

Assignment (2023-24)

Class : XI (Science)

English (301)

Collect samples of Advertisements (atleast 4 advertisements for each type/kind) from English newspapers and paste in different pages of a scrapbook. Cover and decorate the scrapbook and mention your Name, Class, Section and UID. It should contain all the following types of Advertisements:

- Situation Vacant
- Situation Wanted
- Sale and Purchase (Property, Vehicle and Household Goods in separate pages)
- To Let
- Educational Institutions
- Lost and Found
- Tours and Travels
- Matrimonials
- Change of Name/ Address
- Display/Commercial Advertisement

Physics (042)

Prepare a PPT (Power Point Presentation) on 'Kinetic Theory of Gases' and 'Thermal Properties of Matter'. Group Leader of each group comprising of 5 students should distribute the topics to the group members and do the compilation at the end.

Topics to be included:

- Kinetic Theory of Gases:** Equation of state of a perfect gas, work done in compressing a gas. Kinetic theory of gases - assumptions, concept of pressure. Kinetic interpretation of temperature; rms speed of gas molecules; degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.
- Thermal Properties of matter:** Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity; C_p , C_v - calorimetry; change of state - latent heat capacity. Heat transfer-conduction, convection and radiation, thermal conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law.

Chemistry (043)

- Write the equilibrium constant (K_c) expression for the following reactions.
 - $\text{CH}_3\text{OH}(\text{l}) + 3/2 \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{l})$
 - $\text{C}(\text{s}) + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g})$
 - $\text{H}_2(\text{g}) + 1/2 \text{O}_2(\text{g}) \rightarrow \text{H}_2\text{O}(\text{l})$
 - $2\text{NOCl}(\text{g}) \rightarrow 2\text{NO}(\text{g}) + \text{Cl}_2(\text{g})$
 - $\text{N}_2\text{O}_4(\text{g}) \rightarrow 2\text{NO}_2(\text{g})$
- The value of K_c for the reaction $2\text{A} \rightarrow \text{B} + \text{C}$ is 2×10^{-3} . At a given time, the composition of Reaction mixture is $[\text{A}] = [\text{B}] = [\text{C}] = 3 \times 10^{-4} \text{ M}$. In which direction the reaction will proceed?

- Derive the relation between K_p & K_c .
- What is Le Chatelier's principle?
- The equilibrium constant at 298k for the reaction $\text{Cu(s)} + 2\text{Ag}^+(\text{aq}) \rightleftharpoons \text{Cu}^{2+}(\text{aq}) + 2\text{Ag(s)}$ is 2.0×10^{-15} . In a solution in which Cu has displaced some Ag ions from solution, the concentration of Ag^+ ions is $3.0 \times 10^{-9} \text{ mol/L}$. Is this System at equilibrium?

Biology (044)

- Where does Calvin cycle takes place? Describe its three phases. (Draw the cycle also)
- Explain Cyclic photophosphorylation along with its pathway.
- Represent schematically the pathway of fermentation of lactic acid.

Standard Mathematics (041)

- Make a model representing how all the four conics are formed from a cone.
- Write the definition, equations and all the terminologies related to all the four conics with diagram in a thin copy.
- $\cot x \cot 2x - \cot 2x \cot 3x - \cot 3x \cot x = 1$
- Prove that $\tan 6^\circ \tan 42^\circ \tan 66^\circ \tan 78^\circ = 1$
- Prove that $8 \cos^3 20^\circ - 6 \cos 20^\circ = 1$
- Prove that $\sin^2 24^\circ - \sin^2 6^\circ = (\sqrt{5}-1)/8$
- If $x \cos \theta = y \cos(\theta + 2\pi/3) = z \cos(\theta + 4\pi/3)$, then find the value of $xy + yz + zx$?

Economics (030)

- Calculate the coefficient of Correlation for the following Data:

Husband age	0	32	34	35	37	38	40	42	44
Wife age	22	25	27	28	29	30	31	32	33

- Determine the median graphically from the data given below:

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of Students	3	17	15	9	6	4

- Calculate the mode in following distribution by the method of grouping.

Marks	40-49	50-59	60-69	70-79	80-89	90-99
No. of Students	12	30	24	20	12	2

- Define TC, TVC, TFC and explain relationship between them with help of hypothetical schedule and diagram.
- Calculate TR, MR and AR from the following data:

Units Sold	10	9	8	7	6	5	4
Price	1	2	3	4	5	6	7

Computer Science (083)

Prepare the list of function (minimum 15) used for string manipulation with syntax and example. Also mention the application area (question related to Python programming) of those functions individually.

Informatics Practices (065)

1. Write a program to find the largest and the second largest element in a given list of elements.
2. Write a program to calculate mean of a given list of numbers.
3. Write a program that accepts elements of a list S and adds all the odd values and display sum.
4. Write a program to multiply an element by 2 if it is odd index for a given list containing both numbers and string.
5. Write a program to delete all duplicate elements in a list.

(To be done in IP practical copy)

Hindustani Music (Vocal) 034

1. Write a life Sketch of any Hindustani classical vocalist like Miyan Tansen, Pt. Vishnu Narayan Bhatkhande or PT. Vishnu Digambar Paluskar.

