Ghaziabad Public School

Transforming Education, Empowering Students

SUMMER HOLIDAY HOMEWORK

GRADE: XII-SCI

www.onlinegps.in 8882292582

2ND-C, NEHRU NAGAR, GHAZIABAD, UP, 201001

To be ready for tomorrow's opportunities, do your homework today.
Learn, refine your skills and focus on your growth.

Dear Students,
Summer has arrived and brought with it your amazing and fun-filled holidays. Summer break
is a well-deserved opportunity to relax and unwind by indulging in various activities. Your
Holiday Homework has been specially designed for you to be creative, innovative and
imaginative while completing your tasks. It will also enable you to recapitulate what was
taught in the classrooms. We hope you will play, learn, research, analyze, experiment,
imagine, think, value, appreciate and above all enjoy during your holidays.
Wishing you happy holidays!
Instructions for the students:
* Mention date and day when you do your work.
* Use your creativity and imagination wherever required.
* Submit your holiday homework when the school re-opens.

CLASS: XII-SCI. **SUB: ENGLISH CORE-301**

1.Complete the following Worksheet Units of Together with English -
1,3,13,14,18,19,52,53,54,60,61,62,65 and 66.

2.English Project File:

1.INTRODUCTION

The project consists of 10 MARKS out of which, 5 MARKS will be allotted for the PROJECT FILE and the remaining 5 MARKS for the VIVA based on the file.

2. CONTENT OF THE PROJECT FILE:

The project file should include the following:

- **Cover page**, with the title of the project, school details and details of the student
- **Certificate of Completion** under the guidance of the teacher
- **Objectives** of the topic
- **Essay/content** should be written in 800-1000 words.
- **Student reflections** (the new learning experience/outcome achieved after completing the project)
- **Photographs** that capture the positive learning experience of the students (collages/pics from various online sources) can be pasted.
- **List of Resources/Bibliography** (Last page of the project file)

3. INSTRUCTIONS:

- Do a thorough research on the topic assigned.
- The project should be neat, and legible, with an emphasis on quality of content, accuracy of information, creative expression, proper sequencing, and relevance as per the assigned topic.
- Use coloured A4 Size sheets.
- Plagiarism is strictly prohibited.

Select <u>Any One</u> of the given topics for your English Project.

1. **<u>Child Labour in India</u>**
2. **<u>The Last Lesson- 'Linguistic Chauvinism</u>**
3. **<u>Plight of Old-Aged People</u>**

<u>Project File Format:</u>

- Cover Page
- Acknowledgment
- Certificate of Completion
- Index
- Objectives
- Action Plan
- All the content related to the Topic
- Conclusion
- Students Reflection
- Bibliography

- Write the activities (6 activity-3 from section A and 3 from section B) in the activity file as per the list provided in the lab Manual.
- Make a project file and working model on any one from the following topic that already assigns to each and every student.
    - AC generator
    - Mutual inductance
    - Ohm's law
    - Internal resistance
    - Rectifier (Half wave & full wave)
    - Semiconductor
    - Electromagnetic induction
    - Self-Inductance
    - Diffraction
    - Interference
    - Transformer (step-up & step-down)
    - Photoelectric effect
    - LCR Series Circuit
    - Moving coil galvanometer
    - Charging and discharging of capacitor
    - Estimate the charge induced on each one of the two identical Styrofoam (or pith) balls suspended in a vertical plane by making use of Coulomb's law.
    - Thermoelectric Generator
    - Kirchhoff's Law
    - Total Internal Reflection
    - Microscope
- Assignment

(Solve the given questions in your notebook and learn all the questions)

1. Why are electric field lines perpendicular at a point on an equipotential surface of a conductor?
2. How does the electric flux due to a point charge enclosed by a spherical Gaussian Surface get affected when its radius is increased?
3. (a) State Gauss theorem in electrostatics. Using it, prove that the electric field at a point due to A uniformly charged infinite plane sheet is independent of the distance from it.

   (b) How is the field directed if (i) the sheet is positively charged, (ii) negatively charged?
4. Draw a graph to show the variation of E with the perpendicular distance r from the line of charge.
5. An electric dipole is a system consisting of the two equal and opposite point charges separated by a small and finite distance if dipole moment is this system of P and it is placed in a uniform electric field: -

   Show diagrammatically at the orientation of the dipole in the field for which the talk is:- (i) maximum

   (ii) Half the maximum value

   (iii) zero.
6. Why does the electric field inside a dielectric decrease when it is placed in an externally electric field?
7. Why should the electrostatic field be zero inside a conductor and why is electrostatic potential energy of a pair of like point charges positive?

