

HOLIDAY HOMEWORK

CLASS -XII SCIENCE

Session: 2022-23

ENGLISH CORE

Q.1. As the Librarian of Mount Carmel School, Mumbai, Write a letter to M/s Sohal Lal and Co., Prime Booksellers, Agra, placing an order for Books and Magazines to be supplied immediately.

Q.2 You are Manish. You are much concerned about the craze for westernisation among the youth of today. You are worried about the erosion of our culture and values. Write an article on this issue in about 150- 200 words highlighting the need to preserve our age-old culture.

Q.3 "Academic excellence is the only requirement for a successful career." Write a Debate in favour or against the motion.

Q.4. Write a Speech on the topic 'Yoga for a healthy lifestyle'

Q.5 You are Rakesh, Head Boy of St. Paul's School, Kota. Draft a notice to be put up on the school notice board asking students to submit their names to take part in the Inter-class Debate Competition.

HINDI

निर्देश- निम्नलिखित गतिविधियों को निर्देशानुसार कीजिए। इसके साथ ही अभी तक के (अप्रैल और मई) पाठ्यक्रम के कार्य को पूरा करने का प्रयास कीजिए। गतिविधि के क्रियान्वयन के छायाचित्रों का संकलन कीजिए। कार्य की पूर्णता में लापरवाही को स्वीकार नहीं किया जाएगा। समय पर कार्य की समाप्ति नहीं होने पर अनुशासनात्मक कार्यवाही के रूप में पूरक पाठ्यपुस्तक वितान भाग-2 के अध्याय 'सिल्वर वैडिंग' को सुलेख के रूप में लिखना होगा। किसी भी प्रकार की समस्या आने पर दूरभाष पर सम्पर्क करें।

श्रवण कौशल -

1. अनुभव को ज्ञान का भण्डार कहा जाता है। अनुभव हमारे ज्ञान के व्यावहारिक पक्ष को मज़बूत बनाता है। वर्तमान शिक्षा प्रणाली को लेकर आपके जो विचार हैं, उससे संबंधित विचारों को अपने से बड़ों के साथ साझा कीजिए तथा उनके समय की पढ़ाई और शिक्षा प्रणाली से संबंधित विचारों को सुनिए।
2. रेडियो और टेलीविज़न पर प्रसारित होने वाले समाचारों को लगातार दो दिन तक (कोई भी दो दिन) सुनिए।

वाचन कौशल -

3. गतिविधि एक में जिस अनुभव को आपने ग्रहण किया है, उसे दूसरों के साथ साझा कीजिए और विद्यालय आने पर अपनी कक्षा में सुनाइए।
4. पूरे वर्ष में आने वाले त्योहारों (जैसे- होली, ईद, क्रिसमस, लोहड़ी आदि) और दिवस (जैसे- हिन्दी दिवस, मज़दूर दिवस आदि) में से किन्हीं एक त्योहार और एक दिवस पर एक-एक भाषण तैयार कीजिए और कंठस्थ कीजिए।

पठन कौशल -

5. गतिविधि दो में जिस दिन आप रेडियो और टेलीविज़न के समाचार सुनते और देखते हैं, उसी दिन के समाचार पत्र को भी पढ़िए तथा इन माध्यमों में समाचार लेखन शैली को समझने का प्रयास कीजिए। (संदर्भ - 3. 'विभिन्न माध्यमों के लिए लेखन' अभिव्यक्ति और माध्यम)
6. पूरक पाठ्य पुस्तक वितान भाग-2 में संकलित 'आनंद यादव' द्वारा रचित रचना 'जूझ' को पढ़िए और समझने का प्रयास कीजिए।

लेखन कौशल -

7. इस सम्पूर्ण गृहकार्य को करते वक्त आपने जो अनुभव किया उसे संक्षिप्त रूप में डायरी लेखन के रूप में लिखिए।
8. पूरक पाठ्य पुस्तक वितान भाग-2 में संकलित 'आनंद यादव' द्वारा रचित रचना 'जूझ' के प्रश्न संख्या 1 से 6 तक को कीजिए।

परियोजना कार्य:-

वार्षिक पाठ्यक्रम के अंतर्गत निर्धारित परियोजना कार्य के लिए स्वयं द्वारा किन्हीं दो प्रकरणों का चयन और उससे संबंधित विषयवस्तु व चित्रों का संकलन कीजिए।

अन्य कार्य:-

1. प्रचंड गर्मी को ध्यान में रखते हुए अपने घर की छत या किसी ऊँचे छायादार स्थान पर पक्षियों के लिए दाना, पानी के लिए मिट्टी का पात्र भरकर और मिट्टी का घोंसला रखें। इस कार्य में नियमितता का ध्यान रखें। मात्र औपचारिकता का निर्वहन नहीं करें।
2. यथासंभव अपना समय निकालकर एक पौधा अवश्य लगाएँ (जमीन या गमले में) और उसकी नियमित देखभाल करें।

PHYSICS

Write the following Activities in practical file

1. To observe diffraction of light due to a thin slit.
2. To observe refraction and Lateral deviation of a beam of light incident obliquely on a glass slab.
3. To assemble the components of a given electric circuit.
4. 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.

