

Winter Assignment (2023-24)

Class : XI (SCIENCE)

ENGLISH

1. Imagine that Joe Morgan visits Dr. Andrew after a week. Both his wife and baby boy are in good health. Write a conversation between Joe Morgan and Dr. Andrew within 150 words.
2. Does the poem 'The Tale of Melon City' mock at the process of proper judgment and fair trial? Write your opinion in 120-150 words.
3. ENGLISH PROJECT (mandatory for Final term -10 marks)

Collect samples of Advertisements (atleast 4 advertisements for each type/kind) from English newspapers and paste in different pages of a scrapbook. Cover and decorate the scrapbook and mention your Name, Class, Section and UID. It should contain all the following types of Advertisements:

- A. Situation Vacant
- B. Situation Wanted
- C. Sale and Purchase (Property, Vehicle and Household Goods in separate pages)
- D. To Let
- E. Educational Institutions
- F. Lost and Found
- G. Travels and Tours
- H. Matrimonials
- I. Change of Name/ Address
- J. Display/Commercial Advertisement

PHYSICS

1. Define escape velocity. Obtain an expression for the escape velocity of a body from the surface of the earth.
2. If the radius of earth shrinks by 2.0%, mass remaining constant, then how would the value of acceleration due to gravity change?
3. Define the terminal velocity. Derive an expression for terminal velocity of a small spherical body falling through a viscous medium.
4. Derive expression for time period of simple pendulum (by SHM Method).
A body executes SHM is represented by the equation $[y = 0.40 \sin (440t + 0.61)]$ where, y and t are in 'm' and 's' respectively. What are the values of (a) Amplitude (b) Angular frequency (c) Initial Phase (in radians).
5. A wave travelling along a string is described by " $y(x, t) = 0.005 \sin [80.0 x - 3.0 t]$ " in which numerical constants are in SI units. Calculate (i) The Amplitude (ii) The wavelength (iii) Period of wave.

CHEMISTRY

1. Write IUPAC name of the $\text{CH}_3\text{CH}=\text{C}(\text{CH}_3)_2$.
2. Arrange the alkenes in decreasing order of stability.
 $\text{CH}_3 - \text{CH} = \text{CH} - (\text{CH}_3)$, $\text{CH}_2 = \text{CH}_2$, $\text{CH}_3 - \text{CH} = \text{CH}_2$
3. Explain why $(\text{CH}_3)_3\text{C}^+$ is more stable than CH_3CH_2^+ .
4. Define Hyperconjugation effect.
5. An alkene 'A' on ozonolysis gives a mixture of ethanol and pentan-3-one. Write structure of 'A'.
6. Describe the Bronsted-Lowry concept of Acids and Bases with suitable Examples.
7. A sample of HI (g) is placed in a flask at a pressure of 0.2 atm. At equilibrium partial pressure of HI (g) is 0.04 atm. What is K_p for the given equilibrium?
$$2\text{HI}(\text{g}) \rightleftharpoons \text{H}_2(\text{g}) + \text{I}_2(\text{g})$$
8. Define disproportionation reaction with example.
9. Write short notes on -:
(i) Common ion effect (ii) p^{H} (iii) Buffer Solution
10. Write structural formula and IUPAC name for all possible isomers having one triple bond in C_5H_8
11. Balance the following redox reaction by oxidation number method;
(i) $\text{MnO}_4^-(\text{aq}) + \text{I}^-(\text{aq}) \rightarrow \text{MnO}_2(\text{s}) + \text{I}_2(\text{s})$ (in basic medium)
(ii) $\text{Cr}_2\text{O}_7^{2-}(\text{aq}) + \text{Fe}^{2+}(\text{aq}) \rightarrow \text{Cr}^{3+} + \text{Fe}^{3+}$ (in acidic medium)

BIOLOGY

1. Draw the well labelled diagram of:
A) Section of a human heart.
B) Mechanism of breathing
C) Calvin Cycle
D) Nephron showing blood vessels, duct and tubule
2. Describe the role of liver, lungs and skin in excretion.
3. Give a brief account of counter current mechanism with well labelled diagram.

MATHEMATICS (041+241)

1. Use the properties of sets to prove that for all the sets A and B, $A - (A \cap B) = A - B$
2. Let $U = \{1, 2, 3, 4, 5, 6, 7\}$, $A = \{2, 4, 6\}$, $B = \{3, 5\}$ and $C = \{1, 2, 4, 7\}$, find (i) $A' \cup (B \cap C')$
(ii) $(B - A) \cup (A - C)$
3. In a survey of 600 students in a school, 150 students were found to be drinking Tea and 225 drinking Coffee, 100 were drinking both Tea and Coffee. Find how many students were drinking neither Tea nor Coffee.
4. A coin is tossed 6 times, and the outcomes are noted. How many possible outcomes can be there?
5. From a team of 6 students, in how many ways can we choose a captain and vice-captain assuming one person can not hold more than one position?
6. How many words can be formed each of 2 vowels and 3 consonants from the letters of the given word – DAUGHTER?

