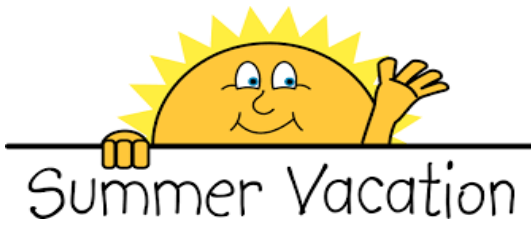


BANASTHALI PUBLIC SCHOOL
SUMMER HOLIDAY HOMEWORK, SESSION 2022-23

Circular No. BPS/22-23/31.12(B)

CLASS XII SCI.

Dated: 26.05.2022



‘Sand & Sun, Summer Vacation & fun filled activities have begun!’

Dear Students,

We all have within us the strength, the patience and the passion to reach the stars to change the world. Let's not fear the change; accept it. Life is all about moving on and looking forward to what makes us more adaptable and stronger.

So, during this unique break, be a source of support and help to your parents, be positive and do your work with full zeal and enthusiasm. We have planned the holiday homework in a manner that will engage you in fun activities and help you to enhance your creativity and self-confidence.

The Summer Holiday Homework designed would not only enhance the achievements of yours but also help you to enhance the family bonding. It will help you learning doing your assigned tasks independently and shall improve your basic academic and time management skills.

GENERAL INSTRUCTIONS:

- 1. Complete the work (C.W./H.W.) of all the subjects taught in the class, in the respective notebook and in neat hand writing, if still pending.***
- 2. Holiday Homework will be part of internal assessment, so complete the entire work in beautiful and correct manner.***
- 3. After Summer vacation, students will be required to submit the Summer Holiday Homework Note Book /Scrapbook /Project file/ Lab Manuals (whichever applicable) in the school for internal assessment.***
- 4. Parents are requested to help their wards in completing the work in H.H.W notebook /Scrap /Project file itself as mentioned.***
- 5. Revise the whole syllabus covered so far during the classes, for Unit Test-1.***

HAPPY HOLIDAYS
STAY SAFE, STAY HEALTHY!!

Subject Name	Details
English	<p>I. ATTEMPT TOGETHER WITH - Unit Assignment 18- 21 Notice Writing Unit Assignment 30-31 Letter of Enquiry Unit Assignment 93- The Last Lesson, Unit Assignment 101 My Mother at Sixty-Six</p> <p>II. SUGGESTED READING</p> <ul style="list-style-type: none"> • Daughter by Court Order- By Ratna Veera • Sita The Warrior- by Dev Dutt Patnaik • Three Thousand Stitches by Sudha Murthy • To Kill a Mocking Bird by Harper Lee <p>III.SUGGESTED FILMS TO WATCH</p> <ul style="list-style-type: none"> • Sound of Music • My Fair Lady • Towering Inferno • The Man who Knew Infinity- A Biopic • Gandhi – Directed by Richard Atten Borogh (A must watch as it is in reference to the Textual Chapter- “The Indigo”) <p>Note – Write a critical appreciation of any two films in your Flamingo Register (Word Limit- 150 words)</p>
Physics	Complete the Assignment given in Annexure I in class work register.
Mathematics	Complete the Assignment given in Annexure II in assignment register. Revise Ch. 3 (MATRICES) and Ch. 4 (DETERMINANTS) for UT-1.
Comp. Sci.	Complete the Book Exercise of Chapter 2 in class work register and Practical questions given in Annexure III in Practical file and soft copy as well.
Physical Education	<p>Instructions:</p> <ol style="list-style-type: none"> a) Practical 1 to 3 to be done in Lab manual. b) Draw neat diagram in every practical. c) Learn all the covered syllabus for UT-1. <p>Practical 1: Fitness tests administration for all items. Practical 2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease. Practical 3: Anyone one IOA recognised Sport/Game of choice. Labelled diagram of Field & Equipment. Also mention its Rules, Terminologies & Skills.</p>
Biology	Complete the Assignment given in Annexure IV in class work register.
Chemistry	Complete the Book Exercise of Chapter 2 and 3 in class work register.
Hindi	<ol style="list-style-type: none"> 1. इकाई - 1 परीक्षा हेतु आरोह भाग 2 (गद्य)पाठ 11,12 (काव्य) पाठ 1 अभिव्यक्ति और माध्यम पाठ 3 व अनुच्छेद लेखन तैयार करें । 2. परियोजना कार्य के लिए दिए गए विषय के अनुसार सामग्री एवं चित्र संकलित करें तथा क्रमानुसार लगाकर रखें । 3. अनुच्छेद लेखन- 1 - योग भगाए रोग । 2 - नियमित कक्षाओं का महत्व ।
Gen. Comp.	Create a project which covers the following topics with explanation in brief and paste or draw related pictures in interleaf project file: Networking & its Applications, Network Devices, Types of Network & Topology, Protocols.

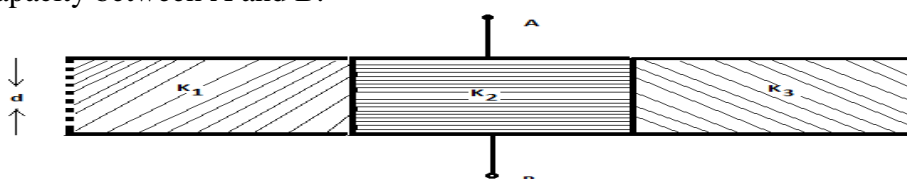
Make a project on any ONE of the following topics: (Project should be of 15-20 pages and related pictures should also be pasted in orange coloured project notebook.)

- a) Agriculture in India c) Poverty in India
b) Unemployment in India d) Science & Technology

ANNEXURE I

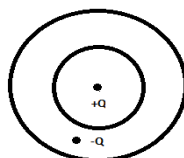
ASSIGNMENT - PHYSICS

- Q1. What is the S.I. unit of electric flux?
Q2. A charge $Q \mu\text{C}$ is placed at the centre of a cube. What should be the flux through one face?
Q3. The force between two charges is F , if the charges are dipped in kerosene oil of dielectric constant $K=2$, what will be the electric force?
Q4. The dielectric constant of a medium is unity. What will be its permittivity?
Q5. If the dielectric strength of air is $3 \times 10^6 \text{V/m}$. What will be the maximum potential at the surface of a metal sphere of radius 1 meter ?
Q6. Can electric field at a point be 0, while electric potential is not zero?
Q7. How much work is done in moving a $500 \mu\text{C}$ charge between two points on an equi-potential surface.
Q8. What is the function of dielectric in a capacitor?
Q9. Two metallic spheres of radii R and $2R$ are charged so that both of these have same surface charge density σ . If they are connected to each other with a conducting wire, in which direction will the charge flow and why?
Q10. Show variation of resistivity of Si with temperature in a graph.
Q11. Two electric bulbs have the following specification (i) 100W at 220V (ii) 1000W at 220V . Which bulb has higher resistance? What is the ration of their resistances?
Q12. A silver wire has a resistance of 2.1Ω at 27.5°C and a resistance of 2.7Ω at 100°C . Determine the temperature coefficient of resistivity of silver.
Q13. Why is a potentiometer considered to be superior or better than a voltmeter to measure the emf of a cell ?
Q14. Prove Ohm's law using the concept of drift velocity .
Q15. A wire whose cross-sectional area is increasing linearly from one end to other, is connected across a battery of constant emf (Potential difference). Which of the following quantity remain constant in the wire: drift speed, current density, electric field or current.
Q16. Two point charges $+4Q$ and $-Q$ are placed at a distance 'a' apart in air. At what points on the line joining two charges, electric potential is zero.
Q17. Find the capacity between A and B.



Area of each plate = A

- Q18. Two point charges are placed inside two concentric shells of radii a and b . Find the ratio of net electric flux through the surfaces of two shell



Activity Work

Students are advised to complete 8 activities from prescribed Lab manual: Any 4 from section A and any 4 from Section B in loose sheets and arrange them in transparent file.

