

## Assignment - I

**Class: XI**

### ENGLISH

During vacations, read any novel of your choice and do as instructed.

1. Write about the author- style of writing, genre and other notable work.
2. Give a short summary of the novel.
3. Write a paragraph sharing its relevance to the society.

The abovementioned work should be presented in a stick file using A4 size sheet papers.

### CHEMISTRY

1. An alkane has molecular mass 86. What is the molecular formula of the alkane? Write down all possible isomers for the molecular formula.
2. Balance the following redox reaction by ion electron 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)
3. What is the oxidation state of Cr and S in (i)  $\text{CrO}_5$  and  $\text{H}_2\text{SO}_5$  and why.
4. Write IUPAC names of the following compounds:



- ii)  $\text{CH}_3\text{-CHOH-CH}_2\text{Cl}$   
iii)  $(\text{CH}_3)_2\text{-CH-CH}=\text{CH}_2$

4. Read the passage given below and write five questions of M.C.Q type based on given passage.

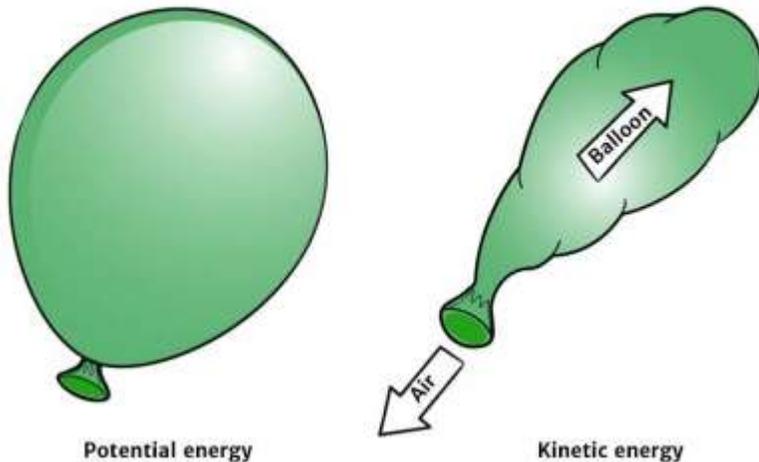
Nucleophilic functional groups are those which have electron-rich atoms able to donate a pair of electrons to form a new covalent bond. In both laboratory and biological organic chemistry, the most relevant nucleophilic atoms are oxygen, nitrogen, and sulfur, and the most common nucleophilic functional groups are water, alcohols, phenols, amines, thiols, and occasionally carboxylates.

## PHYSICS

1. Read the case study given below and frame 5 MCQ related to it.

Potential energy is the energy stored within an object, due to the object's position, arrangement or state. Potential energy is one of the two main forms of energy, along with kinetic energy. Potential energy depends on the force acting on the two objects.

### Potential and Kinetic Energy



2. Find the angle made by a cyclist with the vertical while taking a circular turn of radius  $a$ . Also state the forces which are providing centripetal acceleration and maintain vertical equilibrium.
3. Explain why:
  - (a) It is easier to pull a lawn mower than to push it.
  - (b) A cricketer moves his hands backwards while holding a catch.
  - (c) The outer rail of a curved railway track is generally raised over the inner.

4. In van der Waal's equation

$$\left[ p + \left( \frac{a}{V^2} \right) \right] (V - b) = RT$$

what are the dimensions of  $a$  and  $b$ ?

where  $p$  is pressure,  $V$  is volume,  $T$  is temperature and  $R$  is gas constant.

5. An object of mass  $m$  is moving in a circular motion of radius  $r$  at a constant speed  $v$ . Obtain an expression for the magnitude of acceleration of the object.

