects/ models are to. be done as per the Roll No. of the student.

➢Please revise Portion given for the TERM --I--Periodic Test -- to be held after reopening of the school in the month of July.

➢Roll No wise Projects

- **ENGLISH. --1 to 6**
- **BIOLOGY -- 7 to 14**
- **PHYSICS- 15 to 25**
- **CHEMISTRY -- 26 to 35**
- **MATHS – 36-44**
- **COMPUTER SCIENCE-45-53**

ENGLISH

Academic

Note: Attempt the following questions in a separate register.

1. Why could the grandmother not walk straight? How did she move around the house?

2. The grandmother herself was not formally educated but was serious about the author's education. How does the text support this?

3. Happy moments are short-lived but provide a lifetime memory. They provide a cushion to bear the difficulties which the future has in store for you. Comment in the light of the poem 'A Photograph' by Shirley Toulson.

4. Describe the preparations the family made before embarking on their sea voyage.

5. What impression do you form of Uncle Khosrove?

6. Bring out the significance of the white horse in the story.

7. Revise the given portion for Periodic Test I.

Open Day Project

Design a working model titled “The English Equity Pipeline” to demonstrate how inequalities in English education act as barriers for students today and how technology and policy reforms in 2047 can ensure equal access to quality English learning for all. Your model should clearly depict the present challenges, the interruptions caused by them, and the futuristic solutions that overcome these barriers.”

Periodic Test Portion

Reading: Comprehension passage

Writing and Grammar:

Advertisement

Tenses

Literature:

Hornbill: Ch-1 The portrait of a lady.

Ch -2 We're not afraid to die..

Poem A photograph

Snapshots: Ch-1 The summer of a beautiful white horse

PHYSICS

(A) Academic Holiday Homework:

Ch-1: UNITS AND MEASUREMENTS

VERY SHORT ANSWER QUESTIONS

1.Give an example of

(a) a physical quantity which has a unit but no dimensions.

(b) a physical quantity which has neither unit nor dimensions.

(c) a constant which has a unit.

(d) a constant which has no unit.

2.Calculate the length of the arc of a circle of radius 31.0 cm which subtends an angle of $\pi/6$ at the centre.

3.Calculate the solid angle subtended by the periphery of an area of 1cm2 at a point situated symmetrically at a distance of 5 cm from the area.

4.The displacement of a progressive wave is represented by $y = A \sin(wt - k x)$, where x is distance and t is time. Write the dimensional formula of (i) ω and (ii) k.

5.Time for 20 oscillations of a pendulum is measured as t1= 39.6 s; t2= 39.9 s; t3= 39.5 s. What is the precision in the measurements? What is the accuracy of the measurement?

SHORT ANSWER QUESTIONS

6.One mole of an ideal gas at standard temperature and pressure occupies 22.4L (molar volume). What is the ratio of molar volume to the atomic volume of a mole of hydrogen? (Take the size of the hydrogen molecule to be about 1A∘). Why is this ratio so large?

7.Explain this common observation clearly: If you look out of the window of a fast-moving train, the nearby trees, houses, etc., seem to move rapidly in a direction opposite to the train's motion, but the distant objects (hilltops, the moon, the stars, etc.) seem to be stationary. (In fact, since you are aware that you are moving, these distant objects seem to move with you.)

8.A student measures the thickness of a human hair using a microscope with a magnification of 100. He makes 20 observations and finds that the average width of the hair in the field of view of the microscope is 3.5 mm. Determine the thickness of your hair.

9.Fill in the blanks by suitable conversion of units.

(a) 1 kg m2 s–2 = ….g cm2 s–2

(b) 1 m = ….. ly

(c) 3.0 m s–2 = …. km h–2

(d) G = 6.67 × 10–11 N m2 (kg)–2 = …. (cm)3s–2 g–1

9.A calorie is a unit of heat (energy in transit), which equals about 4.2 J, where 1J =1 kg m2 s–2. Suppose we employ a system of units in which the unit of mass equals α kg, the unit of length equals β m, and the unit of time is γ s. Show that a calorie has a magnitude of 4.2 α–1 β–2 γ2 in terms of the new units.