Lab Manual

Complete 8 experiments: First 4 from Section A and first 4 from Section B. Please leave Observation table blank. It will be filled in the school lab (When school reopens)

Project Works

Make a project on given topic discussed in class.

ASSIGNMENT - MATHEMATICS
(MATRICES AND DETERMINANTS)

Q.1 to Q.10 are multiple choice type questions, select the correct option

Q1. If $A = \begin{bmatrix} \alpha & \beta \\ \gamma & -\alpha \end{bmatrix}$ is such that $A^2 = I$, then

- a) $1 + \alpha^2 + \beta\gamma = 0$ b) $1 - \alpha^2 + \beta\gamma = 0$ c) $1 - \alpha^2 - \beta\gamma = 0$ d) $1 + \alpha^2 - \beta\gamma = 0$

Q2. If $\begin{bmatrix} x-y & 2 \\ x & 5 \end{bmatrix} = \begin{bmatrix} 2 & 2 \\ 3 & 5 \end{bmatrix}$, then value of y is

- a) 1 b) 3 c) 2 d) 5

Q3. If matrices A and B are inverse of each other then

- a) $AB = BA$ b) $AB = BA = I$ c) $AB = BA = 0$ d) $AB=0, BA=I$

Q4. The matrix $\begin{bmatrix} 5 & 10 & 3 \\ -2 & -4 & 6 \\ -1 & -2 & b \end{bmatrix}$ is singular matrix, then value of b is

- a) -3 b) 3 c) 0 d) any real number

Q5. If $A^2 - A + I = 0$, then inverse of A is

- a) A^{-2} b) $1 - A$ c) 0 d) A

Q6. If A is a matrix of order 3×3 , then the value of $|3A|$ is

- a) $27|A|$ b) $-27|A|$ c) $9|A|$ d) None of these

Q7. The area of triangle with vertices $(-3,0)$, $(3,0)$ and $(0,k)$ is 9 sq.unit. The value of k will be

- a) 9 b) 3 c) -9 d) 6

Q8. Let A be a square matrix of order 3×3 , then $|KA|$ is equal to

- a) $|A|$ b) $K^2|A|$ c) $K^3|A|$ d) $3K|A|$

Q9. If a matrix A is both symmetric and skew symmetric then matrix A is

- a) a scalar matrix b) a diagonal matrix c) a zero matrix of order $n \times n$ d) None

Q10. If $A = \begin{bmatrix} 0 & 2 \\ 2 & 0 \end{bmatrix}$, then A^2 is

- a) $\begin{bmatrix} 0 & 4 \\ 4 & 0 \end{bmatrix}$ b) $\begin{bmatrix} 4 & 0 \\ 4 & 0 \end{bmatrix}$ c) $\begin{bmatrix} 0 & 4 \\ 0 & 4 \end{bmatrix}$ d) $\begin{bmatrix} 4 & 0 \\ 0 & 4 \end{bmatrix}$

Q11. Find a matrix A such that $2A - 3B + 5C = 0$, where $B = \begin{bmatrix} -2 & 2 & 0 \\ 3 & 1 & 4 \end{bmatrix}$ and $C = \begin{bmatrix} 2 & 0 & -2 \\ 7 & 1 & 6 \end{bmatrix}$.

Q12. Find the inverse of the following matrix using elementary operations

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

Q13. Solve the system of equations using matrix method : $x - y + z = 6$, $x + 2z = 7$, $3x + y + z = 12$

Q14. Show that the matrix $A = \begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$ satisfies the equation $A^2 - 4A + I = 0$, where I is identity matrix.

Using this equation find A^{-1} .

