

Class–XI(Science)

English (301)

Do the following in your **literature** notebook and submit on the day the school reopens.

- A. You have lost your pet dog three days back. Draft an advertisement within 50 words to be printed in newspapers. Invent the necessary details.
- B. 'Our large population is not a cause of poverty but an asset, a resource'. Write a debate in 150 words either for or against the motion.
- C. Imagine yourself as Dr. Andrew who was undergoing an emotional crisis, but still managed to perform his duties as a doctor very well. Write a page of diary as Dr. Andrew after reaching home on that day. (*Birth*)
- D. Sometimes stressing too much on rules and regulations leads to chaos in running a state. Should such strict implementation be followed, in the context of what happened in '*The Tale of Melon City*'? Write your thoughts within 100 words.
- E. You have read '*Silk Road*'.

i) Prepare a collage pasting pictures of your trip with your family to a pilgrim site and write a paragraph narrating your experience. Don't forget to paste the collage in your notebook.

OR

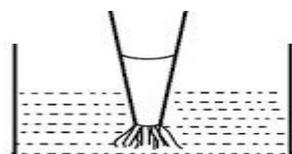
ii) Take a political map of India. Point out and write names of different places of pilgrimage in different parts of the country(as many as you can). Paste the map in your notebook. Make a list of those places.

Physics (042)

1. Explain Modulus of Elasticity and its various forms? (Explain in Details)
2. State and prove Bernoulli's Theorem.
3. Derive the expression for Displacement, velocity and acceleration of the particle executing simple harmonic motion.
4. Draw Stress – strain curve and analyse the following on the basis of curve-
 - (i) Proportional Limit
 - (ii) Elastic limit
 - (iii) Permanent set
 - (iv) Fracture point
 - (v) Elasticity
 - (vi) Plasticity
5. Derive the expression for centre of mass of two particle systems by drawing a suitable diagram.
6. State Pascal's law. On the basis of Pascal's law, explain the working of either Hydraulic Brakes or Hydraulic Lift (any one) with suitable diagram.

Case Study based questions:

7. **The hair of a dry brush dipped into water spread out:**



(A)



(B)

When the hair of the brush is in water, water is all around the hair as shown in figure (A). So, there is no free surface and force due to surface tension does not act. However when the brush is taken out from water, the force of surface tension come into play. To have the minimum surface tension, the hair clings together as shown in figure (B).

Chemistry (043)

1. Draw Cis and Trans isomers of $\text{CHBr} = \text{CHBr}$. Also write their IUPAC name.
2. Write IUPAC names of the following compounds:
 - i) $\text{CH}_3\text{-CHOH-CH}_2\text{COOH}$
 - ii) $\text{CH}_3\text{-CHOH-CH}_2\text{Cl}$
 - iii) $(\text{CH}_3)_2\text{-CH - CH} = \text{CH}_2$
3. Define with example:
 - i) Inductive effect
 - ii) Carbocation
4. $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{Cl} + \text{KOH}(\text{aq}) \rightarrow \text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{OH}$

What is the type of above reaction ?

5. i) Name a functional group whose first member contains three carbon atoms.
 - ii) Identify the functional groups in the followings:
 - a) Methyl ethanoate
 - b) Propanone
 - c) Benzoic acid
 - d) Propanal
 - iii) Indicate the σ and π bonds in the following molecules:
 - a) C_6H_6
 - b) CH_3CN

Mathematics

Standard (041)

SEQUENCES AND SERIES

1. Find the first five terms of each of the following sequences and obtain the corresponding series
 - i) $a_1=1, a_n=a_{n-1}+2, n \geq 2$
 - ii) $a_1=3, a_n=3a_{n-1}+2, \text{ for all } n > 1$
2. Find the sum of all two digit numbers which when divided by 4, leave 1 as remainder.
3. Find the sum of the series upto n terms
 $0.5+0.55+0.555+\dots$
4. Insert 5 geometric means between 576 and 9 . Show that their product is equal to the fifth power of the single G.M. between the given numbers.

LIMITS AND DERIVATIVES

1. Find the derivative of $\sqrt{\sin x}$ by first principle.
2. Evaluate :- $\lim_{x \rightarrow 0} \frac{\sqrt{1+x}-1}{(\sqrt{1+x})^{3/2}-1}$
3. Find the derivative of x^n by first principle.
4. Find dy/dx for $y=x^3 e^{\sqrt{\cot x}}$
5. Differentiate $y = (x^2-7)(5x^2+8)$

Applied (241)

SEQUENCES AND SERIES

1. Find the first five terms of each of the following sequences and obtain the corresponding series
 - i) $a_1=1, a_n=a_{n-1}+2, n \geq 2$
 - ii) $a_1=3, a_n=3a_{n-1}+2, \text{ for all } n > 1$
2. Find the sum of all two digit numbers which when divided by 4, leave 1 as remainder.
3. Find the sum of the series upto n terms
 $0.5+0.55+0.555+\dots$
4. Insert 5 geometric means between 576 and 9 . Show that their product is equal to the fifth power of the single G.M. between the given numbers.