10.The length, breadth and thickness of a rectangular sheet of metal are 4.234 m, 1.005 m, and 2.01 cm, respectively. Give the area and volume of the sheet to correct significant figures.

LONG ANSWER QUESTIONS

11.The mass of a box measured by a grocer’s balance is 2.30 kg. Two gold pieces of masses 20.15 g and 20.17 g are added to the box. What is

(a) the total mass of the box,

(b) the difference in the masses of the pieces to correct significant figures?

12.The Sun is a hot plasma (ionised matter) with its inner core at a temperature exceeding 107 K, and its outer surface at a temperature of about 6000 K. At these high temperatures, no substance remains in a solid or liquid phase. In what range do you expect the mass density of the Sun to be, in the range of densities of solids and liquids or gases? Check if your guess is correct from the following data: a mass of the Sun = 2.0 × 1030 kg, the radius of the Sun = 7.0 × 108 m.

13If E, m, l and G denote energy, mass, angular momentum and gravitational constant respectively, determine the dimensions of $El^2/m^5.G^2$

14.Consider a simple pendulum, having a bob attached to string, that oscillates under the action of the force of gravity. Suppose that the period of oscillation of the simple pendulum depends on its length (l), mass of the bob (m) and acceleration due to gravity (g).

Derive the expression for its time period using method of dimensions.

15.The SI unit of energy is J = kg m2 sñ2; that of speed v is m sñ1 and of acceleration a is m sñ2. Which of the formulae for kinetic energy (K) given below can you rule out on the basis of dimensional arguments (m stands for the mass of the body) :

(a) K = m2 v3(b) K = (1/2)mv2(c) K = ma(d) K = (3/16)mv2(e) K = (1/2)mv2 + ma

(B)PRACTICAL HOMEWORK:

EXPERIMENTS:

1. To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using Vernier Callipers and hence find its volume.

2. To measure diameter of a given wire and thickness of a given sheet using screw gauge.

3. To determine volume of an irregular lamina using screw gauge.

4. To study the relationship between force of limiting friction and normal reaction and to find the co-efficient of friction between a block and a horizontal surface.

5.To find the downward force, along an inclined plane, acting on a roller due to gravitational pull of the earth and study its relationship with the angle of inclination θ by plotting graph between force and Sinθ.

ART INTEGRATED

1. To make a paper scale of given least count, e.g., 0.2cm, 0.5 cm.

2. To determine mass of a given body using a metre scale by principle of moments.

3. To measure the force of limiting friction for rolling of a roller on a horizontal plane.

PERIODIC TEST SYLLABUS

CH.1: UNITS AND MEASUREMENTS

Ch-2: MOTION IN STRAIGHT LINE

OPEN DAY HOLIDAY HOMEWORK

To investigate the relation between the ratio of (i) output and input voltage and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer.

OR,

SMART KRISHI: SMART SOWING TO SMART HARVESTING.

CHEMISTRY

Academic Homework

VERY SHORT ANSWER TYPE QUESTIONS

If 500 mL of a 5 M solution is diluted to 1500 mL, what will be the molarity of the solution obtained?

What will be the molarity of a solution, which contains 5.85 g of NaCl(s) per 500 mL?

If the concentration of glucose (C6H1206) in blood is 0.9 g L-1, what will be the molarity of glucose in blood?

What will be the molality of the solution containing 18.25 g of HCl gas in 500 g of water?

Short Answer Type Questions

A vessel contains 1.6 g of dioxygen at STP (273.15 K, 1 atm pressure). The gas is now transferred to another vessel at constant temperature, where pressure becomes half of the origin

al pressure. Calculate (i) volume of the new vessel. (ii) number of molecules of dioxygen.

Calcium carbonate reacts with aqueous HC1 to give CaCl2 and C02 according to the reaction given below: CaCO3(s) + 2HCl(aq) → CaCl2(aq) + CO2(g) + H2O(l) What mass of CaCl2 will be formed when 250 mL of 0.76 M HC1 reacts with 1000 g of CaC03? Name the limiting reagent. Calculate the number of moles of CaCl2 formed in the reaction.

Define the law of multiple proportions. Explain it with two examples. How does this law point to the existence of atoms?

