



The Laurence School, Lovedale

HOLIDAY ASSIGNMENT - JUNE 2025

CLASS XI

ENGLISH

1. Literary Analysis and Comprehension: Choose a short story from your text book Hornbill, Snapshots or any other book of your choice and complete the following task- (350 words)

- **Theme Exploration:** Discussing themes or ideas presented in it.
- **Character Analysis:** Analyzing two main characters from the text.
- **Literary Devices:** Identifying and analyzing literary devices used in the text.

2. Newspaper Reading and Article Collection: (200 words)

- **Collecting Articles:** Collecting and analyzing newspaper articles (at least two from the editorial page of any national daily) and summarizing them in a concise manner.

3. Watching TED Talks: Watching TED Talks (any two) and writing short reflections on them. (150 words each)

PS- All of the above to be done on project papers, put into a folder and to be submitted on the first day after vacation ends.

BUSINESS STUDIES

PROJECT WORK IN BUSINESS STUDIES FOR CLASS XI Introduction

The course in Business Studies is introduced at Senior School level to provide students with a sound understanding of the principles and practices bearing in business (trade and industry) as well as their relationship with the society. Business is a dynamic process that brings together technology, natural resources and human initiative in a constantly changing global environment. With the purpose to help them understand the framework within which a business operates, and its interaction with the social, economic, technological and legal environment, the CBSE has introduced Project Work in the Business Studies Syllabus for Class XII. The projects have been designed to allow students to appreciate that business is an integral component of society and help them develop an understanding of the social and ethical issues concerning them.

The project work also aims to empower the student to relate all the concepts with what is happening around the world and the student's surroundings, making them appear more clear and contextual. This will enable the student to enjoy studies and use his free time effectively in observing what's happening around.

By means of Project Work the students are exposed to life beyond textbooks giving them opportunities to refer materials, gather information, analyze it further to obtain relevant information and decide what matter to keep.

Objectives

After doing the Project Work in Business Studies, the students will be able to do the following:

- develop a practical approach by using modern technologies in the field of business and management;
- get an opportunity for exposure to the operational environment in the field of business management and related services.
- inculcate important skills of team work, problem solving, time management, information collection, processing, analysing and synthesizing relevant information to derive meaningful conclusions
- get involved in the process of research work; demonstrate his or her capabilities while working independently and
- make studies an enjoyable experience to cherish.

MANDATORY

- **PRIMARY RESEARCH AND SECONDARY RESEARCH**
- **PICTURES, TOOLS, CASE STUDIES ETC**

I. Project One: Field Visit

The objective of introducing this project among the students is to give a first hand experience to them regarding the different types of business units operating in their surroundings, to observe their features and activities and relate them to the theoretical knowledge given in their text books. The students should select a place of field visit from the following: – (Add more as per local area availability.)

1. Visit to a Handicraft unit.
2. Visit to an Industry.
3. Visit to a Whole sale market (vegetables, fruits, flowers, grains, garments, etc.)
4. Visit to a Departmental store.
5. Visit to a Mall.

The following points should be kept in mind while preparing this visit.

Select a suitable day free from rush/crowd with lean business hours.

1. Visit to be discussed with the students in advance. They should be encouraged to prepare a worksheet containing points of observation and reporting.
2. Students may carry their cameras (at their own risk) with prior permission for collecting evidence of their observations.

1. Visit to a Handicraft Unit

The purpose of visiting a Handicraft unit is to understand nature and scope of its business, stake holders involved and other aspects as outlined below

- a) The raw material and the processes used in the business: People /parties/firms from which they obtain their raw material.
- b) The market, the buyers, the middlemen, and the areas covered.
- c) The countries to which exports are made.
- d) Mode of payment to workers, suppliers etc.
- e) Working conditions.
- f) Modernization of the process over a period of time.
- g) Facilities, security and training for the staff and workers.
- h) Subsidies available/ availed.
- i) Any other aspect that the teachers deem fit.

2. Visit to an Industry.

The students are required to observe the following:

Nature of the business organisation.

- a) Determinants for location of business unit.
- b) Form of business enterprise: Sole Proprietorship, Partnership, Undivided Hindu Family, Joint Stock Company (a Multinational Company).
- d) Different stages of production/process
- e) Auxiliaries involved in the process.
- f) Workers employed, method of wage payment, training programmes and facilities available.
- g) Social responsibilities discharged towards workers, investors, society, environment and government.
- h) Levels of management.
- i) Code of conduct for employers and employees.
- j) Capital structure employed- borrowed v/s owned.
- k) Quality control, recycling of defective goods.
- l) Subsidies available/availed.
- m) Safety Measures employed.
- n) Working conditions for labour in observation of Labour Laws.
- o) Storage of raw material and finished goods.
- p) Transport management for employees, raw material and finished goods.
- q) Functioning of various departments and coordination among them (Production, Human Resource, Finance and Marketing)
- r) Waste Management.
- s) Any other observation.

3. Visit to a whole sale market: vegetables/fruits/flowers/grains/garments etc.

The students are required to observe the following:

- a) Sources of merchandise.
- b) Local market practices.
- c) Any linked up businesses like transporters, packagers, money lenders, agents, etc.
- d) Nature of the goods dealt in.
- e) Types of buyers and sellers.
- f) Mode of the goods dispersed, minimum quantity sold, types of packaging employed.
- g) Factors determining the price fluctuations.
- h) Seasonal factors (if any) affecting the business.
- i) Weekly/ monthly non-working days.
- j) Strikes, if any- causes thereof.
- k) Mode of payments.
- l) Wastage and disposal of dead stock.
- m) Nature of price fluctuations, reason thereof.
- n) Warehousing facilities available\availed.
- o) Any other aspect.

4. Visit to a Departmental store

The students are required to observe the following: a) Different departments and their lay out.

- b) Nature of products offered for sale.
- c) Display of fresh arrivals.
- d) Promotional campaigns.
- e) Spaces and advertisements.
- f) Assistance by Sales Personnel.
- g) Billing counter at store – Cash, Credit Card/ Debit Card, swipe facility. Added attractions and facilities at the counter.
- h) Additional facilities offered to customers
- i) Any other relevant aspect.

5. Visit to a Mall.

The students are required to observe the following:

- a) Number of floors, shops occupied and unoccupied.
- b) Nature of shops, their ownership status
- c) Nature of goods dealt in: local brands, international brands,
- d) Service business shops- Spas, gym, saloons etc.
- e) Rented spaces, owned spaces,
- f) Different types of promotional schemes.
- g) Most visited shops.
- h) Special attractions of the Mall- Food court, Gaming zone or Cinema etc. i) Innovative facilities.
- j) Parking facilities. Teachers may add more to the list.

II. Project Two: Case Study on a Product

a) Take a product having seasonal growth and regular demand with which students can relate. For example,

- Apples from Himachal Pradesh, Kashmir.
- Oranges from Nagpur,
- Mangoes from Maharashtra/U.P./Bihar/Andhra Pradesh etc.
- Strawberries from Panchgani,
- Aloe vera from Rajasthan,
- Walnuts/almonds from Kashmir,
- