

ECONOMICS

PROJECT: STATISTICAL ANALYSIS USING A SAMPLE

Choose a product/service which you use in daily life. Prepare a questionnaire to conduct a market research in your locality. The following steps should be followed while making a comprehensive report of the survey:

STEP 1: Collection of data

Data to be collected from 15-20 respondents and exact method of selection of sample to be mentioned with its merits and demerits.

STEP 2: Organization of data

Use arrays, frequency distribution charts to organise data so collected. At least 5 questions are to be included while organizing data.

STEP 3: Presentation of data

At least 5 tools are to be used while presenting the organised data. Make sure atleast 2 questions are presented in tabular form.

STEP 4: Analysis of data

Use measures of central tendency as well as measures of dispersion to analyze all 10 questions of the study.

STEP 5: Interpretation of data

The results of the study are to be concluded in a brief paragraph while summarizing the observations and suggestions to the brand/product/service for improvement.

Guidelines:

1. Format
 - TOPIC OF STUDY
 - TABLE OF CONTENTS
 - ACKNOWLEDGEMENT
 - PROJECT
 - APPENDIX (FILLED QUESTIONNAIRES)
2. Plagiarism is not allowed. Marks will not be awarded if caught.

Values inculcated:

1. **Problem Solving** - Analyse and process information
2. **Aptitude & Creative Thinking** - Information gathering skills, what to include in questionnaire, who would be the respondents
3. **Interpersonal Skills** - Meeting Respondents
4. **Analytical Skills and Decision making**- Drawing conclusions
5. **Presentation Skills**

ENGLISH

ASSIGNMENTS

Assignment 1:

Read the newspaper every day. Cut out 5 classified ads for each of the following:

- (1) For sale (property, vehicle, household goods)

- (2) To LET
- (3) Lost and Found
- (4) Situation Vacant (single vacancy)
- (5) Matrimonial

Now make these headings in your English notebook and paste the cut outs for each heading in your notebook.

Assignment 2:

Grab your copy of 'The Canterville Ghost' during these vacations. The book packs in itself a great dose of horror, humour and values. Once you are done with reading, reflect upon your reading. Then don the hat of a literary critic and write your review for 'The Canterville Ghost'. Here is a format to help you organise your thoughts:

Title:

Writer's Name:

Date of Publication:

Main Characters:

Synopsis:

Themes:

Critical Appreciation:

How many stars on 5 would you give to the book?



Why?

Assignment 3:

THE PORTRAIT OF A LADY

Short answer type questions: (3 mark each)

1. Why did the grandmother stop talking before her death?
2. "That was the turning point in our friendship." What was the turning point?
3. Describe the three phases of author's relationship with his grandmother.
4. How did the sparrows mourn the death of the grand mother?

5. The grandmother had a divine beauty. How does the author bring this out?
6. How did the relationship between the grandmother and the author change after they shifted to the city?

Long answer type questions: (6 marks)

1. The grandmother's end was as peaceful and saintly as her life. Elaborate.
2. "When pious people depart even nature mourns their death." Justify with reference to "The Portrait of the lady".

Assignment 4:

A PHOTOGRAPH

1. Read the following extract and answer the questions that follow. (1 mark each)

Now she's been dead nearly as many years
As that girl lived. And of
this circumstance There is nothing to say at all.
Its silence silences.

- a) Who is referred to here?
(1)
- b) What does "This Circumstance" stand for?
(1)
- c) What does "Its silence silences" mean?
(1)

2. Read the following extract and answer the questions that follow. (1 mark each)

All three stood still to smile
through their hair.
At the uncle with the camera. A sweet face,
My mother's, that was before I was born,
And the sea, which appears to have
Changed less,
Washed their terrible transient feet.

- a) What do all the three stand for?
- b) What does the sea appear to do them?

c) What has not changed?

3. Read the following extract and answer the questions that follow. (1 mark each)

The sea holiday was her past ,
Mine is her laughter.
Both wry with the laboured ease of loss.