A box contains some identical red coloured balls, labelled as A, each weighing 2 grams. Another box contains identical blue coloured balls, labelled as B, each weighing 5 grams. Consider the combinations AB, AB2, A2B and A2B3 and show that law of multiple proportions is applicable.

If 4 litres of water are added to 2 litres of 6M hydrochloric acid solution. What will be the change in the molarity of the solution?

How much carbon dioxide would be obtained by heating 10 kg of 90% limestone?

If a 500 mL 5 M solution is diluted to 1500 mL, what will be the molarity of the final solution?

Long Answer type Questions

What is the difference between empirical and molecular formula? A compound contains 4.07 % hydrogen, 24.27 % carbon and 71.65 % chlorine. Its molar mass is 98.96 g. What are its empirical and molecular formulas?

Dinitrogen (2kg) and dihydrogen (1kg) react with each other to produce ammonia according to the following chemical equation: $N_2 (g) + 3H_2(g) \longrightarrow 2NH_3 (g)$ (i) Will any of the two reactants remain unreacted? (ii) If yes, which one and what would be its mass?

A welding fuel gas contains carbon and hydrogen only. Burning a small sample of it in oxygen gives 3.38 g carbon dioxide, 0.690 g of water and no other products. A volume of 10.0 L (measured at STP) of this welding gas is found to weigh 11.6 g. Calculate (i) empirical formula, (ii) molar mass of the gas, and (iii) molecular formula.

A compound made up of two elements A and B has A= 70 %, B = 30 %. Their relative number of moles in the compound are 1.25 and 1.88. Calculate

a) Atomic masses of the elements A and B

b). Molecular formula of the compound , if its molecular mass is found to be 160

[B] Practical Experiments

(i) Test the presence of CO_3^{2-} , SO_3^{2-} , NO_2^- , Cl^- as an acidic radical in given salt.

(ii) Test the presence of NH_4^+ , SO_3^{2-} , NO_2^- , Cl^- as an acidic radical in given salt.

ART INTEGRATED ACTIVITIES

Clay Modelling/3D Sculpting: Students model chemical reactions (e.g., $H_2 + O_2 \rightarrow H_2O$) using plasticine or clay, ensuring the number of atoms (colored balls) used as reactants is identical to the number used in the products.

Visual Art (Painting/Drawing): Students draw a "before and after" artistic representation of a chemical reaction, such as burning steel wool, to illustrate that mass is neither created nor destroyed.

Culinary Art (Recipe Ratios): Students create a "recipe" book for compounds. For instance, they represent water (H_2O) as a specific ratio of "hydrogen cupcakes" to "oxygen cupcakes" to demonstrate that a compound always contains the same elements in fixed mass ratios, regardless of its source.

Collage Making: Students create a collage using different images of water (rain, ocean, ice) to illustrate that no matter where the water comes from, the ratio of hydrogen to oxygen is fixed.

PERIODIC TEST SYLLABUS

Chapter-1 Some basic concepts of chemistry

Chapter – 2 Structure of atom

OPEN DAY HOLIDAY HOMEWORK

Solar-Hydrogen Grid India

AI Precision Agriculture OS problem

BIOLOGY

Academic Holiday Homework:

Do the following questions in your Biology Notebook

Q 1. State two economic importance uses of Heterotrophic bacteria and Archaebacteria.

Q 2. What is nature of cell wall in diatoms?

Q 3. Diatoms are also called pearls of ocean. Why?

Q 4. What observable features in Trypanosoma would make you classify it under kingdom Protista?

Q 5. Mention two features in which the slime moulds resemble animals.

Q 6. How do lichens exhibits symbiosis?

Q 7. (a) What are coprophilous fungi? Give an example.

(b) Mention two features in which Deuteromycetes resemble Ascomycetes.

Q 8. Observe the diagram and answer the questions that follow:

(a) Identify the Organism A and B and assign them to their respective phyla.

(b) Write any two differences between them.

(c) How does B obtain its food?

Q 9. Give the comparative account of the characteristics of flagella among the three classes of algae.

Q 10. What is heterospory? Mention the event, which is considered as the precursor of seed habit.

Q 11. In which plant will you look for mycorrhiza and coralloid roots? Also explain what these term mean.

Q 12. Both Gymnosperms and Angiosperms bear seeds, then why are they classified separately?