## BIOLOGY

1. Draw a well labelled diagram of all stages of mitosis.

2. Draw a well labelled diagram of:
  - a. ER
  - b. Golgi complex
  - c. Mitochondria
3. Write down the two difference between the following:
  - a. Platyhelminthes and Annelida
  - b. Amphibia and Reptiles
4. Describe five stage of prophase 1 of meiosis 1 with labelled diagram.
5. Read the following case and frame four multiple choice questions:

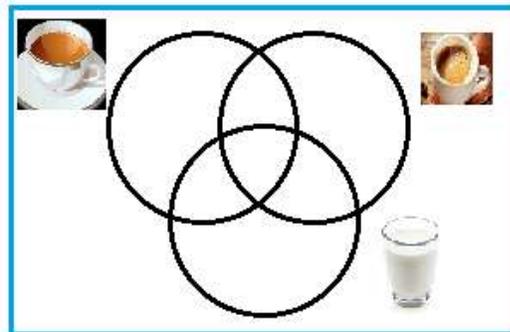
Animal cell vary in their structure and shape according to the function they perform. They are classified into :

Epithelial tissue, Connectives tissue, Muscular tissue, Nervous tissue.

Epithelial tissue covers the external surface of the body and lines the internal free surface. Connective tissues binds different tissue and organs together and support them. Muscular tissue is composed of long cylindrical fibers. Nervous tissue consist of neurons and neurological cells.

### **MATHS (STANDARD)**

1. An investigator interviewed 100 students to determine the performance of 3 drinks Milk, Coffee and Tea. The investigator reported that 10 students takes all the three drinks; 20 students takes Milk and Coffee; 25 students takes Milk and Tea ; 20 students takes Coffee and Tea; 12 students takes Milk only; 15 students takes Coffee only and 18 students takes Tea only. The given below figure expresses the above situation in the form of a Venn-diagram.



Based on the above given situation and figure, Answer the given 5 questions:

- (i) The number of students who did not takes any of the three drinks are:
  - a) 0
  - b) 5
  - c) 10
  - d) 20

- (ii) The number of students who takes exactly two of the drinks are:
- 20
  - 30
  - 35
  - 45
- (iii) The number of students who takes at least one of the three drinks are:
- 85
  - 90
  - 95
  - 100
- (iv) The number of students who takes Coffee are:
- 45
  - 35
  - 30
  - 15
- (v) The number of students who takes at most two drinks are:
- 90
  - 100
  - 85
  - 95

2. An expert interviewed 100 students to determine the selection of 3 sports Cricket, Football and Hockey. The expert reported that 10 students takes all the three sports; 20 students takes Cricket and Football; 25 students takes Cricket and Hockey; 20 students takes Football and Hockey; 12 students takes Cricket only; 15 students takes Football only and 18 students takes Hockey only. Frame any five questions on the basis of given situation and solve it in the form of a Venn-diagram.

3. If  $\alpha$  and  $\beta$  are the different complex numbers with  $|\beta| = 1$ , then find the value of

$$\left| \frac{\beta - \alpha}{1 - \bar{\alpha}\beta} \right|$$

4. If 'p' is the length of perpendicular from the origin to the line whose intercepts on the

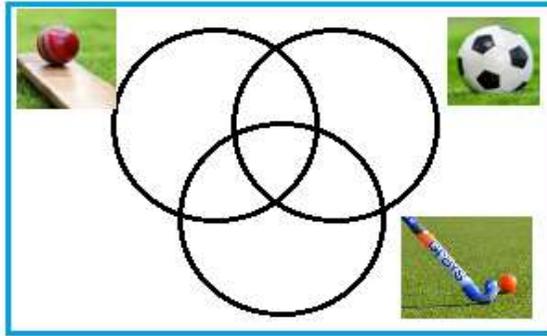
axes are 'a' and 'b' then prove that  $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$

5. Show that the product of lengths of the perpendiculars drawn from the points

$$\left(\sqrt{a^2 - b^2}, 0\right) \text{ and } \left(-\sqrt{a^2 - b^2}, 0\right) \text{ to the line } \frac{x}{a} \cos \theta + \frac{y}{b} \sin \theta = 1 \text{ is } b^2.$$

## MATHS ( APPLIED )

1. An expert interviewed 100 students to determine the selection of 3 sports Cricket, Football and Hockey. The expert reported that 10 students takes all the three sports; 20 students takes Cricket and Football; 25 students takes Cricket and Hockey; 20 students takes Football and Hockey; 12 students takes Cricket only; 15 students takes Football only and 18 students takes Hockey only. The given below figure expresses the above situation in the form of a Venn-diagram.