8. Derive the expression for the capacitance of a parallel plate capacitor having played area A and separation d.
9. The electric field intensity and potential at a point due to a point charge or 36 N/C and 18 J/C respectively. Calculate magnitude and position of the charge from the point.
10. What potential difference must be applied to produce an electric field that can accelerate an electron to 1 /10 of velocity of light?
11. Plot a graph showing the variation of resistance of a conducting wire as a function of its radius keeping the length of the wire and its temperature constant.
12. Two wires of equal length, one of copper and the other of manganin have the same resistance. Which wire is thicker?
13. An EMF of a cell is 1.5 V and its internal resistance is 1 ohm. For what current drawn from the cell will its terminal potential difference be half of its EMF?
14. A 3 cm wire carrying a current of 10 A is placed inside a solenoid perpendicular to its Axis. The magnetic field inside the solenoid is given to be 0.27 T. What is the magnetic force on the wire?
15. Two long and parallel straight wire A and B carrying currents of 8A and 5A in the same direction are separated by a distance of 4 cm. Estimate the force on a 10 cm section of wire A.
16. An electron and a Proton moving with the same speed enter the same magnetic field region at right angles to the direction of the field. For which of the two particles will the radius of the circular path be smaller?
17. In a certain region of space electric field E and magnetic field B are perpendicular to each other. An electron enters in the region perpendicular to the direction of both E and B moves undeflected. Find the velocity of the electron.
18. Describe the path of a charged particle moving in a uniform magnetic field with initial velocity
    (i) Parallel to (or along) the field.
    (ii) Perpendicular to the field.
    (iii) At an arbitrary angle θ ($0° < \theta < 90°$).
19. Two-point charges + 4μC and -6μC are separated by a distance of 20 cm in air. At what point on the line joining the two charges is the electric potential zero.
20. Two charges of equal magnitudes kept at a distance r exert a force F on each other if the charges are held and distance between them is doubled. Find the new force acting on each charge.
21. What is the physical significance of an electric field? Using Gauss's theorem derive an expression for electric field intensity due to infinitely long charged straight wire.
22. An Oil Drop of mass M and charge - Q is to be held stationary and the gravitational field of the earth. What is the magnitude and direction of the electrostatic field required for this purpose.?
23. What is a Gaussian surface? What are the uses of Gaussian surface? Why can a Gaussian surface not pass through any discrete charge?
24. Obtain an expression for the potential energy of an electric dipole placed in a uniform electric field.
25. Define an equipotential surface. Draw equipotential surface in the case of a single point charge and in a constant electric field in Z direction.
26. Calculate the electrostatic potential energy of a system of 3-point charges Q_1, Q_2 and Q_3 located respectively at R_1, R_2 and R_3 with respect to a common origin O.
27. A conducting slab of thickness t is introduced without touching between the plates of a parallel plate capacitor separated by a distance d($t<d$). Derive an expression for the capacitance of the capacitor.
28. Explain the term drift velocity of electrons in a conductor. Hence obtain the expression for the current through a conductor in terms of drift velocity.
29. State and Prove ampere's circuital law. Using Biot-Savart law, derive an expression of magnetic field due to a long straight current carrying conductor.
30. Using Biot-Savart's law, derive the expression for the magnetic field at a point on the excess of a circular current loop.

SUB: CHEMISTRY-043

PROJECT WORK:

A) Choose any one topic and make a project file. Use **A4 size sheets** for the project including various newspaper clippings, image latest discoveries and inventions relevant to the topic. **Follow the given format in the project: (Introductory page, certificate, acknowledgement, index/ content, introduction, aim, chemical required, procedure/ experiment, observation, result, conclusion, bibliography)**