Q 13. Mention any four features present in animals belonging to phylum Porifera.

Q 14. Write four differences between Cnidaria and Ctenophora.

Q 15. Write four differences between Arthropoda and Mollusca.

Complete the following practicals in your practical files.

1. Parts of a compound microscope.

2. Specimens/slides/models and identification with reasons - Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant, one dicotyledonous plant and one lichen.

3. Virtual specimens/slides/models and identifying features of - Amoeba, Hydra,liverfluke, Ascaris, leech, earthworm, prawn, silkworm, honey bee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.

ART Integrated Activity

Prepare a model for Bacteriophage, DNA

Periodic test Syllabus

Ch1. Living World

Ch2. Biological Classification

Ch3. Plant Kingdom

Ch4. Animal Kingdom

Open Day Holiday homework

AIM: To produce Biofuel from algae/agriculture waste

MATHEMATICS

Academic work
Do Assignments on chapters 1 ,2 and 3 in register 3 for revision of Periodic Test (assignments will be sent in class groups).

Periodic Test portion
Chapter 1: Sets
Chapter 2: Relations & Functions
Chapter 3: Trigonometric Functions

Open day project work

Common Theme : India @ 2047 : Innovation with Values for a Sustainable World

Maths dept. Theme :The 5 Pathways – to become India developed by 2047:

- Economic Growth & Employment - $30T economy, jobs, entrepreneurship
- Human Capital Development - Education, skills, health, nutrition
- Tech & Digital Transformation - AI, startups, Digital India, R&D
- Infrastructure & Urbanization - Smart cities, transport, energy, housing
- Environmental Sustainability - Green energy, climate action, LiFE mission

Pathway	2047 Target	What Class XI Can Present
1. Economic Powerhouse	$30 Trillion economy, $18,000 per capita income	**Stall: Startup India 2047** • Timeline: 1947 → 2026 → 2047 GDP comparison • Working model: UPI counter with live stats • Student pitch: 2 mock startups solving local problems • Chart: Top 5 sectors for jobs - AI, Green Energy, Tourism, Space, Pharma
2. Human Capital & Skilled India	100% literacy, world-class universities, healthy India	**Stall: Classroom of 2047** • Demo: NEP 2020 skill class vs 1947 rote learning • Live: Coding/robotics corner run by students • Health kiosk: BMI/BP check + Poshan Abhiyaan data • Poster: "Nari Shakti" - women in STEM, sports, defense

3. Tech & Digital Leadership	Global AI, Space, Quantum hub. 6G, Semiconductor Atmanirbhar	**Stall: Digital India Lab** • Models: Chandrayaan-4, Drone, AI chatbot: "Ask me about jobs in 2047" • QR wall: Scan to see Aadhaar, UPI, DigiLocker growth • Demo: Student-made app/website solving school problem
4. Green & Sustainable Growth	Net Zero by 2070, 500 GW non-fossil by 2030, LiFE Mission	**Stall: Green Bharat Pavilion** • Working models: Solar house, EV charging, rainwater harvesting, waste-to-energy • Live counter: "If every visitor takes 1 pledge, we save ___ tons CO2" • Game: Carbon footprint calculator for visitors
5. World-Class Infrastructure	Smart cities, Bullet trains, 100% 4-lane highways, 100% tap water	**Stall: India 2047 Mini City** • Thermocol model: Hyperloop, smart road, vertical farms, Gati Shakti corridor • Before-After: Delhi-Mumbai 1947 vs 2026 vs 2047 travel time • VR/AR: Walk through a 2047 smart village if you have tech students

COMPUTER SCIENCE

Holiday Homework:-
Prepare Computer Science Practical file for following python program with screenshot of code and output.

Q1. Write a program using Python to obtain five numbers and print their average.

Q2. Write a program using Python to obtain length and breadth of a rectangle and print area of rectangle.

Q3. Write a program using Python to Calculate BMI (Body Mass Index of two people.
(Formula for BMI = weight in Kg / Height in Meters squared.)

Q4. Write a program using Python to read today's date (only day part) from user. Then display how many days are left in the current month (assuming 30 days in a month).

