#### **GREATER TRIVENI PUBLIC SCHOOL, LOHARDAGA** Summer Vacation Holiday Homework Session 2022-23 Class-XII

### Subject- Maths

- **1.)** Let A = R {3} and B = R {1}. Consider the function f: A  $\rightarrow$  B defined by f (x) = (x-2)/(x-3). Is f one-one and onto? Justify your answer.
- 2.) Show that the function f:  $R \rightarrow R$  is given by  $f(x) = x^3$  is injective.
- 3.) Show that the relation R in the set  $\{1, 2, 3\}$  given by R =  $\{(1, 2), (2, 1)\}$  is symmetric but neither reflexive nor transitive.
- **4.)** Determine the principal value of  $\cos^{-1}(-1/2)$ .
- **5.)** Find the value of cot  $(\tan^{-1} \alpha + \cot^{-1} \alpha)$ .
- **6.)** The value of  $\tan^{-1}\sqrt{3} \sec^{-1}(-2)$  is
- **7.)** Find the value of  $\cos^{-1}(1/2) + 2 \sin^{-1}(1/2)$ .

**8.)** If  $\tan^{-1}(x-1)/(x-2) + \tan^{-1}(x+1)/(x+2) = \pi/4$ , then find the value of x.

- 9.) The no. of all possible3try 0 or 1 is
- *10.*) If the matrix A is both symmetric and skews symmetric, then A will be.
- 11.) If A, B are symmetric matrices of same order, them AB - BA is a
- If A and B are symmetric matrices of the same order, prove that AB + BA is symmetric 12.)

$$\begin{bmatrix} x & y \\ 3y & x \end{bmatrix} \begin{bmatrix} 1 \\ 2 \end{bmatrix} = \begin{bmatrix} 3 \\ 5 \end{bmatrix}$$

13.) Solve for x and y, given that 
$$\begin{bmatrix} 3y & x \end{bmatrix} \begin{bmatrix} 2 \end{bmatrix}$$
  

$$A = \begin{bmatrix} 3 & -2 \\ 4 & -2 \end{bmatrix} I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

Find K.So that  $A^2 = KA - 2I$ 

- $\frac{1}{-3i}$  3i + j Construct a  $3 \times 4$  matrix, whose element are given by aij = 15.)
- Show that the relation R in the set Z of integers given  $byR=\{(a, b): 2 \text{ divides } a-b\}$ . is 16.) equivalence relation.
- Check whether the relation R defined in the set  $\{1, 2, 3, 4, 5, 6\}$  as  $R = \{(a, b): b = a+1\}$  is 17.) reflexive, symmetric or transitive.
- Show that the relation in the set R of real no. defined R = {(a, b) :  $a \le b3$  }, is neither 18.) reflexive nor symmetric nor transitive.
- Show that the relation R in the set of all books in a library of a collage given by  $R = \{(x, y) :$ **19.)** x and y have same no of pages}, is an equivalence relation.
- 20.) Let  $A = R - \{3\}$  and  $B = R - \{1\}$ . Consider the function of f: A à B defined by

 $f(x) = \overline{x-3}^{-3}$  is f one – one and onto.

# Sub - Physics

1.Question 1

A point charge of  $+2\mu$ C is kept at a distance of 6cm above the center of a square of side 12cm. Find the flux through the square.

Ans: 3.76 x 105 Nm2C-1 Question 2 The electric flux through the spherical Gaussian surface of 5.0 cm radius is -1.0 x 103Nm2C-1 (a) What is the charge inside the spherical surface? (b) If the radius of the Gaussian surface is doubled, how much flux would pass through the surface. (c) If the net outward flux is zero, can we conclude that there are no charges inside the surface? Explain. Ans: -8.85 x 10-9C, Same, No **Ouestion 3** An infinite line charge produces a field of 4.5 x 106 NC-1 at a distance of 2 cm from it. Find the linear charge density. Ans 5 x 10-6 Cm-1 **Ouestion 4** A large sheet of surface area 300 m2 has a charge of 1800 µC distributed uniformly on its surface. Find the electric field at a distance of 15 cm from it. Ans 6.8 x 105 NC-1 **Ouestion 5** A thin charged spherical shell of radius 12 cm has a charge of 1.6 x 10 -7 C distributed uniformly on its surface. Find the electric field at a point: (a) Inside the sphere (b) Just outside the sphere (c) 18 cm from the center of the sphere.

Ans (a) Zero (b) 1.0 x 105 NC-1 (c) 4.4 x 104 NC-1

## <u>Subject- English</u>

- 1. Write a notice for your school notice board. Your notice could be an announcement of a forthcoming event, or a requirement to be fulfilled, or a rule to be followed.
- 2. Write a paragraph of about 100 words arguing for or against having to study three languages at school.
- 3. Write an article on the topic 'Child Labour- A disgrace to Society.'
- 4. What are our responsibilities towards our grown up parents and grandparents? Write with reference to 'My Mother at Sixty Six'.
- 5. Do you agree with the fear of Charley in 'The Third Level'?

### Subject- Accountancy

- 1. Solve these 5 Problems in Summer vacation copy.
- 2. Make Short Notes in concept register & solve atleast 3 Questions from each topic of unit 1 of partnership in note copy.