Submit report of investigatory project

Assessment criteria will be

1. Creativity
2. Presentation
3. Content

How to submit -

Submit report of your project (typewritten) in folder, labeled with your name , Class, Subject & Roll Number on 4th July.

BIOLOGY

Do the following Questions from Chapter 2 and 3 in your Biology Notebook.

1. Pollen grains of water pollinated species have special characteristics for protection from water. List them?
2. Arrange the following in correct developmental sequence:
Male gamete, Potential pollen mother cell, Sporogenous tissue, Pollen grains, Microspore tetrad.
3. If the diploid number of chromosomes in an angiospermic plant is 16. Mention number of chromosomes in the endosperm and antipodal cell.
4. Outer envelop of pollen grain made of a highly resistant substance. What is that substance? At which particular point the substance is not present?

5. Fruits generally develops from ovary, but in few species thalamus contributes to fruit formation.

(a) Name the two categories of fruits.

(b) Give one example of each.

6. Among the animal, insects particularly bees are the dominant pollinating agents. List any four characteristic features of the insect pollinated flower.

7. Continued self pollination lead to inbreeding depression. List three devices, which flowering plant have developed to discourage self pollination?

8. Differentiate between microsporogenesis and megasporogenesis. What type of cell division occurs during these events? Name the structure formed at the end of these two events.

9. How many sperms will be produced from 10 primary spermatocytes and how many eggs will be produced from 10 primary oocytes?

10. The spermatogonial cell has 46 chromosomes in human male. Give the number of chromosomes in (a) Primary spermatocyte (b) Spermatid

11. Give the function of (a) Corpus luteum (b) Endometrium

12. Give reason for the following :

(a) The first half of the menstrual cycle is called follicular phase as well as proliferative phase.

(b) The second half of the menstrual cycle is called luteal phase as well as secretory phase.

13. What is meant by L.H. Surge? Write the role of L.H.

14. Explain significance of the condition in which the testes remain suspended in scrotum outside the abdomen.

15. Mention the name and role of hormones which are involved in regulation of gamete formation in human male.

MATHEMATICS

1. Find the value of x and y if: $2\begin{bmatrix} 1 & 3 \\ 0 & x \end{bmatrix} + \begin{bmatrix} y & 0 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 6 \\ 1 & 8 \end{bmatrix}$ (ans. $x = 3$, $y = 3$)

2. If $\begin{bmatrix} x + 2y & -y \\ 3x & 4 \end{bmatrix} = \begin{bmatrix} -4 & 3 \\ 6 & 4 \end{bmatrix}$, find the values of x and y. (ans. $x = 2$; $y = -3$)

3. Write the values of $x - y + z$ from the following equation : $\begin{bmatrix} x + y + z \\ x + z \\ y + z \end{bmatrix} = \begin{bmatrix} 9 \\ 5 \\ 7 \end{bmatrix}$ (ans. 1)

4. For what value of x , is the matrix $A = \begin{bmatrix} 0 & 1 & -2 \\ -1 & 0 & 3 \\ x & -3 & 0 \end{bmatrix}$ a skew-symmetric matrix? (ans. 2)

5. If matrix $A = \begin{bmatrix} 2 & -2 \\ -2 & 2 \end{bmatrix}$ and $A^2 = pA$, then write the value of p . (ans. 4)

6. Let $A = \begin{bmatrix} 3 & 2 & 5 \\ 4 & 1 & 3 \\ 0 & 6 & 7 \end{bmatrix}$. Express A as sum of two matrices such that one is symmetric and the other is skew-symmetric.

7. If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$, verify that $A^2 - 4A - 5I = 0$.

8. Using elementary transformations, find the inverse of the following matrix
 $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 5 & 7 \\ -2 & -4 & -5 \end{bmatrix}$ (ans. $\begin{bmatrix} 3 & -2 & -1 \\ -4 & 1 & -1 \\ 2 & 0 & 1 \end{bmatrix}$)

9. Obtain the inverse of the following matrix using elementary transformation:
 $A = \begin{bmatrix} 3 & 0 & -1 \\ 2 & 3 & 0 \\ 0 & 4 & 1 \end{bmatrix}$ (ans. $\begin{bmatrix} 3 & -4 & 3 \\ -2 & 3 & -2 \\ 8 & -12 & 19 \end{bmatrix}$)