Q5. Write a program using Python to enter a number and display multiple table of that number in the format like 2 X 1 = 2, 2 X 2 = 4 ……

Q6. Write a program using Python that accepts radius of a circle and display area of circle.

Q7. Write a program using Python that asks for your height in centimeters and then coverts your height to feet and inches. (Where 1 foot = 12 inches, and 1 inch=2.54 cm)

Q8. Write a program using Python to read a number n and print n2, n3, and n4.

Q9. Write a program using Python to find area of a triangle.

Q10. Write a program using Python to compute simple interest and compound interest (Where p, r, t will be entered by user)

Q11. Write a program using Python to read three numbers in three variables and swap first two variables with the sums of first and second, second and third numbers respectively.

Q12. Write a program using Python to read a four digit number and display sum the digit of that number.

Q13. Write a program using Python to obtain x, y, z from user and calculate expression:
$4x^4 + 3y^3 + 9z + 6$
Q14. Write a program using Python to enter two number and display largest between them.
Q15. Write a program using Python to enter a year and check year is a Leap year or not.

PT1 syllabus computer science

Chapter 1
Computer system overview
Chapter 2
Data Representation
Chapter 4
Introduction to Problem Solving
Chapter 5
Getting started with python

Informatics Practices

Multiple choice questions:

1. Storage of 1 KB means the following number of bytes:
   a) 1000
   b) 964
   c) 1024
   d) 1064

2. Which of the following components is the main memory of computer?
   a) CD
   b) DVD
   c) Internal hard drive
   d) RAM

3. Which component of a computer connects the processor to the other hardware?
    a) System Bus
    b) CPU
    c) Memory
    d) Input Unit

4. What is the name of programs that control the computer system?
    a) Hardware
    b) Keyboard
    c) Software
    d) Mouse
5. Component of CPU which is responsible for comparing the contents of two pieces of data is..... .
    a) ALU
    b) CU
    c) memory
    d) register
6. Python is a/an ..... language.
    a) High level
    b) Object oriented
    c) procedural
    d) difficult

7. Python programs are typed in
    a) Interactive mode
    b) Script mode
    c) A combination of interactive and script modes
    d) All of these
8. Which of the following is not a Python IDE?
    a) IDLE
    b) Spyder
    c) Jupyter Notes
    d) Sublime Text
9. Special meaning words of Pythons, fixed for specific functionality are called.....
    a) Identifiers
    b) functions
    c) Keywords
    d) literals
10. Data items having fixed value are called.....
    a) Identifiers
    b) functions
    c) Keywords
    d) literals

Part-B Subjective Questions

1. Differentiate between soft copy and hard copy outputs.
2. What is a computer? Why is it also known as a data processor?
3. What do you mean by security of a system? What are the components OS securities? Explain.
4. What are the Strengths and Weakness of a Computer?
5. What are Input Devices? Explain any three.
6. Explain the working of a dot-matrix printer.
7. Explain the various types of Operating Systems.

Periodic Test I syllabus

Ch -1 computer system overview
Ch -2 python overview
Ch -3 python fundamental
Ch -4 Data Handling

Open day -Project work for CS AND IP

1. Any AI based App
2. Study buddy Matcher or Make an app on topic "Study Planner and Organizer App"
3. Make an app on topic "AI-Powered Flashcards App"
4.Make a 3d model of AR/VR Learning system.

Physical Education

Project: Individual Game Specialization

• Prepare a detailed project on any one individual game of choice.

• The games may include:

○ Badminton. ○ Table Tennis. ○ Lawn Tennis

• The project should include the following points:

○ Introduction and history of the game

○ Rules and regulations

○ Dimensions and specifications of the playing area

○ Equipment used in the game

○ Fundamental skills and techniques

○ Important tournaments and championships

○ Famous national and international players

○ Fitness components required for the game

○ Benefits and importance of the sport

○ Role of discipline, dedication, and sportsmanship

• Relevant diagrams and pictures

• The work should be neatly handwritten on A4 sheets with proper headings and formatting.

• Proper cover page and index should be attached.