1. Acidity In Tea.
2. Nicotine in tobacco
3. Compare and detect the ions in GANGA RIVER and HIDDEN RIVER water
4. Analysis Of Vegetables and Fruit Juices (Apple juice, orange juice, carrot juice etc)
5. To study the presence of oxalate ion content in guava fruit at different stages of ripening
6. To study the quantity of casein present in different samples of milk.
7. Preparation of soyabean milk and its comparison with the natural milk with respect to curd formation, effect of temperature and taste.
8. To detect the presence of adulterants in samples of chilli powder, turmeric powder and pepper.
9. Chocolate Analysis
10. Comparative study and qualitative analysis of different brands of cold drinks
11. Comparing Lactose Percentage between Whole Milk and Powdered Milk
12. Content of Cold Drinks Available in the Market
13. Determination of caffeine in tea samples
14. Determination of contents of toothpaste.
15. Development of a daily-use sunscreen soap
16. Dyeing of Wool, Silk, and Cotton in Malachite Green
17. Comparative study and qualitative analysis of different brands of hair dye.
18. Effect of Potassium Bisulphite as a Food Preservative
19. Effect of Water and Temperature in Varying the Toxicity Levels of Different Pollutants
20. Effects of Dye on Different Types of Fabric
21. Effects of Heat on Vitamin C in Tomatoes
22. Effects of Ultraviolet Radiation on Crystal Growth
23. Foaming Capacity of Soaps.
24. To compare the rate of fermentation of a given sample of wheat flour, gram flour, rice flour, and potato

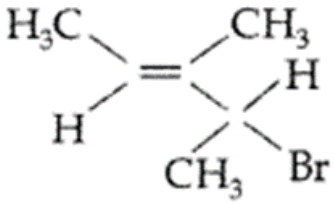
B) Complete your given lab manual work. (5 experiments).

C) Revise all the chapters of April and May syllabus. (chapter 1,2,3,6)

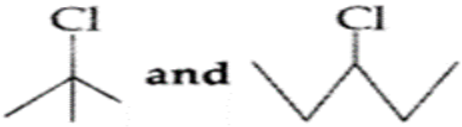
Solve the given questions in your notebook and learn all the questions.

1. What is meant by 'reverse osmosis'?
2. Some liquids on mixing form 'azeotropes'. What are 'azeotropes'?
3. What type of intermolecular attractive interaction exists in the pair of methanol and acetone?
4. Non-ideal solutions exhibit either positive or negative deviations from Raoult's law. What are these deviations and why are they caused? Explain with one example for each type.
5. A 1.00 molal aqueous solution of trichloroacetic acid (CCl_3COOH) is heated to its boiling point. The solution has the boiling point of 100.18°C. Determine the van't Hoff factor for trichloroacetic acid. (K_b for water = 0.512 K kg mol^{-1})
6. Define the following terms :
   (i) Mole fraction (ii) Isotonic solutions (iii) van't Hoff factor (iv) Ideal solution
7. Derive expression for Raoult's law when the solute is non-volatile.
8. What is the effect of adding a catalyst on
   (a) Activation energy (Ea) (b) Gibbs energy (AG) of a reaction?
9. Two half cell reactions of an electrochemical cell are given below :
   $MnO^-_4(aq) + 8H^+(aq) + 5e^- \rightarrow Mn^{2+}(aq) + 4H_2O$ (I), E° = + 1.51 V
   $Sn^{2+}(aq) \rightarrow 4\ Sn^{4+}(aq) + 2e^-$, E° = + 0.15 V
   Construct the redox equation from the two half cell reactions and predict if this reaction favours formation of reactants or product shown in the equation.

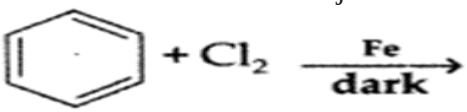
10. Express the relation among the cell constant, the resistance of the solution in the cell and the conductivity of the solution. How is the conductivity of a solution related to its molar conductivity?
11. The molar conductivity of a 1.5 M solution of an electrolyte is found to be 138.9 S cm2 mol-1. Calculate the conductivity of this solution.
12. Write the reactions taking place at cathode and anode in lead storage battery when the battery is in use. What happens on charging the battery ?
13. The conductivity of 0.001 M acetic acid is 4×10^{-5} S/cm. Calculate the dissociation constant of acetic acid, if molar conductivity at infinite dilution for acetic acid is 390 S cm^2/mol.
14. The conductivity of 0.001 M acetic acid is 4×10^{-5} S/cm. Calculate the dissociation constant of acetic acid, if molar conductivity at infinite dilution for acetic acid is 390 S cm^2/mol.
15. Define 'rate of a reaction'.
16. Define 'activation energy' of a reaction.
17. What do you understand by the rate law and rate constant of a reaction? Identify the order of a reaction if the units of its rate constant are : (i) L^{-1} mol s^{-1} (ii) L mol^{-1} s^{-1}
18. Define the following terms :
(a) Pseudo first order reaction. (b) Half life period of reaction ($t_{1/2}$)
19. Write units of rate constants for zero order and for the second order reactions if the concentration is expressed in mol L^{-1} and time in second.
20. For a decomposition reaction the values of rate constant k at two different temperatures are given below :
$k_1 = 2.15 \times 10^{-8}$ L mol^{-1} s^{-1} at 650 K, $k_2 = 2.39 \times 10^{-7}$ L mol^{-1} s^{-1} at 700 K
Calculate the value of activation energy for this reaction. (R = 8.314 J K^{-1} mol^{-1})
21. The rate of a reaction becomes four times when the temperature changes from 293 K to 313 K. Calculate the energy of activation (E_a) of the reaction assuming that it does not change with temperature. [R = 8.314 JK^{-1} mol^{-1}, log 4 = 0.6021]
22. Give the IUPAC name of the following compound :



