GURUKUL INTERNATIONAL SCHOOL, Haldwani

HOME WORK FOR SUMMER BREAK (2025-26)

Class- XI Science

ENGLISH

1 **Video Assignment (3 minutes) Record a video of 3 mins on the given topic covering the points suggested below.**

Topic:*The Role of Youth in Protecting Nature*

Points to cover:

i) Why should youth care about nature ?
ii) What activities harm the environment ?
iii) Steps youth can take to protect the environment.
iv) Your pledge as a student.

2 **Comprehension & Grammar**

Passage:

"Meera's painting was selected for a national competition. It portrayed themes of climate change and environmental loss. Her teacher praised her for the powerful message and encouraged her to add a short write-up explaining her artistic choices. Meera was initially hesitant, as she wasn't confident in her writing, but eventually she wrote a moving note that made her entry even stronger."

i) Why did Meera's teacher suggest adding a write-up to the painting ?
ii) What does this incident reveal about Meera's growth ?
iii) Find suitable words for:
   a) represented or shown through art
   b) unsure or unwilling
iv) **Sentence Transformation:**
   a) The explanation was very vague. We couldn't understand it. (too-to)
   b) You could submit the painting today. You could submit ttomorrow. (either-or)
   c) I will sign the consent form.My parents agree. (if)
   d) The painting received appreciation. It conveyed a strong message. (so)

3 **SpeechWriting**

Write a speech in 200 words covering the points suggested below.

Topic:*"Why Reading Books Is Better Than Watching Screens"*

a) What do books offer that screens can't ?
b) How does reading improve your life ?
c) Share your favourite book and its impact.

4 **Creative Writing**

i) Topic: *If I Could Bring a Fictional Character to Life*
   Describe:
   a) Which character would you choose, and why ?
   b) How would they react to the real world ?
   c) What would you do together ?
   d) What might you learn from them or teach them ?
ii) Write a paragraph on the recent attack on Pahalgam and express your views on terrorism. (120-140 words)

5 **Literature & Poster**

a) Read:
   Wings of Fire– A .P .J. Abdul Kalam
   Malgudi Days– R. K. Narayan
   Highlight 2 major life events of each character and what they taught you.
b) Create a poster on "Road Safety: Follow Rules, Save Lives" with a strong message, visual elements, and a catchy slogan.

6 **AIL**

Collect images of local legends (ANY FIVE) of Uttarakhand and paste them in a scrapbook**.** Write a short note highlighting their background, qualities, and cultural significance.

PHYSICS

1 Which of the following pairs doesn't have the same dimensions ?
   a) Torque and work
   b) Angular Momentum and Plank constant
   c) Stress and Young's modulus
   d) Surface tension and force

2 If force F, velocity V and time T are considered as fundamental physical quantities, then dimensional formula of density will be:
a) $FV^{-2}T^{2}$ b) $FV^{-4}T^{-2}$ c) $FV^{4}T^{-6}$ d) $F^{2}V^{-2}T^{6}$

3 The air bubble formed by explosion inside water perform oscillations with time period T which depends on pressure (p), density (ρ) and on energy due to explosion (E). Establish relation between T, p, E and ρ.

4 The velocity v of a particle depends upon the time 't' according to the equation

$$v = \sqrt{ab} + bt + \frac{c}{d+t}$$

Determine the units of a, b, c and d. What physical quantities they represent. All have SI units.

5 Write three the limitations of dimensions analysis.

6 Find the significant figures of the following digits:
a) 2.3050
b) 0.007890
c) 123400
d) 3.246×10^{7}
d) 308.00

7 The velocity of a particle at an instant is 10m/s. After 3 s its velocity will become 16m/s. The velocity at 2s before the given instant will be
a) 6 m/s b) 4 m/s c) 2 m/s d) 1 m/s

8 A stone falls freely such that the distance covered by it in the last second of its motion is equal to the distance covered by it in the first 5seconds. It remained in air for
a) 12s b) 13s c) 25s d) 26s

9 A car starting from rest, accelerates at a rate fthrough a distance S, then continues at constant speed for time t and then decelerates at the rate f/2 to come to rest. If the total distance traversed is 5S, then prove that $S= ft^{2}/2$

10 The relation between time t and distance x is $t= ax^{3} + bx$ where a and b are constants. Find the instantaneous acceleration.

11 a) Can a body have a constant speed but varying velocity ?
b) A ball is thrown straight up. What is its velocity and acceleration at the top ?
c) Two balls of different masses (one lighter and heavier) are thrown vertically upwards with same initial speed. Which one will rise to the greater height ?
d) Can a body have zero velocity and finite acceleration? Justify your answer with an example.