- (i) Who is 'her'?
- (ii) What are her past and mine?
- (iii) Explain "Both wry with the laboured loss of ease".

Assignment 5:

WE'RE NOT AFRAID TO DIE...IF WE CAN ALL BE TOGETHER

Short questions (3 marks each)

1. "I had no time to worry about bumped heads", said Gordon Cook. What problems do you think deserved his immediate attention?
2. How did Larry and Herb help during the crucial hours?
3. How did little Jonathan react to the desperate situation they found themselves in on January 05?
4. What was the Isle Amsterdam? Why does the author call it the most beautiful island in the world?

Long questions: (6 marks each)

1. As an intelligent and receptive reader what qualities of character did you imbibe from the story 'We Are Not Afraid to Die...' (value based question)
2. What impression do you form of the narrator on the basis of reading 'We're Not Afraid to Die...'?

MATHEMATICS

ASSIGNMENT

UNIT -1, SETS

KEY POINTS

- A set is a well-defined collection of objects.
- There are two methods of representing a set :-
 - a) Roster or Tabular form.
 - b) Set-builder form or Rule method.
- Types of sets :-
 - a) Empty set or Null set or void set
 - c) Finite set
 - d) Infinite set
 - e) Singleton set
- Subset : - A set A is said to be a subset of set B if $a \in A \Rightarrow a \in B, \forall a \in A$
- Equal sets : - Two sets A and B are equal if they have exactly the same elements i.e $A = B$ if $A \subset B$ and $B \subset A$
- Power set : - The collection of all subsets of a set A is called power set of A, denoted by $P(A)$ i.e $P(A) = \{B : B \subset A\}$
- If A is a set with $n(A) = m$ then $n[P(A)] = 2^m$.

Types of Intervals : Open Interval $(a,b) = \{x \in \mathbb{R} : a < x < b\}$

Closed Interval $[a, b] = \{x \in \mathbb{R} : a \leq x \leq b\}$

Which of the following are sets? Justify your answer.

1. The collection of all the months of a year beginning with letter M.
2. The collection of difficult topics in Mathematics.

Let A = (1,3,5,7,9). Insert the appropriate symbol \in or \notin in blank spaces : - (Question – 3-4)

3. $2 \text{ — } A$
4. $5 \text{ — } A$
5. Write the set $A = \{x : x \text{ is an integer, } -1 \leq x < 4\}$ in roster form
6. List all the elements of the set.

$$A = \left\{x : x \in \mathbb{Z}, -\frac{1}{2} < x < \frac{11}{2}\right\}$$
7. Write the set $B = (3,9,27,81)$ in set-builder form.
 Which of the following are empty sets? Justify. (Question – 8-9)
8. $A = \{x : x \in \mathbb{N} \text{ and } 3 < x < 4\}$
9. $B = \{x : x \in \mathbb{N} \text{ and } x^2 = x\}$

Values inculcated:

1. **Problem Solving** - Analyse and process information
2. **Aptitude** - Information gathering skills
3. **Practical application of concepts**

BIOLOGY

Prepare the survey report on the topics allotted in the class in the given format:

1. Aim
2. Content/ Index
3. Survey questionnaire (survey to be conducted on group size of atleast 50)
4. Analysis of each question of the survey.
5. Final conclusion report of the survey conducted
6. Suggestions for improvement
7. Bibliography

