



St. XAVIER'S HIGH SCHOOL

**EDUCATION FOR ALL
BANKURA, WEST BENGAL**

Affiliated to CBSE (New Delhi) 10+2 Level

Affiliation No.: 2430130

School Code: 15720

SUMMER VACATION ASSIGNMENT FOR CLASS XI (SCI)

ENGLISH

1. Write a letter to the Editor of National Herald, New Delhi about water scarcity in your locality suggesting ways to improve the position of water supply. You are Ramnath / Reema of Ghaziabad.
2. You are making an effort to spread the message of communal harmony. Prepare a poster with catchy slogans to be displayed in the school premises. (Word limit: 50 words)
3. Write an article on 'Women Empowerment'.

BIOLOGY

Answer the following questions:

1. **Define Taxonomy. Write down the differences between Classical taxonomy and Modern taxonomy?**
2. **What are the differences between Taxonomy and Systematics?**
3. What do you mean by taxon? Give example also.
4. Give a reason- 'Why growth and reproduction cannot be taken as defining properties of living beings?'
5. Define the following terms:
 - a) Phylum
 - b) Class
 - c) Family
 - d) Order
 - e) Genus
6. Explain the theory of three domains of life.
7. What binomial nomenclature? Who proposed this system of nomenclature. Explain with example.
8. What are the needs for classification?
9. Explain the terms phycobiont and mycobiont. What are their relationship with each other.
10. What are the characteristics features of Euglenoids?
11. Explain the structure of virus with diagram.
12. Give a comparative account of the classes of Kingdom Fungi under the following:
 - a) Mode of nutrition
 - b) Mode of reproduction
13. How viruses different from viroids?
14. Explain the following terms:
 - a) Heterocyst
 - b) Importance of heterotrophic bacteria
 - c) Diatomaceous earth
 - d) Algal bloom
 - e) Red tide
 - f) Pellicle
 - g) Difference between plasmodium of slime mould and protozoan plasmodium.
 - h) Mycorrhiza
 - i) Dikaryon
 - j) Lichen

PHYSICS

Answer the following questions:-

1. Why length, mass and time are chosen as base quantities in mechanics?
 2. The radius of atom is of the order of 1 \AA and radius of nucleus is of the order of Fermi. How many magnitudes higher is the volume of atom as compared to the volume of nucleus?
 3. The earth-moon distance is about 60 earth radius. What will be the diameter of the earth (approximately in degrees) as seen from the moon?
 - (a) Moon is seen to be of $(1/2)^\circ$ diameter from the earth. What must be the relative size compared to the earth?
 - (c) From parallax measurement, the sun is found to be at a distance of about 400 times the earth-moon distance. Estimate the ratio of sun-earth diameters.
 4. 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
 5. Calculate the length of the arc of a circle of radius 31.0 cm which subtends an angle of $\pi/6$ at the centre.
 6. The displacement of a progressive wave is represented by $y = A \sin(\omega t - kx)$, where x is distance and t is time. Write the dimensional formula of (i) ω and (ii) k
 7. If velocity of light c , Planck's constant h and gravitational constant G are taken as fundamental quantities, then express mass, length and time in terms of dimensions of these quantities.
 8. Give examples of a one-dimensional motion where
 - (a) the particle moving along positive x -direction comes to rest periodically and moves forward.
 - (b) the particle moving along positive x -direction comes to rest periodically and moves backward.
 9. A ball is dropped and its displacement versus time graph is as shown (Displacement x from ground and all quantities are positive upwards).
 - (a) Plot qualitatively velocity versus time graph.
 - (b) Plot qualitatively acceleration versus time graph.
 10. A man runs across the roof-top of a tall building and jumps horizontally with the hope of landing on the roof of the next building which is at a lower height than the first. If his speed is 9 m/s, the (horizontal) distance between the two buildings is 10 m and the height difference is 9 m, will he be able to land on the next building? (Take $g = 10 \text{ m/s}^2$).
 11. A motor car moving at a speed of 72 km/h cannot come to a stop in less than 3.0 s while for a truck this time interval is 5.0 s. On a highway, the car is behind the truck both moving at 72 km/h. The truck gives a signal that it is going to stop at emergency. At what distance the car should be from the truck so that it does not bump on to (collide with) the truck. Human response time is 0.5 s.
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DANCE(KATHAK)

1. The brief history of Indian dance in A4 white pages and cover with a channel file. Write about eight types of Indian dance in brief and paste the picture for each.

CHEMISTRY

1. Write about the discovery of Electron, proton, and neutron and their characteristics.
2. Describe Thomson Model of an atom, Rutherford model of an atom and Bohr atomic model including their drawbacks.
3. State the features of quantum mechanical model of an atom.
4. Describe Planck's Quantum Theory.
5. State the de Broglie relation and Heisenberg uncertainty principle.
6. Describe and define atomic orbital in terms of quantum number.
7. State the following:
 - a) Aufbau principle.
 - b) Pauli Exclusion Principle.
 - c) Hund's rule of maximum multiplicity.

MATHS

Chapter: - Sets

1. Solve 30 questions from any reference book
2. Maths project

Draw the Venn diagrams of union, intersection, complement, & De' Morgan's law of two sets.

PHYSICAL EDUCATION

Q .1) Meaning and definition of physical education.

Q. 2) Aim and objective of physical education.

Q.3) Explain Khelo India program.

COMPUTER SCIENCE

1) Evaluate the following logical conditions assuming that $a=10$, $b=20$, $c='three'$, $d='four'$

(i) $a > b/2$, (ii) $a \leq b/2$ (iii) $a != b$ (iv) $b == a**2$ (v) $a + b > -b * -a$ (vi) $b * 2 > ord('2')$ (vii) $c == d$ (viii) $c > d$ (ix) c

2) What are relational operators? What relational operators are available in Python?

3) What are logical operators? What logical operators are available in Python?

4) Write a script to input a number. If the number is even, print its square, otherwise print its cube.

5) Write a script which inputs two numbers from the user and checks if first number is divisible by the second or not. The script should then display an appropriate message.

NOTE : ALL THE ASSIGNMENT MUST BE DONE IN A RULED COPY.