

HOLIDAYS HOMEWORK

GRADE XI

ENGLISH

Project Work

Create a project on the topic: How does social media influence mental health?

The project must be handwritten and presented in a hardbound file, spanning 7-8 pages.

Guidelines:

1. Explore both positive and negative effects of digital interactions on emotional well-being, self-esteem, anxiety, and human relationships.
2. Support your analysis with real-life examples, studies, and personal observations.

The following aspects must be covered:

1. Introduction

- Define social media and its growing influence.
- Briefly introduce its connection to mental health.
- State key research questions.

2. Positive Impacts of Social Media

- Social support networks.
- Mental health awareness campaigns.
- Communities that empower and inspire.

3. Negative Effects on Mental Health

- Cyberbullying and online toxicity.
- Self-esteem issues.
- Sleep disruption due to screen addiction.

4. Student Activities and Surveys

- Conduct a peer survey on social media habits.
- Analyse popular social media trends influencing mental health.
- Discuss how language on social media affects emotions.

6. Conclusion

- Summaries key findings.
- Offer strategies for mindful social media use.
- Present personal viewpoints on digital well-being.

Introduction.
Positive and Negative Effects
Case Studies and Social Media Examples
Survey Results
Conclusion and Recommendations

English –Literature:

1. What do you know about Macbeth? Explain it in about 300 words.
2. Compare Macbeth and Banquo, who had seen three witches first of them? Write in about 300 words.
Make a list of plays of William Shakespeare

CHEMISTRY

Revision Worksheet

Multiple Choice questions

Q1. Which one will have maximum numbers of water molecules?

- (a) 18 molecules of water
- (b) 1.8 grams of water
- (c) 18 grams of water
- (d) 18 moles of water

Q2. Accuracy means

- (a) agreement of a particular value to true value
- (b) The closeness of various measurements for the same quantity.
- (c) Both (a) and (b)
- (d) None of these

Q3. Which is not a unit of pressure?

- (a) Bar
- (b) N/m²
- (c) Kg/m²
- (d) Torr

Q4. Relation between wavelength (λ) and momentum (p) of a material particle is----- --.

- (a) $\lambda = h p$
- (b) $\lambda = h / p$
- (c) $\lambda = h + p$
- (d) $\lambda = h - p$

Q5. What is the mass per cent of oxygen in carbon dioxide?

- (a) 0.034%
- (b) 27.27%
- (c) 3.4%
- (d) 72.72%

Q6. The number of significant figures in 11.5706 g is

- (a) 2
- (b) 3
- (c) 1
- (d) 6

Short answer type Questions:

Q7. What is quantisation of energy?

Q8. Why spectral lines are considered as finger print?

Q9. What is the uncertainty in locating its position? [Given, $m_e = 9.11 \times 10^{-31}$ kg] An electron speed of 40 ms^{-1} accurate upto 99.9 percent?

Q10. Yellow light emitted from a sodium lamp has a wavelength (λ) of 580 nm. Calculate the frequency (ν) and wave number ($\bar{\nu}$) of yellow light.

Q11. Show that the circumference of the Bohr orbit for the hydrogen atom is an integral multiple of the de Broglie wavelength associated with the electron revolving around the orbit.

Q12. The mass of an electron is 9.1×10^{-31} kg. If its kinetic energy is 3.0×10^{-25} J, calculate its wavelength.

Assertion and Reason type questions

- (a) Assertion and Reason both are correct statements and Reason is correct explanation for Assertion.
- (b) Assertion and Reason both are correct statements but Reason is not correct explanation for Assertion.
- (c) Assertion is correct statement but Reason is incorrect statement.
- (d) Assertion is incorrect statement but Reason is correct statement.

Q13. Assertion: An orbital cannot have more than 2 electrons and their spin must be opposite.

Reason: No two electrons in an atom can have same set of all four quantum numbers.

Q14. Assertion (A) : Significant figures for 0.200 is 3 whereas for 200 it is 1.

Reason (R) : Zero at the end or right of a number are significant provided they are not on the right side of the decimal point.

Case study Question

Q15. Read the passage given below and answer the following questions :

The presence of positive charge on the nucleus is due to the protons in the nucleus. As established earlier, the charge on the proton is equal but opposite to that of electron . Atomic number (Z) = number of protons in the nucleus of an atom = number of electrons in a neutral atom. Protons and neutrons present in the nucleus are collectively known as nucleons. The total number of nucleons is termed as mass number (A) of the atom. Mass number (A) = number of protons (Z) + number of neutrons (n). Isobars are the atoms with same mass number but different atomic number for example, $6\text{ }^{14}\text{C}$ and $7\text{ }^{14}\text{N}$. On the other hand, atoms with identical atomic number but different atomic mass number are known as Isotopes. For example, considering of hydrogen atom again, 99.985% of hydrogen atoms contain only one proton. This isotope is called protium ($^1\text{H}_1$). Rest of the percentage of hydrogen atom contains two other isotopes, the one containing 1 proton and 1neutron is called deuterium ($^2\text{D}_1$, 0.015%) and the other one possessing 1 proton and 2 neutrons is called tritium ($^3\text{T}_1$).The studies of interactions of radiations with matter have provided immense information regarding the structure of atoms and molecules. Neils Bohr utilized these results to improve upon the model proposed by Rutherford. Two developments played a major role in the formulation of Bohr's model of atom.