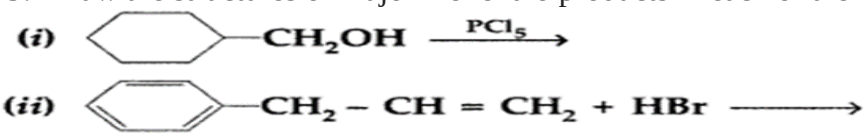
23. What happens when bromine attacks on this equation $CH_2 = CH - CH_2 - C \equiv CH$
24. In the following pair of compounds, which will react faster by S_N1 mechanism and why?



25. Draw the structure of major monohalogen product in the following reaction :



26. Haloalkanes undergo nucleophilic substitution whereas haloarenes undergo electrophilic substitution. Explain.
27. How would you differentiate between SN1 and S_N2 mechanisms of substitution reactions? Give one example of each.
28. Answer the following :
(i) Haloalkanes easily dissolve in organic solvents, why?
(ii) What is known as racemic mixture? Give an example.
29. Draw the structures of major monohalo products in each of the following reactions :



30. Write the following reactions.Wurtz reaction, swarts reaction, Finkelstein reaction.

SUB: MATHS-041

Task 1: Concept Review and Assignment

Revise Chapters 2 to 5(up to NCERT Ex.5.5)using your NCERT textbook and class notes.

Complete the Assignments(CH-2,5) that have been given. You must submit your mathematics note book by july 8,2024.

Task 2: Project Work

Write down year wise percentage of your academic excellence starting from class I to class XI.Find the best fitted line by the method of least squares.

(a) Tabulate the trend values.

(b) Commute expected percentage trend for the year 2025(i.e for class XII)

(c) if you find the calculated expected value for class XII is per your expectations,then write(in approximately 100 words) the strategies you followed.

OR

(c) If you find that the calculated value for class XII is not as per your expectations, then write (in approximately 100 words) the plan of action you will follow.

CHAPTER-2: INVERSE TRIGONOMETRIC FUNCTION

ASSIGNMENT : IMPORTANT QUESTION FOR BOARD EXAMINATION

1).Find the principal values : (i) $\sin^{-1}(1/\sqrt{2})$ (ii) $\tan^{-1}(-1)$ (iii) $\cot^{-1}(-1/\sqrt{3})$

2). Prove that : $\sin^{-1} 3/5 - \sin^{-1} 8/17 = \cos^{-1} 84/85$

3).Solve for x $\sin^{-1}(1-x) - 2\sin^{-1}x = \pi/2$.

4).Write in to Simplest form : (i) $\tan^{-1}\{\sqrt{(1-\cos x)/(1+\cos x)}\}$ (ii) $\tan^{-1}(\cos x - \sin x)/(\cos x + \sin x)$.

5).Prove that $\cos^{-1} 4/5 + \cos^{-1} 12/13 = \cos^{-1} 33/65$.

6).Prove that $\cos^{-1}(12/13) + \sin^{-1}(3/5) = \sin^{-1}(56/65)$.

7).Solve $\cos^{-1}(\sin(\cos^{-1}x)) = \pi/3$

8).Prove that $\tan^{-1} 1 + \tan^{-1} 2 + \tan^{-1} 3 = \pi$

9). Prove that $\sin^{-1} 2a/(1+a^2) - \cos\text{-}1(1-b^2/1+b^2) = 2\tan^{-1}x$

10). Solve for x $\sin^{-1}(1-x) - 2\sin^{-1}x = \pi/2$.

11).Find the value of : $\tan^{-1}(x/y) - \tan^{-1}(x-y)/(x+y)$.

12).Evaluate : $\tan(\sin^{-1} 3/5 + \cot^{-1} 3/2)$.

