STEPHENS

INTERNATIONAL PUBLIC SCHOOL

Holidays' Homework

Session – 2021-22

Class : 12th-B

Subject : English

Task – 1

(A) On the eve of World Environment Day, your school has decided to have a face painting competition. Draft a notice in not more than 50 words for your school notice board giving necessary information. You are Nimita/Naresh the Head Boy/ Girl J M K International School Jharkhand.

(B) Students leave their prestigious seats in IIT, IIM etc. and pursue high level courses abroad. Government spends a lot of money on these students and all this money goes waste when students opt for courses in foreign countries. Write an article on Brain Drain Among Youth in about 150 -200 words.

Task – 2

(A) Design a digital poster inviting the general public to an E-learning fair.

(B) Your company organise My Trip C-45 Damini Road Delhi claims to offer the cheapest air tickets for any destination by an airline besides offering free tour guide facilities. Draft a digital advertisement in not more than 50 words giving all relevant details.

(C) You have recently started an Institute for ABACUS for school children. Draft a digital advertisement for a national daily giving all the relevant details.

Task 3

(A) You want to do a short term on line course on etiquette development during the summer holidays. Write a letter to the Director of Personal Care Hyderabad enquiring about the course details. Sign as Kumud of 148 Raja Garden, Jammu.

(B) You are Sudhir Jain, the Head Boy of APS Nagrota. An excursion has been scheduled from your school to Jodhpur. Write a letter to the Secretary of Youth Hostel, Koti Jodhpur requesting him to provide accommodation for 25 boys and 35 girls for five days. (120-150 words)

Task – 4

Read any short story book or novel and summarize it in the form of Power Point Presentation (slides). The slides must be in the following order:

- General information about the book.
- Author's description.
- Character's description.
- Summary of the story.
- Moral/ what you get from the story.

Note – You can include different pictures related to the text in the slides. Presentation in the form of a paragraph will not be accepted. It must be in points. The slides must not be more than 15.

Subject : Biology

Students are required to do the following in their holidays' homework for Biology

1. To prepare Biology Investigatory Project for Board practicals on any one of the topic as discussed by the concerned teacher in Biology class.

2. Answer the following questions in your Biology Notes Copy.

Q1. In general, the male gametes are motile, while the female gametes are stationary. Mention two types of exception to this, with an example for each?

Q2. Write two adaptations in animals exhibiting external fertilisation?

Q3. Algae and fungi shift to sexual method of reproduction just before the onset of adverse conditions.
Find out how sexual reproduction enables these organisms to survive during unfavourable conditions? Why is sexual reproduction favoured under such conditions?

Q4. Mention the site of zygote formation in the ovule of a flowering plant. What happens to sepals, petals and stamens after fertilisation? State the fate of zygote, ovule and ovary in these plants.

Q5. Explain mutualism with the help of any two examples. How is it different from commensalism?

Q6. Enlist the changes that occur post- fertilization in plants.

Q7. (a) Can a plant flowering in Mumbai be pollinated by pollen grains of the same species growing in New Delhi? Provide explanations to your answer.
(b) Draw the diagram of a pistil where pollination has successfully occurred. Label the parts involved in reaching the male gametes to its desired destination.

Q8. Why is process of fertilization in flowering plants referred to as double fertilization?

Q9. (a) Describe the endosperm development in coconut.
(b) Why is tender coconut considered a healthy source of nutrition?
(c) How are pea seeds different from castor seeds with respect to endosperm?

Q10. Draw a labelled sectional view seminiferous tubule of a human male.

Q11. Fertilization is essential for production of seed but in some angiosperms, seeds develop without fertilization.

Q12. (i) Give an example of an angiosperm that produces seeds without fertilization. Name the process.
(ii) Explain the two ways by which seeds develop without fertilization.

Q13. Draw a labelled diagram of the reproductive system in a human female.

Q14. Define parturition.

Q15. Failure of testes to descend into scrotal sacs leads to sterility. Why?

Subject : Chemistry

Students are required to write down the following practicals in their Chemistry Lab Files during the summer holidays.