1. The pair of ions having same electronic configuration is _____.

- (a) Cr^{3+} , Fe^{3+}
- (b) Fe^{3+} , Mn^{2+}
- (c) Fe^{3+} , Co^{3+}
- (d) Sc^{3+} , Cr^{3+}

2. They have same mass number, different atomic number. These are isobars. In which of the following pairs, the ions are iso electronic?

- (a) Na^+ , Mg^{2+}
- (b) Al^{3+} , O^-
- (c) Na^+ , O^{2-}
- (d) N^{3-} , Cl^-

3. Two atoms are said to be isobars if.

- (a) they have same atomic number but different mass number.
- (b) they have same number of electrons but different number of neutrons.
- (c) they have same number of neutrons but different number of electrons.
- (d) sum of the number of protons and neutrons is same but the number of protons is different.

PHYSICS

#Part A consists of revision worksheet, which is recapitulation of work which has been done so far.

#Part B consists of:

- An investigatory project. There is list of some suggested investigatory projects. Students can choose one project out of those or any other topic from their curriculum.
- Practical to be done in lab manual which are performed in laboratory.

WORKSHEET

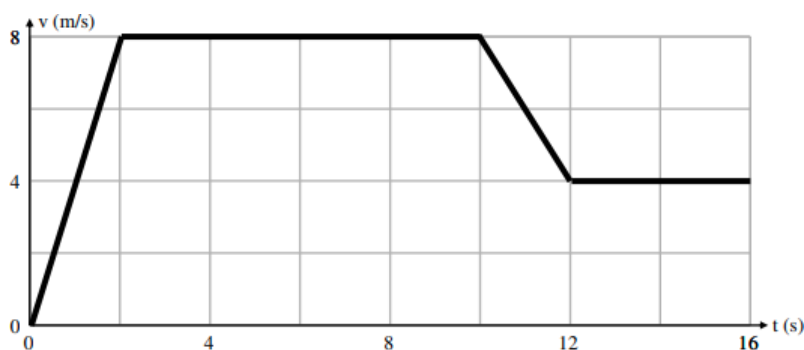
TOPIC- Units and Measurements

1. Which one of the following represents the correct dimensions of the coefficient of viscosity?
(a) $[ML^{-1}T^{-2}]$ (b) $[MLT^{-1}]$ (c) $[ML^{-1}T^{-1}]$ (d) $[ML^{-2}T^{-2}]$
2. If the value of universal gravitational constant in SI is $6.6 \times 10^{-11} \text{ Nm}^2\text{kg}^{-2}$, then find its value in CGS system.
3. Find the units of length, mass, and time if the unit of force, velocity, and energy are 100 dynes, 10 cms^{-1} and 500 erg respectively.
4. Suppose that the oscillations of a simple pendulum depend on
(i) mass of the bob (m),
(ii) length of the string (l),
(iii) acceleration due to gravity (g) and (iv) angular displacement
(iv) Dimensionally show which of the above factors have an influence upon the period and in what way?
5. Name the physical quantities whose dimensional formulae are as follows:
a) ML^2T^{-2} b) $ML^{-1}T^{-2}$ c) ML^0T^{-2}
6. Check the dimensional consistency of the following equations:
a) $\lambda = \frac{h}{mv}$ b) $V = \sqrt{\frac{2GM}{R}}$ c) $T = 2\pi\sqrt{\frac{l}{g}}$
7. Find the dimensions of (a/b) in the equation:
 $p = \frac{a-t^2}{bx}$, Where P is pressure, x is distance and t is time.
8. The velocity 'v' of water waves depends on wavelength ' λ ', density of water ' ρ ' and acceleration due to gravity 'g'. Deduce by the method of dimensions the relationship between these quantities.
9. The wavelength λ associated with a moving electron depends on its mass 'm', its velocity 'v' and Planck's constant 'h'. Prove dimensionally that $\lambda = \frac{h}{mv}$
10. State the number of significant figures in the following measurements:
a) 0.009m² b) 5.049 Nm⁻² c) 0.020800m

TOPIC- MOTION IN A STRAIGHT LINE

1. Derive an equation for the distance covered by a uniformly accelerated body in nth second of its motion. A body travels half its total path in the last second of its fall from rest, calculate the time of its fall.
[t = 3.41s]
2. A player throws a ball upwards with an initial speed of 29.4m/s. What are the velocity and acceleration of the ball at the highest point of its motion?
3. A particle is moving along a circular track of radius 'r'. What is the distance traversed by particle in half revolution? What is its displacement?
4. The displacement of the particle is dependent on time t according to the relation: $x = 3-5t + 2t^2$.
If t is measured in seconds and x in meters, find its
a) Velocity at t= 2s b) Acceleration at t=4s.