Periodic Test Syllabus

Changing trends and career in physical education

Olympic value education

ECONOMICS

Assignment (micro economics)
Q1. Explain properties of Production Possibility curve ?
Q2. Does massive unemployment shift the PPC to the left ?
Q3. What does the slope of PPC show ?
Q4. What does the opportunity cost mean ? Explain with a numerical example ?
Q5. Explain the central problem of the choices of products to be produced ?
Q6. What are the causes of shift in demand to right ?
Q7. Law of demand holds good only under certain assumptions. What are these ?
Q8. Distinguish between movement along the same demand curve and shift in demand ?
Q9. Briefly explain the factors that influence price elasticity of demand for a good ?
Q10. Consider two commodities Tea and Coffee. What could be the effect on demand for Tea if price of coffee falls. Explain with reason and suitable diagram.
Q11.Slope of indifference curve is measured by__

a) marginal rate of subsitution b)marginal rate of transformation c)marginal opportunity cost d) none of these

Q12.The period of time in which the plant capacity can be varied is known as___

a) short run b)long run c) both a & b d)Neither a nor b

Art Integrated Activity
Students will prepare Posters and table form presentation based on Consumer equilibrium of single commodity and two commodities along with scheduled data

Open day
Prepare model based on topics given in the class.

Periodic test 1 syllabus
Micro--
Ch1-Introduction
Ch2-Consumer equilibrium

FINANCIAL MARKETS MANAGEMENT

ASSIGNMENT

Q1._____interest may involve calculations for more than once a year each using a new principal

a) simple b)fixed c)compound d)none of these

Q2._____is a formal financial statement issued yearly by a corporate.

a) annual report b)balance sheet c)profit and los statement d)all of these

Q3.Why should one invest ?

a) earn return on idle resources b)make provision for certain future c)for increasing idle resources d) none of these

Q4. When we borrow money, we are expected to pay for using it- this is known as-------

a) Borrowings

b) Investment

c) Principal

d) Interest

Q5.---------are as fixed deposits with banks, small saving instruments with post offices, pensions etc.

a) Physical assets b) Financial assets c) Both of them d) None of these

Q6. It is a fixed income instrument issued for a period of more than one year with the purpose of raising capital

a) Mutual funds b) Post office savings c) Public provident fund d) Bonds & debentures

Q7.Who decides the price of an issue?

Q8.What is the difference between Primary and Secondary market ?

Q9.What are the various long term financial options available for investment ?

Q10.What are the different kinds of an issue ?

Periodic syllabus

Ch1-Market and financial instruments

Ch2-Primary and secondary market(till taught)

Employability skills- Communication skills

PSYCHOLOGY

1.Complete the "Introduction of psychological testing" in practical File & open day project related work as discussed in class.

2.Explore various Career options with Psychology-

-Give a detail description of the renowned colleges/institutes available in the country for various undergraduate and postgraduate courses. Write about the career options available with each course.

WORKSHEET:

1) “Adolescence is a period of making choices pressure careers building of self and uncertainties”. Describe the psychological changes and the problems that an adolescent may go through during this period of life.
2) A researcher is studying the relationship between speed of cycling and the presence of people. Formulate a relevant hypothesis and identify the independent and dependent variables.

Case study question-

Read the case and answer the questions that follow-

The potential of psychology in solving the problems of life is being realised more and more. Media has played a vital role in this respect. You may have seen on television counsellors and therapists suggesting solutions to a variety of problems related to children, adolescents, adults and the elderly people. You may also find them analysing vital social problems relating to social change and development, population, poverty, interpersonal or intergroup violence, and environmental degradation. Many psychologists now play an active role in designing and executing intervention programmes in order to provide people with a better quality of life.

Q1: How has the media contributed to the realization of psychology's potential in solving life problems?

Q2: What role do psychologists play in addressing social problems and improving the quality of life?

Syllabus for periodic Test I:

Ch1: what is psychology

Ch2: Methods of enquiry in psychology

Painting

Prepare a portfolio of 8 paintings on A2 size sheets.

The portfolio should include:

three Still Life Drawings (fruits or objects) using pencil shading or water colours three Composition Paintings (including three human figures in each) two Folk Art Paintings (Madhubani) using sketch pens or poster colours

Periodic Test Syllabus

Chapter 1- Introduction to Art

Chapter 2- Pre Historic Rock Painting

Chapter 3- Arts of the Indus Valley