13).If $\sin(\sin^{-1} 1/5 + \cos x)=1$, then find the value of x.

14). Prove that $\tan^{-1} 1/2 + \tan^{-1} 1/3 = \pi/4$.

15).Write the Simplest form: $\tan^{-1}(\cos x/(1+\sin x)$.

16).Show that $\tan(1/2 \sin^{-1} 3/4) = (4-\sqrt{7})/3$.

17).Prove that $2\tan^{-1} 1/2 + \tan^{-1} 1/7 = \tan^{-1} 31/17$.

18).Prove that $\cot^{-1} 7 + \cot^{-1} 8 + \cot^{-1}18 = \cot^{-1} 3$.

Ch-5-DERIVATIVE

ASSIGNMENT : IMPORTANT QUESTION FOR BOARD EXAMINATION

1. $\tan^{-1}(2^{x+1}/1-4^x)$.
2. If $x\sqrt{(1+y)} + y\sqrt{(1+x)}=0$ prove that $dy/dx = -1/(x+1)^2$
3. If $\cos^{-1}(x^2-y^2)/(x^2+y^2) = \tan^{-1}a$,prove that $dy/dx=y/x$
4. If $\sqrt{(1-x^6)}+\sqrt{(1-y^6)} = a(x^3-y^3)$,prove that $dy/dx = x^2/y^2\ \sqrt{\{(1-y^6)/(1-x^6)\}}$.
5. If $x^2+y^2=t-1/t$ and $x^4+y^4 = t^2+1/t^2$,then prove that $dy/dx = 1/x^3.y$.
6. If $x^y = e^{x-y}$,prove that $dy/dx = \log x/(1+\log x)^2$

7. If $y=\sin^{-1}(3\sin x+4\cos x)/5$
8. If $\sin^{-1}(x^2-y^2)/(x^2/+y^2)=c$, prove that $dy/dx=y/x$
9. If $x+y=0,x$,then prove that $dy/dx= -1/(1+x)^2$
10. If $\sqrt{}(1-x^2) + \sqrt{}(1-y^2) = a(x-y)$, prove that $dy/dx=a(x-y)$,prove that $dy/dx=\sqrt{}\{(1-y^2)/1-x^2\}$
11. If $x\sin(a+y)+ \sin a\cos(a+y)=0$,prove that $dy/dx= \sin^2(a+y)/\sin a$
12. If $\sqrt{}(1-x^6)+ \sqrt{}(1-y^6)=a(x^3-y^3)$,prove that $dy/dx= x^2/y^2(\sqrt{}(1-y^6)/(1-x^6))$.
13. If $\tan^{-1}(y/x)=\log(\sqrt{}x^2+y^2)$, prove that $dy/dx= (x+y)/(x-y)$.
14. If $e^x+e^y=e^{x+y}$,prove that $dy/dx= -e^{y-x}$.
15. If $x^y= e^{x-y}$,prove that $dy/dx=\log x/(1+\log x)^2$
16. If $x^p y^q=(x+y)^{p+q}$,prove that $dy/dx= y/x$
17. If $(\sin x)^x + (\cos x)^{\tan x}$, find dy/dx.
18. If $x^y= e^{x-y}$,prove that $dy/dx= \log x/(\log xe)^2$.
19. If $y^x=e^{y-x}$,prove that $dy/dx= (1+\log y)^2/\log y$.
20. If $x^y=y^x$,prove that $dy/dx= y(x\log y-y)/x(y\log x-x)$.
21. If$(x-y) e^{(x/(x-y))}=a$, prove that $y\, dy/dx+x=2y$.
22. If $x=a\sin 2t(1+\cos 2t)$ and $y=b\cos 2t(1-\cos 2t)$, show that $(dy/dx)_{t=\pi/4}=b/a$.
23. If $x=e^{\cos 2t}$ and $y=e^{\sin 2t}$,prove that $dy/dx= -y\log x/x\log y$.
24. If $x=\sqrt{}(a^{\sin^{-1}t})$and $y=\sqrt{}(a^{\cos^{-1}t})$, show that $dy/dx= -y/x$.
25. If $x=3\sin t-\sin 3t, y=3\cos t-\cos 3t$,find dy/dx at $t= \pi/3$.

SUB: BIOLOGY-044

A- CHAPTER WISE ASSIGNMENT

Chapter 1 Sexual Reproduction in Flowering Plants

Q1.Draw the diagram of a mature embryo sac and show its 8-nucleate, 7-celled and show the following parts: antipodals, synergids, egg, central cell, polar nuclei.