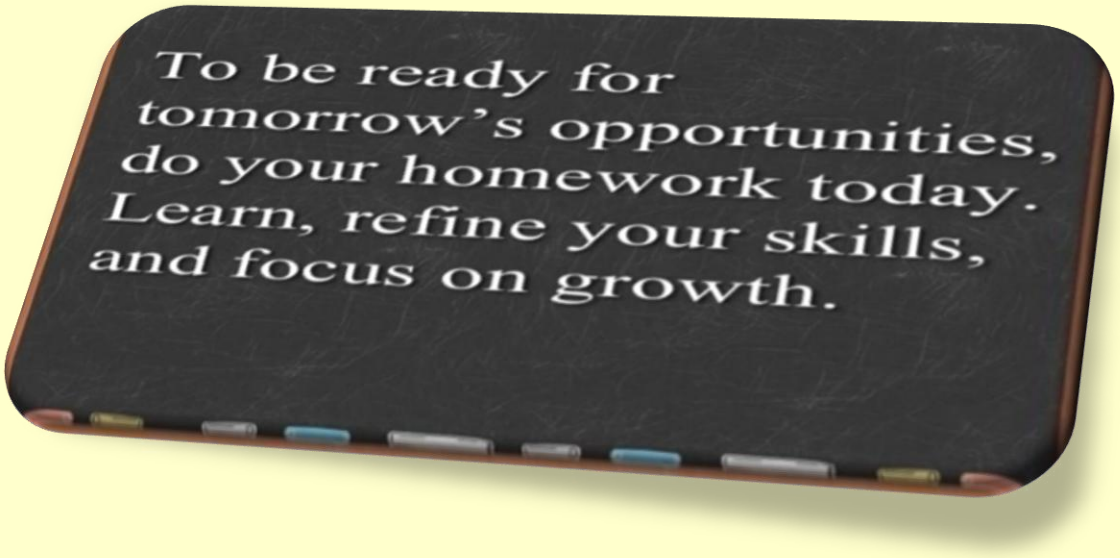
1. To determine the molarity of $KMnO_4$ solution by titrating it against a standard solution of oxalic acid.
2. A M/20 solution of Ferrous Ammonium Sulphate [Mohr's Salt] is provided. Using this solution, find out the molarity, strength and percentage purity of a sample of $KMnO_4$, 2g of which have been dissolved in one litre of the given solution of $KMnO_4$.
3. To prepare crystals of potash alum [K_2SO_4, $Al_2(SO_4)$. $24H_2O$].
4. To prepare potassium ferric oxalate K_3 [Fe $(C_2O_4)_3$] . $3H_2O$

Subject : Physics

Students are required to write down the Aim, Theory, Procedure and Precautions for the following practicals in their Physics Lab Files during the summer holidays. Do not write the observations or calculations.

1. To find the resistance of a given wire using metre bridge and hence determine the specific resistance of its material.
2. To determine resistance per cm of a given wire by plotting a graph of potential difference versus current.
3. To verify the laws of series combination of resistances using a metre bridge.
4. To verify the laws of parallel combination of resistances using a metre bridge.
5. To find the focal length of a convex lens by plotting graphs between u and v or between 1/u and 1/v.
6. To determine the angle of minimum deviation for a given prism by plotting a graph between the angle of incidence and the angle of deviation.
7. To determine the refractive index of a glass slab using a traveling microscope.
8. To draw the I-V characteristics curves of a p-n junction in forward bias and reverse bias.

Subject : Mathematics



CHAPTER – MATERICS

Q1. If a matrix has 12 elements, what are the possible orders it can have?

Q2. If $\begin{bmatrix} x-y & z \\ 2x-y & w \end{bmatrix} = \begin{bmatrix} -1 & 4 \\ 0 & 5 \end{bmatrix}$, find the value of $x + y$.

Q3. For a 2 × 2 matrix, A = [a_{ij}] whose elements are given by [a_{ij}] = $\frac{i}{j}$, write the value of a_{12}.

Q4. If A = $\begin{bmatrix} \cos\alpha & -\sin\alpha \\ \sin\alpha & \cos\alpha \end{bmatrix}$, then for what value of α is A an identity matrix?

Q5. If $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}\begin{bmatrix} 3 & 1 \\ 2 & 5 \end{bmatrix} = \begin{bmatrix} 7 & 11 \\ K & 23 \end{bmatrix}$, then write value of K.

Q6. Write A^{-1} for A = $\begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$ using elementary transformations.

Q7. Express the matrix A = $\begin{bmatrix} 3 & 2 & 5 \\ 4 & 1 & 3 \\ 0 & 6 & 7 \end{bmatrix}$ as the sum of a symmetric and a skew symmetric matrix.

Q8. Find the matrix A such that $\begin{bmatrix} 2 & -1 \\ 1 & 0 \\ -3 & 4 \end{bmatrix}$ A = $\begin{bmatrix} -1 & -8 \\ 1 & -2 \\ 9 & 22 \end{bmatrix}$

CHAPTER – DETERMINENT

Q1. If |A| = 6 and O(A) = 3 then |2A|.