5. On a foggy day two drivers spot each other when they are just 80m apart. They are travelling at 72km/h, respectively. Both of them applied brakes retarding their cars at rate of 5m/s^2 . Determine whether they avert collision or not.
6. A man is $S=9\text{m}$ behind the door of a train when it starts moving with acceleration $a= 2\text{m/s}^2$. The man runs at full speed. How far does he have to run and after what time does he get into the train? What is his full speed?
[$s= 18\text{m}$, $t= 3\text{ sec}$, $v= 6\text{m/s}$]
7. A bullet travelling with a velocity of 16m/s penetrates a tree trunk and comes to rest in 0.4m . Find the time taken during the retardation.
[$t= 0.05\text{s}$]
8. A body covers a distance of 4m in 3^{rd} second and 12m in 5^{th} second. If the motion is uniformly accelerated, how far will it travel in the next 3 seconds?
[60m]
9. The Zero Gravity Research Facility at the NASA Lewis Research Centre includes a 145 m drop tower. This is an evacuated vertical tower through which, among other possibilities, a 1 m diameter sphere containing an experimental package can be dropped. (a) For how long is the experimental package in free fall? (b) Calculate its speed at the bottom of the tower. (c) At the bottom of the tower, the sphere experiences an average acceleration of 25 g as its speed is reduced to zero. Through what distance does it travel in coming to rest?
10. Draw the displacement time graph for uniform decreasing displacement and velocity time graph for increasing acceleration.
12. Draw position time graphs for two objects having zero relative velocity.
13. Why is speed, in general, greater than the magnitude of the velocity?
14. A particle moves along the x-axis according to the equation $x = 50t + 10t^2$, where x is in meters and t is in seconds. Calculate (a) the average velocity of the particle during the first 3.0 s of its motion, (b) the instantaneous velocity of the particle at $t = 3.0\text{ s}$, and (c) the instantaneous acceleration of the particle at $t = 3.0\text{ s}$.
15. The v vs. t graph shown below applies to a runner. Calculate how far the runner travels in 16 s .



Part B

(I) List of topics for investigatory projects. (Any three only)

1. To study the energy conservation in two dimensions.
2. To study the Newton's third law of motion.
3. To study the verification of Archimedes principle.
4. To study the law of conservation of linear momentum and its application.
5. To study the physics project on relation for uniformly accelerated motion.

BIOLOGY

- Q.1- If the dog canines familiarize of the family conical has certain resemblances with cat family Filidae, both will be put together in the same order.
- Q.2- A plant may have different names in different regions of the country of world. How do Botanist solve this problem.
- Q.3- Describe the structure of lichen, and name the three different types. What is the mature of this fungal association.
- Q.4- Give the brief account of virus with respect to their structure and nature of genetic martial. Also name four common viral decease?
- Q.5- Explain how the plasma membrane is secretively permeable, and tell how that is related to the movement of materials across the membrane?
- Q.6- What is the major ullybar difference between prokaryotic and Eukaryote organism?

MATHEMATICS

- Q.1-* Draw venn Diagram. $A \cap B$, $A \cup B$, $A - B$, $B - A$, $A \triangle B$, A^1 , B^1
- Q.2- IF $u = \{1, 2, 3, 4, 5, 6, 7, 8\}$, $A = \{1, 2, 3, 5, 6\}$, $B = \{2, 3, 4, 7, 8\}$ than find $(A \cup B)^1$, $(a - B)^1$
- Q.3- IF $n(U) = 50, n(A) = 20, n(B) = 26, n(A \cup B)^1 = 6$ find $n(A \cap b)$, $A^1 \cap B^1$, $(A - B)$
- Q.4- If $A = \{1, 2, 3, 4, 5, 6\}$ and $B = \{2, 4, 5, 6, 8, 9, 10\}$ then find $A \triangle B$.
- Q.5- Define, set, subset, proper set, super set, empty set, singleton set, cardinal number with example.
- Q.6- If $A = \{x: x \in N \text{ and } x \leq 3\}$, $B = \{n: x \in I, -1 \leq x \leq 1\}$ and $C = \{1, 2\}$ verify
(i) $A \times (B \cap C) = (A \times B) \cap (A \times C)$ (ii) $(A - B) \times C = A \times C - B \times C$
- Q.7- Define relation, function write formula of number of relation and function with example.
- Q.8- Draw graph and write domain and range – (i) constant function (ii) exponential function
(iii) logarithmic function (iv) greatest integer function (v) signum function.
- Q.9- Write domain and range of all trigonometry function.

Hindi:

1. 'हर बच्चे के जीवन में उसके माता-पिता बहुत महत्व रखते हैं वे उसके लिए आदर्श होते हैं।' अपने-माता-पिता के त्याग का वर्णन करते हुए लिखिए कि आप उनके लिए क्या-क्या करना चाहते हैं?
2. 'आज की बचत कल का सुख'— उपर्युक्त विषय पर प्रस्ताव लिखिए। (लगभग तीन सौ से चार सौ शब्दों में लिखिए)