### Subject- ECONOMICS

Project- Make a report on current economic condition of India why there is inflation in market. Is the war between Ukraine and Russia responsible for this? What will be the effect of the war to the whole world? (10 PAGE STICK FILE)

# <u>Subject –BST</u>

- 1. Solve Case based question in summer vacation copy.
- a) Josh Enterprises decides to have a meeting of all the key employees of different departments in the organisation. The main motive is to tell the employees to keep the target of 20% increase in

sales as the main objective when they work throughout the year. The meeting is full of ideas regarding the employees and processes involved. Various plans are made to harness the potential of the employees and streamline the processes. However with the passage of a few days the external business environment checks the capability of the organisation to adapt to the situations. The company successfully comes out at the end of the year with flying colours.

What are the various characteristics of management you can find highlighted here? Also identify the lines in which these characteristics have been highlighted.

- b) ABCD Inc. is a company which deals with providing car service at home and on road. There are different departments in this company like Human Resources, Marketing, Finance, Research & Development and Operations. The top management of the company tries its level best to synchronize the activities of different departments in the best possible manner. The result is the increased efficiency and attainment of goals. However with the passing of time the size of the company has grown and now there are many branches of this company. The synchronization has turned more important with the increase in the size of the company and the number of employees. The Departmental Heads cf the company are specialists in their respective areas and the top management tries to work with them not with authority but by respecting their views on the subject. Their ego clashes are avoided to ensure smooth functioning of the organisation. Identify the concept of management highlighted above. Write two benefits highlighted in the above paragraph of this concept.
- c) Alpha Beta Inc. decided to go for perfect coordination in the various aspects of the company. They focus on synchronization of all the activities of the organisation. For this they know coordination will be the key. At the stage of thinking of what is to be done throughout the year they decide to take into consideration the harmony between the goals of the organisation and those of the individual departments. When they hire employees they pay them only after evaluating their worth in terms of how efficient they are. Finally when the last month of production comes they, time and again check the deviation between the set targets and the actual production done. In the above paragraph the main focus is on coordination. However various functions of management also come into picture. You have to identify the three functions of management highlighted above in which coordination can be seen.
- Saagar Ltd. believes in coordination among departments and activities. The company relies d) heavily on professional coordination. For this the company takes steps throughout the year. Coordination is kept in mind by all the managers regardless of the level they are working at. Throughout the year the various activities are synchronized without failure. Every department ensures that within it every employee and operation is guided by the theme of proper coordination. Whenever an employee takes an action he consults others, whenever needed, thus properly contributing to his team. The process of coordination is just not limited to the employees. Even at the departmental level the various departments use this binding force to create perfect harmony among them so that the organisational goals can be fulfilled. All the coordination that occurs in the organisation is a result of proper training and premeditated attempts the best results possible. bv company to get the The above case represents all the characteristics of coordination. Identify the lines which represent them and also name the characteristics.
- e) Dheeraj, Neeraj and Suraj are three friends. They work in the same company. They are managers but they belong to three different levels of management. Every day they meet and discuss their work with each other. One day they were having a conversation.

Dheeraj said, "These days I am having a lot of problems motivating the people at Shop Floor. I have decided to purchase two new machines. I know I will have to set an examplebybeingthe bestleader."

Neeraj said, "I am having problem with knowing the exact requirement of people in my department. Different polices have to be informed to the employees so that they become aware of our company's goals. I also have to coordinate with other departmental heads to know their requirements."

Suraj said, "I have to decide for long term. I know I will be ultimately responsible for every activity. All the policies and strategies require a lot of planning before formulation." In the above case identify the different levels of management these three friends belong to.

- f) Ashutosh Goenka was working in 'Axe Ltd.', a company manufacturing air purifiers. He found that the profits had started declining from the last six months. Profit has an implication for the survivial of the firm, so he analysed the business environment to find out the reasons for this decline.
- (a) Identify the level of management at which Ashutosh Goenka was working.(b) State three other functions being performed by Ashutosh Goenka.
- 2. Make Notes & Complete question answer of chapter 1.

### <u>Subject –Biology</u>

- 1) Draw a label diagram of the following
- a)Anatropous ovule of angiospermic plant
- b)Bisexual Flower
- c) Male reproductive system
- d)Female representative system
- e)Different stages of embryo in angiospermic plant
- 2) prepare well labelled diagram in chart paper of different stages of Human Embryo.
- 3) Prepare biography of any one of the following
- a) Susruta
- b)Kanad
- C) Salim Ali
- d) Charak

# Subject - CHEMISTRY

- 1) <u>Prepare biography of any one of the Indian chemist:</u>
  - a) Acharya Prafulla Chandra Rai
  - b) <u>Nagarguna</u>
- 2) Investigatory Project

To study some of the common food adulterants present in different food stuffs.

- 3) Prepare a flow chart of electrochemical series.
- 4) Remember oxidation State of different element uses in Redox reaction.
- 5) Solve five numericals each from given colligative properties
  - a) Osmotic pressure
  - b) Depression in freezing point
  - c) Elevation in boiling point

d) RLVP.

### HISTORY :

- 1. What is History? What is the importance of this subject in 21<sup>st</sup> Century? Write in your own words.
- 2. "Rakhigarhi" an important site of INDUS VALLEY CIVILIZATION was in news. Why
- 3. "Indus Valley Civilization was World's First City Civilization." Write on this topic.
- 4. Locate 10 places related to Indus Valley on an outline map of India and write about that place.
- 5. What are the common problems of a Historiographer? Write about it.

### **GEOGRAPHY:**

- 1. "Population is a boon." Write in the favour of this statement.
- 2. What is the demography of India in year 2021. Show it through the map.
- 3. What is Data? What are the importance of Data in Geography. Explain.
- 4. Discuss the various methods of Data Collection. Draw it on a Chart Paper.
- 5. Learn and Write 50 Nations of the world and their Capital.