12 A ball thrown up is caught by the thrower after 4s. How high did it go and with what velocity was it thrown? How far was it below the highest point 3s after it was thrown?

Assertion and Reason

In the following questions, a statement of assertion A is followed by a statement of reason R. Mark the correct choice as:
a) If both assertion and reason are true and reason is the correct explanation of assertion
b) If both assertion and reason are true and reason is not the correct explanation of assertion
c) If assertion is true and reason is false
d) If both assertion and reason are false

13 **Assertion (A):** For a given time interval average velocity is single valued while average speed can have many values.
Reason (R): Velocity is a vector quantity and speed is a scalar quantity.

14 **Assertion (A):** The speedometer of an automobile measures the average speed of the automobile.
Reason (R): Average velocity is equal to total distance divided by total time taken.

Activity

Determining height of your house.

Drop a stone from the roof of your house three times. Note the timings using stopwatch. Calculate the average value of time. Calculate the height using equations of motion and compare it with actual height.

Case Based Study

15 A physics student was standing on the roof of his school building. He has three balls having masses M1(1kg), M2(2kg) and M3(3kg). In the absence of air resistance all balls fall with the same acceleration near the surface of the earth which is equal to acceleration due to gravity. This motion is known as free fall. When he released the balls some questions arises in his mind. Answers to these questions will make his concepts strong and firm which will boost his confidence. The questions are

i) When all the three balls are released from the roof the speeds of the balls on reaching the ground will be in the ration of
a) M1: M2: M3 b) M1: 2M2: 3M3 c) 1/M1 : 1/M2 : 1/M3 d) 1:1:1

ii) A body is falling from rest describes distances S1, S2 and S3 in the first, second and third seconds of its fall, the the ratioS1: S2: S3 is
a) 1:1:1 b) 1:3:5 c) 1:2:3 d) 1:4:9

iii) A body is projected upwards with a certain speed from the top of a tower reaches the ground in t_1. If it is projected vertically downwards from the same point with the same speed, it reaches ground in t_2. Time required to reach the ground, if it is dropped from the top of the tower is

a) $\sqrt{(t_1 t_2)}$ b) $\sqrt{(t_1 - t_2)}$ c) $\sqrt{(t_1/t_2)}$ d) $\sqrt{(t_1 + t_2)}$

CHEMISTRY

1 **Read the passage given below and answer the following questions that follows:**

Max planck in 1901, gave a revolutionary concept about electromagnetic radiation. he suggested that electromagnetic radiation is a stream of many tonic packets of energy called photons. According to his concept energy is always emitted or absorbed in multiples of quantum hv but never as decimal hv. This quantize concept also explain the emission and absorption spectra and discrete energy levels in atoms.

a) The blue colour of the sky results from scattering of sunlight by air molecules of frequency about 7.6×10^{14} per second. What is the energy in joule.
b) The energies E_1 and E_2 of two radiation ate 2.8 J and 5.6 J respectively. How their wavelengths relate to each other.

2 Why was a change in the Bohr model of atom required ?

3 Represent in a tabular form, how the theories of different scientists' impact the structure of atom after Dalton's atomic theory till quantum theory.

4 The reactant which is consumed first in a reaction is known as limiting reagent.

In the reaction, 3A + 2 B gives C+ 2D when 7 moles of A react with 3.6 moles of B, then find-

a) Which is the limiting reagent?
b) Calculate the amount of D formed.

5 Make a 3D model of any element from Z= 1 to 36, based on Bohr's atomic theory.

6 **Assertion and Reason.**

The questions below consist of an assertion and the reason. Use the following key to choose the appropriate answer.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true and R is not the correct explanation of A.
c) A is true and R is false.
d) A is false and R is true.

i) **Assertion (A) :** Molarity at 70 degree Celsius of a solution will be less than that at 50 degree Celsius.
Reason (R) : With increasing temperature molarity decreases.

ii) **Assertion (A) :** Law of constant composition is true for all types of compounds
Reason (R) : It is true for only those compounds which are obtained from one isotope.

MATHEMATICS

1 Given sets A = {1, 2, 3, 4}, B = {3, 4, 5, 6}, and C = {5, 6, 7, 8}, find

i) $A \cup B$
ii) $A \cap B$
iii) $A - B$
iv) $B - A$
v) $(A \cup B) \cap C$

2 **Venn Diagrams**

Draw Venn diagrams to represent the following

i) $A \cup B$
ii) $A \cap B$
iii) $A - B$

3 Given a relation R = {(1, 2), (2, 3), (3, 4), (4, 5)}, find

i) Domain of R
ii) Range of R
iii) Inverse of R

4 Given a function $f(x) = x^2 + 1$, find

i) $f(2)$
ii) $f(-3)$
iii) $f(x + h)$

5 Prove that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

6 If A = {1, 2, 3} and B = {3, 4, 5}, find $(A \cup B)'$ and $(A \cap B)'$

7 Make a project on set theory and its types. Give suitable examples also.

BIOLOGY

1 Read the following case study and answer the given case based questions in your Biology notebook.

Case study:

The Intriguing Life of a Fern . Imagine you're strolling through a moist, shaded forest. You notice a patch of lush green ferns, their delicate fronds unfurling gracefully. If you look closely at the underside of some mature fronds, you might observe small, brownish clusters.

i) How does prothallus differ in appearance from the mature fern plant ?
ii) Explain the concept of alternation of generations in the context of the fern life cycle.
iii) Which generation is dominant in ferns ?
iv) Why is water essential for the completion of the fern life cycle ?
v) Compare and contrast the sporophyte and gametophyte generations of a fern in terms of their appearance, ploidy level, and primary function.

Assertion & Reason

Answer these questions in your Biology notebook selecting the appropriate option given below:

a) Both assertion and reason are true and reason is the correct explanation of assertion
b) Both assertion and reason are true but reason is not the correct explanation of assertion.
c) Assertion is true but reason is false
d) Both assertion and reason are false.

2 **Assertion (A) :** Chlorella could be utilised to keep the air pure in space vehicles.
Reason (R) : The space travelers feed on Chlorella soup.

3 **Assertion (A) :** Members of phaeophyceae vary in colour from olive green to various shades of brown
Reason (R) : Phaeophyceae possess chlorophyll a, c, carotenoids and xanthophylls.

4 **Biology-Themed Story or Comic Strip:**

- Task: Create a short fictional story or a comic strip that explains a biological concept you've learned from unit Diversity in the living world (e.g., mode of action of virus , growth as determining factor of living , cell division, photosynthesis, evolution) in an engaging way.
- Activities:
- Develop interesting characters and a plot that revolves around the biological process.
- Use clear and accurate biological information in your narrative or visuals.
- Present your creation or script in A4 sheets.

5 **Human Body Facts and Physiology:**

- Task: Choose a specific organ system in the human body (e.g., digestive, respiratory, circulatory) and delve deeper into its structure and function.
- Activities:
- Research the different organs involved and their specific roles.
- Explain the physiological processes that occur within the system.
- Present your findings through diagrams, flowcharts in a chart .

6 **Immersing oneself in nature:**

Take a Bio walk, immerse yourself in nature for sometime and prepare a Herbarium file.

Activities:

Paste twigs or stem or leaves or flower of any 10 plants from your surrounding in a blank sheet and at right side corner mention following features:

1. Scientific nomenclature
2. Local names
3. Classification categories – order , family , phylum
4. Application of plant if any or harmful effects if any.
5. Analyze and mention if any signs of human impact or ecological issues.

PHYSICAL EDUCATION

1 Investigate the effects of regular physical activity on cardiovascular health. Conduct a review of existing research on how regular physical activity influences heart rate, blood pressure, and overall cardiovascular health in adolescents.

2 **Case Study based question.**

Development committee of an area wanted to develop values in the people. The committee wanted to promote friendship in the locality and respect for each other so that a congenial environment would be established between families but the committee was not sure for now it can do these things. Saket a students of class XI whose father is the chairman of the development committee. Suggested him that three values of Olympics can be adopted for this purpose these three values are excellence, respect and friendship. Further, Saket explained the role of these values in Olympics.

a) What are the Olympics values ?
b) How sports environment provided by the Olympic that help people to respect each other ?
c) How are the Olympics games are helpful in establishing value in people ?

3 Analyze the training regimen of a professional athlete. Choose a professional athlete from any sport and analyze their training program, including the type of exercises, intensity and frequency. Discuss how their training contributes to their performance and success.

4 Develop a fitness plan for a person with a specific health condition. Select a health condition (e.g., diabetes, obesity, asthma) and create a tailored fitness plan that includes aerobic, strength and flexibility exercises. Justify your choice of exercises and training methods based on the individual's needs.

5 Design a practice session for improving a specific sports skill. Choose a specific sports (e.g. basketball, soccer, tennis) and design a practice session focused on improving a particular skill (e.g. shooting, passing, serving) include drills, exercises and coaching points to enhance skill development.

6 Create a warm-up and cool-down routine for a sports team. Develop a comprehensive warm-up and cool-down routine for a school sports team, including dynamic stretches, mobility exercises and injury prevention strategies. Explain the importance of each component and how it prepares the athletes for training or competition.

