

## Assignment - 1 (2024-25)

Class : XII

**SCIENCE**

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### **ENGLISH (301)**

1. Prepare a PPT depicting minimum 10 slum areas in our country. Write the details of the area and the means of survival of the people living there.
2. Paste one picture with your mother and write a self- composed poem describing your relationship.

### **PHYSICS (042)**

#### **Instructions:**

Prepare an activity record of the following activities in a shoe lace file with interleaf pages.

#### **ACTIVITIES**

##### **SECTION A**

1. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
2. To assemble the components of a given electrical circuit.
3. To draw the diagram of a given open circuit comprising at least a Battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.

##### **SECTION B**

1. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
2. To observe diffraction of light due to a thin slit.
3. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

### **CHEMISTRY (043)**

1. Study of the acidity of different samples of tea leaves.
2. Determination of the rate of evaporation of different liquids.
3. Study of common food adulterants in food stuffs like; sugar, butter, turmeric powder etc.
4. Preparation of rayon thread from filter paper using cuprammonium process.
5. Analysis of vegetable and fruit juices.
6. Study of casein quantity present in different samples of milk.

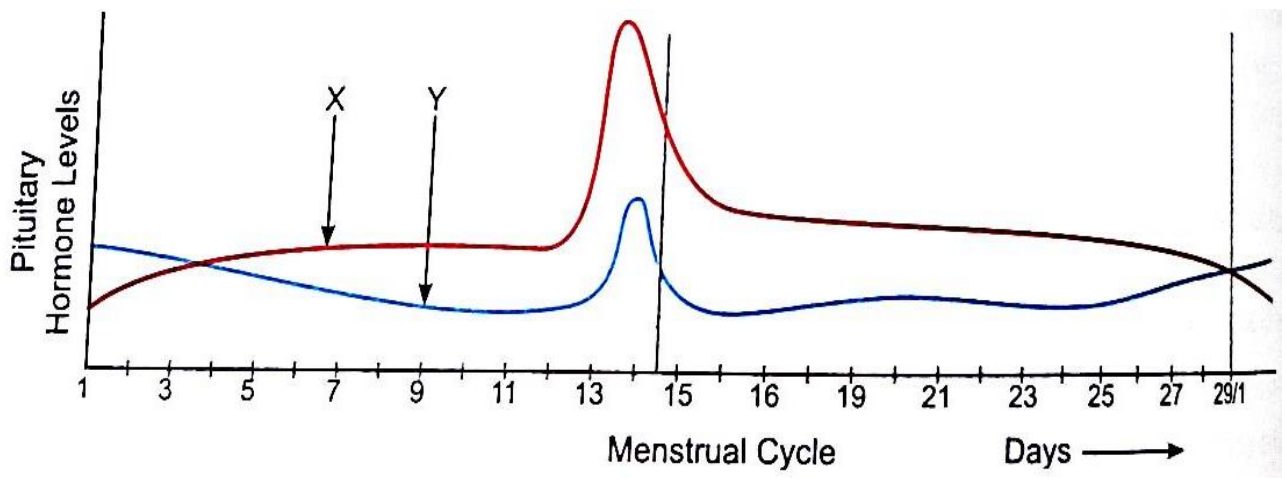
#### **Note: -**

1. Students are required to complete any one project out of the above given projects during summer vacation.

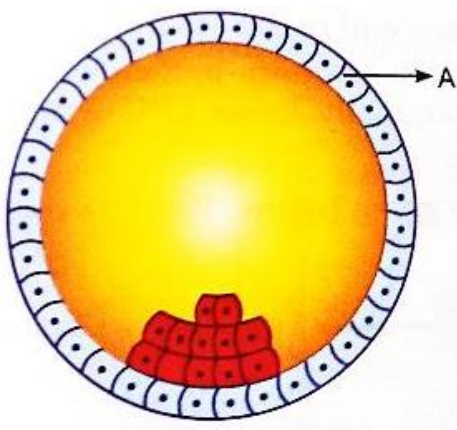
2. Presentation of the findings of a project is as important as its successful completion. The investigated projects are, generally, reported in the following format:
  - a. Preliminary: (i) Title of the project (ii) Table of contents (iii) List of graphs and figures (if any).
  - b. Introduction: (i) History (ii) Scope for further work (iii) Objective of the project.
  - c. Experimental: (i) Details of each experiment performed. (ii) Tabulation of data.
  - d. Discussion and conclusions: (i) Generalisation of the data. (ii) theory and conclusion. (iii) Suggestions for further work.
  - e. Bibliography: List of books, consulted in execution of the project.