Based on the above given situation and figure, Answer the given 5 MCQ's questions:

- (i) The number of students who did not takes any of the three sports are:
- a) 0
  - b) 5
  - c) 10
  - d) 20
- (ii) The number of students who takes exactly two of the sports are:
- a) 20
  - b) 30
  - c) 35
  - d) 45
- (iii) The number of students who takes at least one of the three sports are:
- a) 85
  - b) 90
  - c) 95
  - d) 100
- (iv) The number of students who takes Football are:
- a) 45
  - b) 35
  - c) 30
  - d) 15
- (v) The number of students who takes at most two sports are:
- a) 90
  - b) 100

- c) 85
- d) 95

2. A reporter interviewed 100 students to determine the choices of 3 subjects Physics, Chemistry and Mathematics. The reporter reported that 10 students takes all the three subjects; 20 students takes Physics and Chemistry; 25 students takes Physics and Mathematics; 20 students takes Chemistry and Mathematics; 12 students takes Physics only; 15 students takes Chemistry only and 18 students takes Mathematics only. Frame any five questions based on the given situations and solve it in the form of a Venn-diagram.

3. If  $S_1$ ,  $S_2$  and  $S_3$  are the sum of first  $n$  terms of three A.P's, the first term of each being unity and the respective common differences being 1, 2 and 3.

Then prove that:  $S_1 + S_3 = 2 S_2$

4. If  $\log_x yz = a$  ,  $\log_y xz = b$  and  $\log_z xy = c$  , then prove that  $\frac{1}{1+a} + \frac{1}{1+b} + \frac{1}{1+c} = 1$ .

5. The sum of first three terms of a G.P. is  $\frac{39}{10}$  and their product is 1. Find the common ratio and the terms of the G.P.

OR

The digits of a three digit number are in A.P. and their sum is 21. The number obtained by reversing the digits is 396 less than the original number. Find the number.

## INFORMATICS PRACTICES

### Section-A

1. Write the units of memory
2. Explain Cloud Computing (Write 3 points)
3. What is the purpose of :
  - a. Generic software
  - b. Specific purpose software

### Section-B (Programming)

4. WAPP to input 10 names and display those names which starts with a vowel.
5. WAPP to store 10 integers in a list and display all the perfect integers.(Perfect numbers)

Note : Draw the flowchart for the above programs.

## COMPUTER SCIENCE

### Section – A

1. Explain the following in brief:
  - a. System software (Example also)
  - b. Software library
  - c. Application software (Example also)
2. State and explain De-Morgan's theorem
3. What are the common types of Cyber Crimes these days (Write 3 points)

### Section – B (Programming)

4. WAPP to create a list of 20 names and display those names which starts with A.
5. WAPP to input 10 integers one by one and display the sum of all prime numbers.

Note : Draw the flowchart for the above programs.

## PHYSICAL EDUCATION

1. Write any three objectives of physical education.
2. Discuss the main objectives of Indian Olympic association.
3. Write the motto of the modern Olympic game.
4. Elaborate the objectives of 'Khelo India' Programme.
5. Ram had been suffering from stress, tension and anxiety for the last three year. Now along with these problems, he is also facing severe depression. He has already consulted many doctors but has not found an appropriate solution. Ultimately, he met our yoga instructor. The yoga instructor taught him to perform yogic asanas, pranayamas and yoganidra. After about three months of regular practice, he was feeling well

Based on the above passage, answer the following question:

- a. What is yoga?
- b. What was the problem of Ram?
- c. What did the yoga instructor teach Ram to overcome his problems?