7 Draw a football court.

HINDI

1 **स्थिति आधारित प्रश्न**

पंडित अलोपीदीन समाज में सम्मानित, प्रतिष्ठित और धनी व्यक्ति थे। वंशीधर, जैसे नए दरोगा को उन्होंने तुच्छ समझा और रिश्वत देकर अपने पक्ष में करने की कोशिश की परंतु जब उनकी ईमानदारी के आगे सब असफल हो गया तो बाद में उन्होंने खुद उसे ऊँचे पद पर नियुक्त किया।

क) पंडित अलोपीदीन के चरित्र में कौन–कौन से विरोधाभास दिखाई देते हैं ?

ख) इस स्थिति में पंडित अलोपोदीन का व्यवहार आपको कैसा प्रतीत होता है– घमंडपूर्ण, यथार्थवादी या परिवर्तित ? उत्तर को स्पष्ट करें।

ग) इस कहानी के माध्यम से प्रेमचंद किस प्रकार सामाजिक न्याय और नैतिकता का चित्रण करते हैं ?

2 मुद्रण माध्यम की कौन–सी विशेषता इलेक्ट्रॉनिक माध्यम में नहीं है ?

3 समाचार पत्रिकाओं के महत्व को बताइए।

4 जनसंचार माध्यमों के विकास पर संक्षिप्त टिप्पणी लिखिए।

5 आप एक विद्यार्थी हैं और आपको लगता है कि आज की युवा पीढ़ी में नैतिक मूल्यों की कमी होती जा रही है। आप समाज में नैतिकता की पुनर्स्थापना के लिए कौन–कौन से प्रयास कर सकते हैं।

6 **निम्नलिखित रचनाओं/कहानियों का अध्ययन कर उनके प्रमुख पात्रों का चरित्र वर्णन कीजिए।**

क) ईदगाह ख) कफन ग) गबन

7 **स्वच्छ भारत अभियानः एक जरुरी पहल**

विषय पर दिए गए बिंदुओं के अंतर्गत 2 मिनट का एक वीडियो तैयार करें।

- अभियान का उद्देश्य
- अभियान का प्रारंभ
- लाभ
- हमारा योगदान

COMPUTER

Section A: Python Fundamentals – Basic Programming (Beginner Level)

Instructions:

Use proper indentation and comments in your Python programs.

Submit handwritten code in your notebook or a typed copy as instructed by your teacher.

Assignments:

Python Basics

1 Write a Python program to display your name, class, and school name.

a) Create a program that takes two numbers from the user and prints their sum, difference, product, and division.

b) Write a program to swap two numbers using a temporary variable.

Section B: Boolean Algebra and Truth Tables

Instructions:

Prepare neat and labeled truth tables in your notebook.

Use logic gate symbols and represent each table clearly.

Assignments:

2 **Define the following terms:**

a) Boolean Variable
   - Logic Gates (AND, OR, NOT)
   - Truth Table
   - Duality Principle

b) Draw the truth tables for:
   - For the expressions below, draw the truth tables:
     1. (A AND B) OR C
     2. NOT (A OR B)
     3. A XOR (B AND C)

- Create a circuit diagram using basic gates to represent the expression:
  (A + B)' . C
- Create a mini project using Python like(any one)

A simple calculator

A number guessing game

Student report card generator using input data

Note: Be creative, and focus on clarity, accuracy, and presentation. Happy Coding!

PSYCHOLOGY

1 In terms of helping solve an important social problem such as crime, which branch of psychology do you think is most suitable. Identify the field and discuss the concern of psychologist working in this field ?

2 Visit the library or book store and review a book (friction/non friction) which has reference to application of psychology. Prepare a report giving a brief synopsis. (Minimum 200 pages book)

3 Three psychological processes involved in each situation.
   a) you are playing football
   b) you are watching TV
   c) playing chess
   d) your best friend has hurt you

4 **Differentiate between-**
   a) Counsellor and Clinical psychologist
   b) Interview and Questionnaire

5 Dr. Krishnan is going to observe and record childrens play behaviour at a nursery school without attempting to influence or control the behaviour. Which method of research is involved ? Explain the process and discuss its merits and demerits.

Assertion and Reason

6 **Assertion (A):** Case studies are detailed investigation of individual.
Reason (R): Case studies are useful in standardized test and questionnaire.

7 **Assertion (A):** A hypothesis is an educated guess.
Reason (R): A hypothesis must always be right in research.

8 **Case study**

Rita is a psychologist who is studying the impact of sleep on memory. She selects two groups of students group A sleeps for 8 hours and group B sleeps for 4 hours. After a week both groups are aksed to memorize a list of 30 words and recall them. Rita observes that group A performs better.
   a) Identify the independent and dependent variable of study.
   b) Which medhod is being used for Rita to conduct the study ?
   c) Mention one ethical guideline that Rita must follow during the study.
   d) Which one possible extraneous variable that may affect the result ?