Q2.List three strategies that a bisexual chasmogamous flower can evolve to prevent self pollination (autogamy).

Q3.Are parthenocarpy and apomixis different phenomena? Discuss their benefits.

Q4.Define Apomixis.

Q5. Write the difference between xenogamy and geitonogamy.

Chapter 2 Human Reproduction

Q1.What is the difference between a primary oöcyte and a secondary oöcyte?

Q2.How does zona pellucida of ovum help in preventing polyspermy?

Q3.What is foetal ejection reflex? Explain how it leads to parturition?

Q4.What are the events that take place in the ovary and uterus during follicular phase of the menstrual cycle.

Q5.Meiotic division during oogenesis is different from that in spermatogenesis. Explain how and why?

Chapter 3 Reproductive Health

Q1.Suggest some important steps that you would recommend to be taken to improve the reproductive health standards in India.

Q2.What are the probable factors that contributed to population explosion in India?

Q3.What are the conditions in which medical termination of pregnancy is advised?

Q4.Comment on the essential features required for an ideal contraceptive. Q5.Do you justify the statutory ban on amniocentesis in our country? Give reasons.

Do the above assignment in biology classwork note book.

Learn April and May syllabus.

B-Investigatory Project (any one)

1. Polycystic ovarian syndrome
2. Chromosomal disorder
3. Cystic fibrosis
4. Operon concept
5. AIDS
6. COVID -19
7. Immunity
8. Auto immune disease(Rheumatoid arthritis)
9. Drugs and their abuse
10. Microbes in human welfare
11. Cancer
12. DNA fingerprinting and it's applications
13. Malaria: Treatment and prevention

Attach case study with investigatory project.

SUB: PHYSICAL EDUCATION-048

Do in lab manual

•Practical 1: Fitness test (SAl Khelo India Test)

•Practical 2: Procedure for Asanas, Benefits and contraindications for any two asanas for each lifestyle disease.

•Practical 3: Volleyball

i) History

ii) Rules

iii) Skills

iv) Terminologies

v) Labelled diagram of field and equipments

vi) Famous personality

vii) Awards name

•Learn chapter = 1,2 and 3

SUB: HINDI CORE-302

ग्रीष्म अवकाश गृह कार्य

प्रश्न 1 आपकी पाठ्यपुस्तक में सम्मिलित किसी एक कवि/ कवयित्री के व्यक्तित्व एवं कृतित्व पर प्रकाश डालते हुए सचित्र एक प्रोजेक्ट फाइल तैयार कीजिए ।

प्रश्न 2 निम्नलिखित अप्रत्याशित विषयों पर 150 शब्दों में लेख लिखिए

(क) दान मनुष्य को श्रेष्ठ बनाता है।

(ख) मीडिया हमें भ्रमित करती है।

प्रश्न 3 हिन्दी भाषा के सम्मान पर आधारित किन्हीं दो कविताओं का सचित्र वर्णन कीजिए।

प्रश्न 4 पाठ्य पुस्तक में कराया गया संपूर्ण कक्षा कार्य याद करें।

निर्देश- सभी प्रश्नों के उत्तर रंगीन A4 शीट पर लिखकर एक फाइल तैयार कीजिए।

SUB: PAINTING-049

- Visit the National Museum and National Gallery of Modern Art (NGMA) and collect data from the artifacts and paintings of your course of study.
- Do sketch any one artifact from these museums and do it on your practice art file.
- Complete your portfolio: 4 still life drawings and 4 landscape/composition drawings on A2 size pages.

SUB: COMPUTER SCIENCE

Do given practical questions and take printout.

1) Write a program to print grades for the students according to the marks.

Marks	Grades
>=90.	A
>=80.	B
>=70.	C
>=60.	D
>=40.	E
<40.	Fail

2) Write a program to perform Arithmetic operations.
3) Write a program to accept three integers and print the largest of the three.
4) Write a program to calculate and print roots of a quadratic equation.
5) Write a program to search for an element in a given list of Numbers.
6) Write a Python program to display a menu for calculating area of rectangle and area of square.
7) Write a user defined function CountH() in Python that displays the number of lines starting with 'H' in the file.
8) Write a function countmy() in Python to read the text file "Data.Txt" and count the number of times "my" occurs in the file.
9) Write a program to compute the Total salary of the employee and also calculate the size of the binary file named "empfile.dat.