COMPLETE THE GIVEN ASSIGNMENT

1. Name the four layers of GIT, and describe their function.
2. Where along the GIT is the muscularis composed of skeletal muscle?
3. Name the different types of salivary glands present in buccal cavity, along with their location.
4. Describe the duct system connecting pancreas to the duodenum.
5. What are the pancreatic acini? How does their function differ from that of pancreatic islets?
6. What role do the components of pancreatic juice play in the process of digestion?
7. What is the composition and function of bile?
8. By what route do the absorbed nutrients reach the liver?
9. What is the difference between the process of digestion and absorption? How are the end products of carbohydrate, protein and lipids absorbed?
10. In what ways are the mucosa and Submucosa of small intestine adapted for digestion and absorption?
11. Name the major enzymes, along with their substrates that are secreted in small intestine and stomach.
12. Draw a well labeled diagram of a canine. Mention the function of each part.
13. What do you understand by the term 'heart burn'?
14. With the help of labeled diagram, describe the structure of liver lobule.
15. Describe the type of dentition present in humans.
16. How does HCl in stomach initiate protein digestion?

17. How do chylomicrons differ from micelles w.r.t. their structural component?
18. Name and mention the function of each of the three major kinds of cells in the gastric glands.
19. How is the nucleic acid fraction of our food digested?
20. How does human adult digest milk proteins and milk sugar?
21. What is rennin? What is its function?
22. How is our gut lining protected from its own secretion of proteases?

Values inculcated:

1. **Artistic skills**- Drawing and Reading
2. **Thinking Skills** - Reflection at personal knowledge level
3. **Aptitude** - Information gathering skills

PHYSICS

Prepare one Investigatory Project on any one of the following topic or any other topic of your choice based on concept of physics (as per CBSE guidelines).

POINTERS FOR MAKING PROJECT REPORT

The material should be placed and bound in the following order:

1. Top Sheet of transparent plastic –The top page of your report should carry the following information in printed form or handwritten in neat block letters:

Title of Project:

Name of Student:

Roll Number:

2. Aim of Project

3. Apparatus required

4. Principle/theory

5. Construction with labeled diagram

6. Working

7. Observations

8. Calculations

9. Result/ Conclusions

10. Applications

11. Graphs if any

12. References/bibliography

13. Back cover of plastic: may be opaque or transparent

List of Investigatory Projects

1. To demonstrate that a centripetal force is necessary for moving a body with a uniform speed along a circle, and that the magnitude of this force increases with increase in angular speed.
2. To demonstrate inter-conversion of potential and kinetic energy.
3. To demonstrate conservation of linear momentum.
4. To demonstrate the law of moments.
5. To demonstrate the effect of angle of launch on range of a projectile.
6. To demonstrate that the moment of inertia of a rod changes with the change of position of a pair of equal weights attached to the rod.
7. To study variation of volume of a gas with its pressure at constant temperature using a doctors' syringe.
8. To demonstrate Bernoulli's theorem with simple illustrations
9. To demonstrate free oscillations of different vibrating systems.
10. To demonstrate resonance with a set of coupled pendulums.
11. To demonstrate longitudinal and transverse waves.
12. To demonstrate resonance using an open pipe.

Values inculcated:

1. **Decision Making** - Which project to choose, analysing pros and cons
2. **Creative Thinking**
3. **Presentation skills** - Presenting gathered info in a format
4. **Aptitude** - Learning a concept and practical applications of the same

CHEMISTRY

General Instructions:-

1. A copy of this assignment should be pasted in the classwork register.
 2. All the questions should be solved in the register.
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1. Explain the use of limiting and excess reagents in a chemical reaction.
 2. 2.16 g of Cu metal, when treated with HNO_3 followed by ignition of the nitrate gave 2.7 g of copper oxide. In another experiment, 1.15 g of copper oxide upon reduction with hydrogen gave 0.92 g of copper. Show that the above data illustrates the law of definite proportions.
 3. What volume of oxygen at STP is required to effect complete combustion of 200 cc of acetylene? What would be the volume of CO_2 formed?