Q15. Determine the product $\begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & 3 \\ 5 & -3 & -1 \end{bmatrix} \begin{bmatrix} 1 & -1 & 1 \\ 1 & -2 & -2 \\ 2 & 1 & 3 \end{bmatrix}$ and use it to solve the system of equations

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

Q16. If $A = \begin{bmatrix} \cos x & -\sin x & 0 \\ \sin x & \cos x & 0 \\ 0 & 0 & 1 \end{bmatrix}$ verify that $A(\text{adj}A) = (\text{adj}A)A = |A|I_3$.

Q17. If $A^{-1} = \begin{bmatrix} 3 & -1 & 1 \\ -15 & 6 & -5 \\ 5 & -2 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$ find $(AB)^{-1}$

Q18. Using elementary operations, find the inverse of matrix $\begin{bmatrix} 1 & 3 & -2 \\ -3 & 0 & -1 \\ 2 & 1 & 0 \end{bmatrix}$

Q19. Find the matrix A satisfying the equation $\begin{bmatrix} 2 & 1 \\ 3 & 2 \end{bmatrix} A \begin{bmatrix} -3 & 2 \\ 5 & -3 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

Q20. If $A = \begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & -1 & -2 \end{bmatrix}$, find A^{-1} , using A^{-1} solve the system of equations, $2x - 3y + 5z = 11$,
 $3x + 2y - 4z = -5$, $x + y - 2z = -3$

Q21. Express the following matrix as the sum of symmetric and skew symmetric matrix $\begin{bmatrix} 3 & -2 & -4 \\ 3 & -2 & -5 \\ -1 & 1 & 2 \end{bmatrix}$

Q22. If $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$, then prove that $A^n = \begin{bmatrix} 3^{n-1} & 3^{n-1} & 3^{n-1} \\ 3^{n-1} & 3^{n-1} & 3^{n-1} \\ 3^{n-1} & 3^{n-1} & 3^{n-1} \end{bmatrix}$, where $n \in N$

NOTE : a) Revise CHAPTER 3(MATRICES)AND CHAPTER 4 (DETERMINANTS)

b) Complete Activity 1,2 and 3 in Math project file.

ANNEXURE III

ASSIGNMENT – COMPUTER SCIENCE PRACTICAL FILE WORK

NOTE: Write following programs in practical file and also make soft copy(word file) of practical file with proper index.

Q1. Write Python program to calculate the result (Total and percentage) of student and display result and grade according to given criteria:

Percentage	Grade
≥ 90	A
< 90 and ≥ 75	B
< 75 and ≥ 60	C
< 60	D

Q2. Write python program to calculate the income tax of an employee on the basis of basic salary and total savings inputted by the user as per the given slabs:

- No tax for individuals with income less than ₹ 2.5 lakh.
- 0%- 5% tax with income ₹2.5 lakh to ₹5 lakh for different age groups.
- 20%tax with income ₹5 lakh to ₹10 lakh
- Investments up to ₹1.5 lakh under Sec 80C can save up to ₹45,000 in taxes.

Q3. Write a program to calculate factorial of a number using while loop.

Q4. Write a program to input a string and count the number of uppercase and lowercase letters.

Q5. Write the program to find the maximum, minimum and mean value from the inputted list.

Q6. Write the program to generate Fibonacci series in tuple.

Q7. Write a program to store students' information like admission number, roll number, name and marks in a dictionary, and display information on the basis of admission number.

Q8. Write a python program for bubble sort and insertion sort.

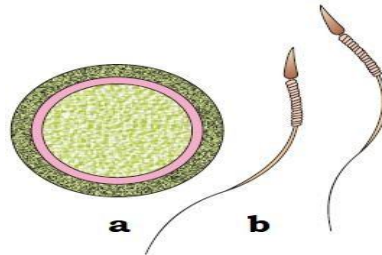
Q9. Write a python program to sort a list alphabetically in a dictionary.

Q10. Write a python program to count number of items in a dictionary value that is a list.

ASSIGNMENT - BIOLOGY

Q1. Even though each pollen grain has two male gametes. Why are atleast 10 pollen grains and not 5 pollen grains required to fertilise 10 ovules present in a particular carpel?