10. If $A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$, then find the value of $A^2 - 3A + 2I$. (ans. $\begin{bmatrix} 1 & -1 & -1 \\ 3 & -3 & -4 \\ -3 & 2 & 0 \end{bmatrix}$)

11. For the following matrices A and B , verify that $(AB)' = B'A'$; $A = \begin{bmatrix} 1 \\ -4 \\ 3 \end{bmatrix}$, $B = \begin{bmatrix} -1 & 2 & 1 \end{bmatrix}$

12. If $A = \begin{bmatrix} 1 & -1 & 1 \\ 2 & 1 & -3 \\ 1 & 1 & 1 \end{bmatrix}$, then find A^{-1} . Hence solve the following system of equations: $x + 2y + z = 4$; $-x + y + z = 0$; $x - 3y + z = 2$
 (ans. $\frac{1}{10} \begin{bmatrix} 4 & 2 & 2 \\ -5 & 0 & 5 \\ 1 & -2 & 3 \end{bmatrix}$; $x = 9/5$; $y = 2/5$; $z = 7/5$)

13. Find $\begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & 3 \\ 5 & -3 & -1 \end{bmatrix} \begin{bmatrix} 1 & -1 & 1 \\ 1 & -2 & -2 \\ 2 & 1 & 3 \end{bmatrix}$. Use this to solve the following system of equations:

$$x - y + z = 4; x - 2y - 2z = 9; 2x + y + 3z = 1$$

$$(\text{ans. } BA = 8I_3; x = 3; y = -2; z = -1)$$

14. If $A = \begin{bmatrix} 1 & 2 & -3 \\ 2 & 3 & 2 \\ 3 & -3 & -4 \end{bmatrix}$, then find A^{-1} . Hence solve the following system of equations: $x + 2y -$

$$3z = -4; 2x + 3y + 2z = 2; 3x - 3y - 4z = 11$$

15. If $A = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{bmatrix}$, find the AB . Use this to solve the following

$$\text{system of equations: } x - y = 3; 2x + 3y + 4z = 17; y + 2z = 7$$

$$(\text{ans. } AB = 6I_3; x = 2; y = -1; z = 4)$$

CHEMISTRY

1. Write the relationship between the depression of freezing point and concentration of the solution.
2. Oceans do not freeze even at sub-zero temperature. Explain.
3. Name one substance which is used as an antifreeze for water.
4. Why is sodium chloride Or calcium chloride used to clear the snow on the roads.
5. Why is ice cream kept in a mixture containing ice and common salt.
6. With the help of a suitable diagram show that the lower vapour pressure of a solution than the pure solvent, causes a lowering of freezing point for the solution compared to that of the pure solvent.
7. Why does sodium chloride solution freeze at lower temperature than water, but boils at higher temperature than water
8. Find the molality of a water solution which freezes at 263.15 K. (K_f of water = $1.86 \text{ K kg mol}^{-1}$)
9. The freezing point of a solution containing 0.3 g of acetic acid in 30.0 g of benzene is lowered by 0.45° . Calculate the van't Hoff factor. (K_f for benzene = $5.12 \text{ K kg mol}^{-1}$)
10. (a) What is meant by a 'colligative property'?

(b) Why does the presence of a solute in a solvent depress its freezing point?

11. The elements A and B form purely covalent compounds having molecular formulae AB₄ and AB₂. When dissolved in 20 g of benzene, 1 g of AB₂, lowers the freezing point by 2.3 K, whereas 1 g of AB₄ lowers it by 1.3 K. The molar depression constant of benzene is 5.1 K kg mol⁻¹. Calculate the atomic mass of A and atomic mass of B.

12. 15.0 g of an unknown molecular material was dissolved in 450 g of water. The resulting solution was found to freeze at -0.34°C. What is the molar mass of this material? (K_f for water = 1.86 K kg mol⁻¹).

13. A solution prepared by dissolving 1.25g of oil of winter green (methyl salicylate) in 99.0 g of benzene has a boiling point of 80.31 °C. Determine the molar mass of this compound. (B.P. of pure benzene = 80.10°C and K_b for benzene = 2.53°C kg mol⁻¹)

14. The capacity of the radiator of a car is 5 dm³. If the car is to be used in Srinagar where the temperature is 263.15 K, calculate the mass of ethylene glycol (C₂H₆O₂) which should be contained in 5 dm³ of the solution so that it does not freeze. Freezing point of water = 273.15 K. (K_f (H₂O) = 1.86 K kg mol⁻¹).

15. What mass of ethylene glycol (molar mass = 62.0 g mol⁻¹) must be added to 5.50kg of water to lower the freezing point of water from 0°C to -10°C? (K_f for water = 1.86 K kg mol⁻¹)

INFORMATICS PRACTICES

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VACATION
STAY SAFE AND ENJOY**