4. Copper forms two oxides. On heating 1 g of each in hydrogen gave 0.888 g and 0.799 g of the metal respectively. Show that these results agree with the law of multiple proportions.
5. Which of the following has maximum number of moles?
 - (i) 50 g Fe
 - (ii) 5 atoms of nitrogen
 - (iii) 1×10^{23} atoms of carbon
6. Calculate the amount present in grams in:
 - (i) 0.75 gram atoms of sulphur
 - (ii) 2.5 gram atoms of phosphorous
7. Calculate the number of molecules present in 280 mL of oxygen at STP.
8. Calculate the number of molecules in a drop of water weighing 0.05 g.
9. 3 g of H_2 reacts with 24 g of O_2 to form water.
 - (i) Which of the two is the limiting reagent?
 - (ii) Calculate the maximum amount of water that can be formed.
 - (iii) Calculate the amount of the reactant left unreacted.
10. What mass of slaked lime would be required to decompose 4 g of NH_4Cl completely? What would be the mass of each product?
11. A solution is prepared by dissolving 18.25 g of NaOH in distilled water to give 200 cc of the solution. Calculate the molarity of the solution.
12. Concentrated aqueous sulphuric acid is 98 % pure by mass and has a density of 1.84 g/cc. What volume of conc. acid is required to make 5 L of 0.5 M H_2SO_4 solution?
13. How many moles and grams of NaCl are there in 250 cc of a 0.5 M NaCl solution?
14. 0.1931 g of diamond gave 0.704 g of CO_2 on complete combustion. Calculate the %age purity of diamond.
15. Calculate the empirical and molecular formula of the compound from the following data:
 - (i) C= 34.6 %, H= 3.84 % and O= 61.56 % (Molar mass = 104)
 - (ii) C= 54.2 %, H= 9.2 % and O= 36.6 % (Molar mass = 88)
16. Solution A contains 10 g of glucose dissolved in 250 mL of water and solution B contains 30 g of sugar dissolved in 500 mL of water. Compare their molarities.
17. A commercially available sample of H_2SO_4 has a composition of 15 % H_2SO_4 by mass. The density of the solution is 1.10 g/mL. Calculate molarity, molality and normality.
18. Methane burns in oxygen to form CO_2 and H_2O . Write a balanced equation for the reaction and calculate:
 - (i) How much amount of CO_2 and H_2O are formed when 8 g of methane reacts with oxygen?
 - (ii) Which is the limiting reagent when the above amount of methane reacts with 29 g of O_2 ?
19. A compound on analysis gave the following data:
 Na = 14.31 %, S = 9.97 %, H = 6.22 % and the rest is oxygen. Find out the molecular formula of the compound assuming that the hydrogen in the compound is present in combination with oxygen as water of crystallization. Given that the molar mass of the compound is 322 g.
20. How much $KClO_3$ should be heated to produce 2.24 L of oxygen at STP?

Following is a list of few suggested investigatory projects. Prepare a project report on any one of the topics:

1. Study of the presence of oxalate ions in guava fruit at different stages of ripening.
2. Study of quantity of casein present in different samples of milk.

3. Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.
4. Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, concentration, time, etc.)
5. Study of digestion of starch by salivary amylase and effect of pH and temperature on it.
6. Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc.
7. Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamom).
8. Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper.
9. Study of the methods of purification of water.
10. Testing the hardness, presence of Iron, Fluoride, Chloride, etc., depending upon the regional variation in drinking water and study of causes of presence of these ions above permissible limit (if any).
11. Investigation of the foaming capacity of different washing soaps and the effect of addition of Sodium Carbonate on it.
12. Study the acidity of different samples of tea leaves.
13. Determination of the rate of evaporation of different liquids.
14. Study the effect of acids and bases on the tensile strength of fibers.
15. Study of acidity of fruit and vegetable juices.

Values inculcated:

1. **Thinking Skills** - Reflection at personal knowledge level
2. **Aptitude** - Information gathering skills and enhancement of knowledge
3. **Problem Solving** - Analyse and process information

PSYCHOLOGY

Q1.) Develop a case profile of an individual exhibiting any of the following;

- Excelling in areas such as sports, academics, music etc.
- Individual with special needs such as Down Syndrome, Asperger's syndrome, autism spectrum disorder, mental retardation or learning disability
- An individual facing stress, interpersonal problem or any other problem such as obesity, substance abuse etc.