**BIOLOGY (044)**

- 1) Differentiate between: (two differences only)
  - A) parthenogenesis and apomixis
  - B) Perisperm and pericarp
  - C) Albuminous and non-albuminous seeds
- 2) A) Draw a neat diagram of 7-celled, 8-nucleate nature of the female gametophyte.  
 B) Describe the post -fertilization changes in a flower.
- 3) Draw a labelled diagram of a part of transverse section through Seminiferous tubule of a human testis showing various stages of spermatogenesis.
- 4) Study the graph given below and answer the questions that follow:



- A) Name the hormones X and Y.
  - B) Explain the ovarian events under the influence of hormones X and Y.
- 5) Identify the figure given below and the part labelled 'A'.



## STANDARD MATHS (041)

**All the questions are compulsory.**

- The area of a triangle with vertices  $(-3, 0)$ ,  $(3, 0)$  and  $(0, k)$  is 9 sq. units. The value of  $k$  will be
  - 9
  - 3
  - 9
  - 6

- There are two real value(s) of, for which the value of the determinant  $\Delta = \begin{vmatrix} 1 & -2 & 5 \\ 2 & x & -1 \\ 0 & 4 & 2x \end{vmatrix}$  is 86. Find the value(s) of  $x$ .

- Let  $A = \begin{bmatrix} 0 & -\tan x/2 \\ \tan x/2 & 0 \end{bmatrix}$ , and  $I$  is the identity matrix of order 2, then prove that:

$$I + A = (I - A) \begin{bmatrix} \cos x & -\sin x \\ \sin x & \cos x \end{bmatrix}$$

- If  $A = \begin{bmatrix} x & y \\ z & -x \end{bmatrix}$  and  $A^2 = I$ , then obtain a relation between  $x, y$  and  $z$ .

- If  $A = \begin{bmatrix} 3 & 1 \\ 7 & 5 \end{bmatrix}$ , find  $x$  &  $y$  such that  $A^2 + xI = yA$ . Hence, find  $A^{-1}$ .

- Examine the consistency of the following system of equations

$$x + y + z = 1$$

$$x - 2y + 3z = 2$$

$$5x - 3y + z = 1, \text{ if possible, also find the solution.}$$

- If  $A$  and  $B$  are symmetric matrices of the same order, then show that  $(AB' - BA')$  is skew symmetric.

- Write the element  $a$  of a  $3 \times 3$  matrix  $A = [a_{ij}]$ , whose elements are given by  $a_{ij} = \frac{|i-j|}{2}$

- Solve the following system of equations, using matrix method:

$$\frac{2}{x} + \frac{3}{y} + \frac{10}{z} = 4, \quad \frac{4}{x} - \frac{6}{y} + \frac{5}{z} = 1, \quad \frac{6}{x} + \frac{9}{y} - \frac{20}{z} = 2; \quad x, y, z \neq 0$$

- Find the area of triangle whose vertices are  $A(-2, -3)$ ,  $B(3, 2)$  and  $C(-1, -8)$ .

- Find the inverse of  $\begin{bmatrix} 2 & -3 & 3 \\ 2 & 2 & 3 \\ 3 & -2 & 2 \end{bmatrix}$

- The cost of 4 kg potato, 3 kg wheat and 2 kg rice is Rs. 60. The cost of 1 kg potato, 2 kg wheat and 3 kg rice is Rs. 45. The cost of 6 kg potato, 2 kg wheat and 3 kg rice is Rs. 70. Find the cost of each item per kg by matrix method.

- A school wants to award its students for the value of Honesty, Regularity and Hard work with a total cash award of Rs. 6000. Three times the award money for Hard work added to that given for Honesty amounts to Rs. 11000. The award money given for Honesty and Hard work together is double the one given for Regularity. Represent the above situation algebraically and find the award money for each value, using matrix method. Apart from the given three values, suggest one more value which the school must include for awards.

- Make a schematic diagram on chart paper showing the properties of Adjoint of a matrix, properties of Transpose and properties of determinants.

## APPLIED MATHS (241)

**All the questions are compulsory.**

1. Solve the following system of equations, using matrix method:

$$\frac{2}{x} + \frac{3}{y} + \frac{10}{z} = 4 \quad , \quad \frac{4}{x} - \frac{6}{y} + \frac{5}{z} = 1 \quad , \quad \frac{6}{x} + \frac{9}{y} - \frac{20}{z} = 2 \quad ; \quad x, y, z \neq 0$$

2. There are two real value(s) of  $x$ , for which the value of the determinant  $\Delta = \begin{vmatrix} 1 & -2 & 5 \\ 2 & x & -1 \\ 0 & 4 & 2x \end{vmatrix}$

**Is 86.** Find the value(s) of  $x$ .

3. Solve the following system of linear equations by Cramer's rule:

$$6x + y - 3z - 5 = 0$$

$$x + 3y - 2z - 5 = 0$$

$$2x + y + 4z - 8 = 0$$

4. If  $A = \begin{bmatrix} x & y \\ z & -x \end{bmatrix}$  and  $A^2 = I$ , then obtain a relation between  $x$ ,  $y$  and  $z$ .