Q2. If order of a matrix A is 3 × 3 and |A| = 3; then |A(adj A)|

Q3. Find x if $\begin{bmatrix} 5 & 3x \\ 2y & z \end{bmatrix} = \begin{bmatrix} 5 & 12 \\ 6 & 4 \end{bmatrix}$

Q4. Without expanding prove that $\begin{vmatrix} 2 & 7 & 65 \\ 3 & 8 & 75 \\ 5 & 9 & 86 \end{vmatrix} = 0$

Q5. Solve the equation $\begin{bmatrix} a+axx \\ xx+ax \\ xxx+a \end{bmatrix} = 0,\ a \neq 0$.

Q6. Solve the system of linear equations:-
$8x + 4y + 3z = 18$, $2x + y + z = 5$ and $x + 2y + z = 5$

Q7. A school wants to award its students for the values 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.

CHAPTER – CONTINUITY AND DIFFERENCIABLITY

Q1. If $x = \sin^{-1}(3t - 4t^3)$ and $y = \cos^{-1}\sqrt{(1-t^2)}$ then find $\frac{dy}{dx}$.

Q2. Find $\frac{dy}{dx}$, if $x = a\{\cos t + \log(\tan t/2)\}$, $y = a\{\sin t\}$.

Q3. Verify the Rolle's theorem for the function $f(x) = x^2 - 2x + 1$ in the interval $[-1, 2]$

Q4. If find $y = a(\sin\theta - \cos\theta)$ and $x = a(\cos\theta + \sin\theta)$, find $\frac{d^2y}{dx^2}$.

Q5. Find the unknown constant if the functions are continuous

$$f(x) = \begin{cases} kx+1, & x \leq \pi \\ \cos x, & x > \pi \end{cases}$$

Q6. The function $f(x)$ is defined as follows: $f(x) = \begin{cases} x^2 + ax + b, & 0 \leq x < 2 \\ 3x + 2, & 2 \leq x \leq 4 \\ 2ax + 5b, & 4 < x \leq 8 \end{cases}$

if f is continuous on [0, 8], find the values of a and b.

APPLICATION OF DERIVATIVES

Q1. Find the slope of tangent to the curve $y = x^2 - 1$ at the point whose abscissa is 3.

Q2. Show that $f(x) = 3x + 7$ is strictly increasing on R.

Q3. Find the rate of change of the area of a circle with respect to its radius r when $r = 4$ cm.

Q4. Find the point on the curve $y = x^2 - 2x + 3$ where tangent is parallel to x–axis.

Q5. Find slope of normal to the curve $y = 2x^2 - 3x$ at $x = -1$.

Q6. Find slop of tangent to the curve $x = t^2 + 3t - 8$, $y = 2t^2 - 2t - 5$ at $t = 2$.

Q7. Prove that curve $x = y^2$ and $xy = k$ cut at right angles if $8k^2 = 1$.

Q8. Determine the interval where $f(x) = \sin x - \cos x$; $0 \leq x \leq 2x$ is strictly increasing or decreasing.

Subject : Physical and Health Education

A. Prepare the project file on any one of the following games:-

Basketball, Football, Kabaddi, Kho-Kho, Volleyball, Handball, Hockey, Cricket, Bocce and Unified Basketball

- **Project has to be written on the basis of following guidelines:-**

1. History of the game.
2. Draw the diagram of court/field of related game Specifications of playfield and sports equipments.
3. Latest general rules of the game.
4. Fundamental skills of the game.
5. Terminology.
6. Important tournaments of the game.

B. Make a video of performing any 5 yoga asanas and explain its steps and benefits.

C. Write about the Sports Awards. (on same project file)

(a) Arjun Award
(b) Dronacharya Award
(c) Rajiv Gandhi Khel Ratan Award

Subject : Applied Arts

1. Make a poster on community and nature development on A3 size sheet (portfolio) using acrylic colours. (3 sheets)
2. Make an advertisement of commercial product on A3 size sheet (portfolio) using acrylic colours. (3 sheets)

Subject : Hindustani Music

PROJECT WORK

Q1. Discuss in detail Raag Malkouns and write in Notation the Compositions of Raag Malkouns.

(i) It's Aroha, Avroha

(ii) It's Thaat

(iii) It's Jati

(iv) It's Timing

(v) It's Vadi, Samvadi Swar

Q2. Write in Tala Notation, Thah (Single) and Dugun (Double) of Jhap Tala and Rupak Tala.

Q3. Describe the various parts of the Tanpura along with its tuning.