Q2.) Select five vocations and gather information about the nature of work done by people in these five vocation and the varying aptitude required for reach. Also analyse these vocations in terms of the types of psychological attributes required for successful performance.

Q3.) Make a list of movies, TV shows, or plays you have seen where a particular psychological disorder has been highlighted. Match the symptoms to the ones you have read. Prepare a report.

Q4.) With the understanding and knowledge of environmental psychology, how will you make people adopt environment supportive practices in their daily life?

Q5.) Differentiate between school psychology and educational psychology.

Values inculcated:

1. **Interpersonal Skills**
2. **Practical application of the Subject**
3. **Creative Thinking**
4. **Empathy** - Understanding others, Stress, Emotions
5. **Understanding Psychological attributes**

COMPUTER SCIENCE

A. THEORY ASSIGNMENT

Chapter 5- OOPS Concept

Q1.What do you understand by programming paradigm?

Q2.Explain the characteristics of procedural paradigm.

Q3.What is a Module? What is modular programming paradigm?

Q4.What is an object? What is a class? How is an object different from a class ?

Q5.What is Object Oriented Programming paradigm? Name the four basic concepts of OOP.

Q6.Explain the following: (give examples)

- 1) Data Abstraction
- 2) Data Encapsulation
- 3) Inheritance
- 4) Polymorphism

Q7.What are the advantages offered by inheritance?

Q8.How are the two terms 'Abstraction' and 'Encapsulation' related?

Q9.How does OOP overcome the shortcomings of traditional programming approaches?

B. PRACTICAL ASSIGNMENT (Do in Practical File)

Prac 1: Write a program to accept the temperature in Celsius and convert it into Fahrenheit.

Prac 2: Write a program to input the principal, rate and time from the user and calculate the simple interest.

Prac 3: Write a program to accept the basic salary from the user and calculate the net salary.

The net salary is calculated using the formula:

$$\text{Netsalary} = \text{Basic} + \text{HRA} + \text{DA} - \text{PF}$$

HRA is 40% of the basic salary

DA is 33% of the basic salary

PF is 12% of basic salary

C. PROJECT ASSIGNMENT

Object Oriented Programming is real world programming in which the whole world is divided in the form of classes and objects. Each class has some characteristics and can perform functions. The emphasis is given to data rather than functions. The following are some real world applications that we see in our daily life.

1. Hospital
2. School
3. Library
4. Bank
5. Railway
6. Shopping Mall
7. Employee
8. Tours and Travels

As a programmer your task is to divide the entities in terms of classes and objects and find out their characteristics and behavior.

After your extensive search prepare a report on the project allotted to you. Take printouts of the synopsis reports which contains

1. Introduction
2. List of Entities
3. Characteristics and behavior of each entity.

4. Sample data in tabular form

SAMPLE REPORT

PROJECT: LIBRARY MANAGEMENT SYSTEM

ENTITIES:- BOOK, MEMBERS

ENTITY 1:- BOOK

Characteristics(Data):- Accession No, Bookname, Author, Publisher, Prices, No_Of_Pages, Edition etc.

Behaviour(Functions):-

Addition of book_detail, Modification of book_detail, Deletion of book_detail

Issue:- To issue a book,

Return:- To return a book

ENTITY 2:- MEMBERS

Characteristics (Data):- Member_id, name, address, book_no_issued, date_of_issue, date_of_return etc.

Behaviour (Functions):-

Addition of member_detail, Modification of member_detail, Deletion of member_detail

Note:

1. **For better understanding of the needs of the application area, you can visit the respective area and collect the details.**

Values inculcated:

1. **Aptitude** - Knowledge enhancement
2. **Creative Thinking and Problem Solving** - Writing a program
3. **Real life application of concepts**