Q2. i) Identify 'a' and 'b' in the figure.
ii) State their type and ploidy.



Q3. How many microspores and megaspores would be required respectively to produce 200 embryos?

Q4. How does the tallest flower of *Amorphophallus* get pollinated? State another example of similar kind.

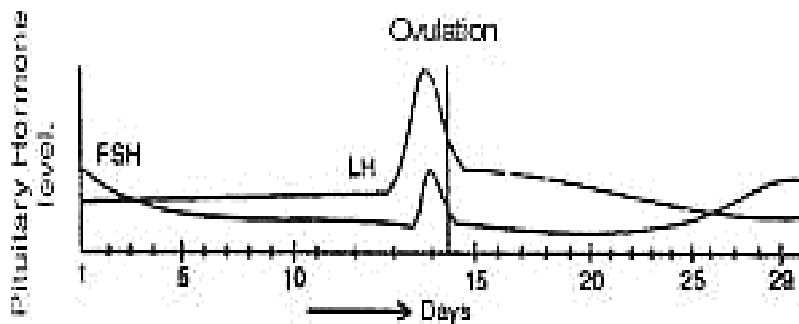
Q5. Name the blank spaces A, B, C and D in the table given below:

Item		What it represents in the plant
(i)	Pericarp	A
(ii)	B	Cotyledon in seeds of grass family
(iii)	Embryonal axis	C
(iv)	D	Remains of nucellus in a seed.

Q6. Failure of testes to descend into scrotal sacs leads to sterility. Why?

Q7. Give the function of (a) Corpus luteum (b) Endometrium.

Q8. (a) Read the graph given below. Correlate the ovarian events that take place in the human female according to the level of the pituitary hormone during the following day.



- (i) 10th- 14th days
- (ii) 14th- 15th days
- (iii) 16th- 23th days
- (iv) 25th- 29th days (If the ovum is not fertilised)

(b) What are the uterine events that follow beyond 29th day, if the ovum is not fertilised? Show variation of resistivity of sperm with temperature in a graph.

Q9. Inbreeding is necessary and useful in some cases. How? Name the problem which can be caused due to close inbreeding and the way to get rid of the problem.

Q10. Lactational Amenorrhea is a method of contraception. Justify. What is the maximum effectiveness of this method in terms of period/duration?

Q11. Draw a diagrammatic sectional view of the female reproductive system of human and label the parts.

- (a) Where the secondary oocyte develop.
- (b) Which help in collection of ovum after ovulation
- (c) Where fertilization occurs
- (d) Where implantation of embryo occurs.

Q12. What is meant by L.H. Surge? Write the role of L.H.

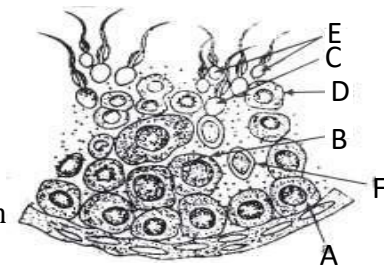
Q13. Briefly explain the various reproductive technologies to assist an infertile couple to have children.

Q14. Fill in the blanks A, B, C and D in the following tables

S. No.	Methods of birth Control	Contraceptive/device
1.	Natural	A
2.	B	Vasectomy
3.	C	Saheli
4.	Implants	D

Q15. Study the figure given:

- Pick out and name the cells that undergo spermiogenesis.
- Name A and C cells.
- Give ploidy of B and E.
- What are the cells marked as D and F? Mention their function



Q16. Three of the steps of neuro endocrine mechanism in respect of parturition are mentioned below.

Write the missing steps in proper sequence.

- Signals originate from fully developed foetus and placenta.
- _____.
- _____.
- Oxytocin causes strong uterine contraction
- Uterine contraction stimulates further secretion of oxytocin.
- _____.

Lab Manual

Complete 5 experiments from Section A and 11 spotting from Section B. Leave Observation table blank. It will be filled in the school lab (When school reopens).

Project Works

Make a project on given topic discussed in class.