7. Find the number of 6 digit numbers that can be formed by using the digits 0, 1, 3, 5, 7, and 9. These digits shall be divisible by 10, and no digit shall be repeated?
8. Find the derivative of $f(x) = x^3$ using the first principle.
9. Differentiate $(2x - 7)^2 (3x+5)^3$.
10. Find the mean deviation about mean for the following data:

Size (x)	1	3	5	7	9	11	13	15
Frequency (f)	3	3	4	14	7	4	3	4

11. Determine the mean deviation about the mean for the following data:

Class	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	6	7	15	16	4	2

12. Determine the mean deviation about the median for the following data:

Class	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	6	7	15	16	4	2

13. Given that the events A and B are such that $P(A) = 1/2$, $P(A \cup B) = 3/5$, and $P(B) = p$. Find p if they are
 - (i) mutually exclusive
 - (ii) independent
14. An fair die is thrown double times. Assume that the event A is “odd number on the first throw” and B the event “odd number on the second throw”. Compare the independence of the events A and B.

ECONOMICS

1. The price elasticity of supply of commodity Y is half the price elasticity of supply of commodity X. 16 per cent rise in the price X results in a 40 per cent rise in its supply. If the price of Y falls by 8 per cent, calculate the percentage fall in its supply.
2. Define equilibrium price.
3. Give the meaning of excess demand and excess supply for a commodity.
4. Market for a good X is in equilibrium. Demand rises for the good. Supply remaining same, explain the chain of effects that will take place in the market for good X. Use diagram.
5. What changes will take place in a perfectly competitive market if the prevailing price in the market is below equilibrium price?
6. Explain two merits and demerits of Lorenz curve.
7. Answer the following :
 - (i) What is measure of Central Tendency? Name some of the measures. (At least three)
 - (ii) Define mode. Give two applications of mode in our daily life.

8. The price elasticity of supply of commodity Y is half the price elasticity of supply of commodity X. 16 per cent rise in the price X results in a 40 per cent rise in its supply. If the price of Y falls by 8 percent, calculate the percentage fall in its supply.
9. Calculate the product moment correlation coefficient between A and B using actual mean method:

A:	19	18	18	20	21	22	22
B:	40	42	38	41	43	39	37

10. Calculate the correlation coefficient between X and Y and comment on their relationship:

X:	-3	-2	-1	1	2	3
Y:	9	4	1	1	4	9

11. Calculate the correlation coefficient between X and Y and comment on their relationship.

X:	1	3	4	5	7	8
Y:	2	6	8	10	14	16

12. Compute the Karl Pearson's coefficient of correlation between A and B in the given series: (Take assumed mean for A as 3 and that of B to be 24)

A:	6	2	3	5	7	4
B:	18	42	36	24	12	30

COMPUTER SCIENCE

To be done in Computer Practical File

- Write a program in Python to enter 15 integers in a list and find the range. (Range is the difference between the largest and the lowest number)
- Cumulative sum of a list [a, b, c, ...] is defined as [a, a+b, a+b+c,]. Write a program to input a list of number and then create another list from this list that contains cumulative sum of the numbers in list.
- Write a program that prints the sum of the even-indexed elements of L, minus the sum of the odd indexed elements of L.
- Write a program to input n elements in a list and print the same in the given format:

If L = [1, 2, 3, 4, 5]

Then the output will be

1

1, 2

1, 2, 3

1, 2, 3, 4

1, 2, 3, 4, 5

5. Assume A=[1,3,5,15,25]

B= [2,4,5,40,45,70]

Write a program in python to create a new list C that contain elements from A & B in ascending order. i.e.

C will be [1,2,3,5,5,15,25,40,45,70]

6. Write a program in Python to enter 5 integers in a list and print the given format:

A=[2,5,6,1,7]

Then output will be

2 2

5 5 5 5 5

6 6 6 6 6 6

1

7 7 7 7 7 7 7

7. Write a program in python to insert an element in a list at given index number then print the list elements before and after the insertion.

INFORMATICS PRACTICES

1. A company interested in cloud computing is looking for a provider who offers a set of basic services such as virtual server provisioning and on-demand storage that can be combined into a platform for deploying and running customized applications. What type of cloud computing model fits the following requirements?

- Platform as a Service (PaaS)
- Software as Service (SaaS)
- Infrastructure as a Service (IaaS)

2. A Regional Engineering College plans to become a smart college by applying IoT concepts. How can each of the following be implemented in order to transform the college into an IoT-enabled smart college?

- E-textbooks
- Smart boards
- Online tests
- Wi-fi sensors on classroom doors
- Sensors in buses to monitor their location
- Wearables (Watches or smart belts) for attendance monitoring

3. (a) Write any two examples of Augmented Reality.

(b) Write the name and purpose of any one Indian humanoid.

(c) Expand the following terms:

i). IoT

ii). WoT

GENERAL ASSIGNMENT

Make a PPT on any landmark event of 2023 at national/international Level.(mail the PPT on class teacher's mail id).