5. If  $A = \begin{bmatrix} 3 & 1 \\ 7 & 5 \end{bmatrix}$ , find  $x$  &  $y$  such that  $A^2 + xI = yA$ . Hence, find  $A^{-1}$ .

6. Find the inverse of  $\begin{bmatrix} 2 & -3 & 3 \\ 2 & 2 & 3 \\ 3 & -2 & 2 \end{bmatrix}$ .

7. Examine the consistency of the following system of equations

$$x - y + z = 3$$

$$2x + y - z = 2$$

$$-x - 2y + 2z = 1.$$

If possible, also find the solution.

8. If  $A$  and  $B$  are symmetric matrices of the same order, then show that  $(AB' - BA')$  is skew symmetric.

9. Write the element  $a$  of a  $3 \times 3$  matrix  $A = [a_{ij}]$ , whose elements are given by  $a_{ij} = \frac{|i-j|}{2}$

10. Find the area of triangle whose vertices are  $A(-2, -3)$ ,  $B(3, 2)$  and  $C(-1, -8)$ .

11. The cost of 4 kg potato, 3 kg wheat and 2 kg rice is Rs. 60. The cost of 1 kg potato, 2 kg wheat and 3 kg rice is Rs. 45. The cost of 6 kg potato, 2 kg wheat and 3 kg rice is Rs. 70. Find the cost of each item per kg by matrix method.

12. A school wants to award its students for the value of Honesty, Regularity and Hard work with a total cash award of Rs. 6000. Three times the award money for Hard work added to that given for Honesty amounts to Rs. 11000. The award money given for Honesty and Hard work together is double the one given for Regularity. Represent the above situation algebraically and find the award money for each value, using matrix method. Apart from the given three values, suggest one more value which the school must include for awards.

13. Make a schematic diagram on chart paper showing the properties of Adjoint of a matrix, properties of Transpose and properties of determinants.

## **COMPUTER SCIENCE (083)**

### **Reference Chapter: Python Revision Tour-1**

1. Write short notes on the following:  
Tokens, Keywords, Identifiers, Literals, Operators, Data Types, Type Casting, Compound Statement, Looping Statement
2. Write program in Python:
  - (a) To accept number of seconds and then express it in terms of minutes and seconds.
  - (b) To print one of the words negative, zero, or positive, according to the entered value in a variable x.
  - (c) That accepts two integers from the user and prints a message saying if the first number is divisible by second number or if it is not.
  - (d) That asks the user the day number in a year in the range 2 to 365 and asks the first day of the year – Sunday or Monday or Tuesday etc. then the program should display the day on the day number that has been input.
  - (e) That returns 'True' if the input number is an even number, 'False' otherwise.

## **INFORMATICS PRACTICES (065)**

- Develop a quiz program in python (Make it more like and Quiz app).  
[Try to generate random question. Use minimum 15 questions]

## **ECONOMICS**

- 1) Students to make a project of 15 pages on the topic allotted and to upload it in the form of PDF on google classroom of Economics latest by 10 June. Hard copy to be submitted later. Project to comprise only of main subject matter. (Index, Certificate, Acknowledgement, Bibliography not to be written)
- 2) Students to make PPT OR MIND-MAP OR FLOWCHARTS on any one of the chapters of Indian Economic development. (CH-1/2/4) The same to be uploaded on google classroom of Economics latest by 10 June.

Visit the site of Reserve Bank of India <https://www.rbi.org.in/>

Write (a) Bank rate (b) Repo Rate (c) Reverse repo rate [mentioned in home page]

- 3) You have to go through the site <https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=21753> [RBI>Publications] Collect/Highlight the important points of Monetary Policy Report – April 2023 by RBI and explain it (500 words) with special reference to the growth, Inflation, financial market and external environment.
- 4) Mahatma Gandhi once said that 'real progress of India did not mean simply the growth and expansion of industrial urban centres but mainly the development of the villages.' In his idea of Village Development being at the centre of the overall development of the nation is relevant even today. Why should we attach such significance to rural development when we see around us fast growing cities with large industries and modern technology hubs?