LIMITS AND DERIVATIVES

1. Find the derivative of $\sqrt{(3x+4)}$ by first principle.
2. Evaluate :- $\lim_{x \rightarrow 0} \frac{\sqrt{1+x}-1}{(\sqrt{1+x})^{3/2}-1}$
3. Find the derivative of x^n by first principle.

4. Find dy/dx for $y=x^3 e^x$

Differentiate $y = (x^2-7)(5x^2+8)$

Biology

Draw a well labelled diagram of Respiratory tract of man.

- Briefly describe the following.
 - Angina Pectoris
 - Erythroblastosis foetalis
- Explain the structural and functional unit of Nervous system with the help of well labelled diagram.
- Draw a well labelled diagram of a nephron of mammalian kidney and explain the structure.

Computer Science (083)

Winter Assignment for Lab Work (Practical Copy)

Write programs in rules side of the copy and the output in the white side.

- Write Python code to create a list of n elements in different methods. (eval, append)
- Write a Python code to create a list of n integers and do the following:
 - Count the number of odd elements
 - Count the number of even elements
 - Count the number of prime numbers
 - Sum of elements at alternate places starting from beginning
- Write a Python code to print the element of an entered list in reverse order along with their index numbers.
- Write a Python code to perform Selection Sort and Bubble sort in an integer list.
- Write a Python code to accept a tuple T of n integers and print the smallest and the second smallest element.
- Create the following tuple using a for loop:
 - A tuple containing squares of the integers 1 to 50.
 - The tuple ('a', 'bb', 'ccc', 'dddd',...) that ends with 26 copies of the letter z.
- Write a Python program that creates a tuple storing first 10 terms of Fibonacci series.
- Write a Python code to create a Dictionary that contains month number as keys and month name as value.
- Write a python code to display keys and values separately from the dictionary created earlier.
- Write a python code to display the values of all even keys from the above created dictionary.

Informatics Practices (065)

Winter Assignment for Lab Work (Practical Copy)

Consider a table EMPLOYEE with the following data and answer the SQL queries:

ENO	ENAME	SALARY	AREA	BONUS	DATE OF JOIN
1	Raj Sinha	300000	36	12.00	19-07-2009
2	Udit Thakur	500000	48	10.00	22-03-2008
3	R. K. Sharma	300000	36	NULL	08-03-2007
4	Neha Yadav	800000	60	10.00	06-12-2008
5	Ajay Garg	200000	36	12.50	03-01-2010
6	Ravi Ranjan	700000	60	12.50	05-06-2008
7	Mohit Dua	500000	48	NULL	05-03-2008

Create Database and use it

1. Create a database OFFICE.
2. Use the database OFFICE.

Create Table / Insert Into

3. Create a table EMPLOYEE.
4. Insert a tuple in the table Employee.

Simple Select

5. Display the details of all the EMPLOYEES.
6. Display the employee no, Name, and salary of all the employees.

Conditional Select using Where Clause

7. Display the details of all the employees with salary less than 300000.
8. Display the eno and salary of all the employees who joined before 01-04-2009.
9. Display the eno, ename of all the employees who joined after 01-04-2009.

Economics (030)

1. State any two properties of Karl Pearson's coefficient of correlation.
2. Calculate the product moment correlation coefficient between A and B using actual mean method:

A:	1	18	1	20	21	22	22
B:	4	42	3	41	43	39	37

3. Calculate the correlation coefficient between X and Y and comment on their relationship:

X:	-3	-2	-1	1	2	3
Y:	9	4	1	1	4	9

4. Compute the Karl Pearson's coefficient of correlation between A and B in the given series: (Take assumed mean for A as 3 and that of B to be 24)

A:	6	2	3	5	7	4
B:	18	42	36	24	12	30

5. Define price ceiling and explain its implications.
6. How is equilibrium price determined under perfect competition? Explain with the help of a diagram.
7. What is Monopolistic Competition? Explain in detail the features of Monopolistic Competition.
8. What is Perfect Competition? Explain its features.

PHE (048)

1. Discuss how the biomechanics can improve the game of a sportsperson
2. How is the study of kinesiology helpful in sports?
3. Discuss in details about sports psychology can enhance the performance of a sportsperson.
4. Explain the principles of continuity, overload and progression.
5. Discuss the side effects of consuming prohibited substances in sports

Painting (049)

Make one handmade, decorated portfolio with six pencil shading still life painting and submit after winter vacation.

HVM (034)

1. In Hindustan Classical Music:

What is Khayal? Describe in detail. Write a 'Drut khayal' in any prescribed Raga with notation.

2. What is Gharana?

In Hindustani Classical music, how many Gharanas are there? Name them.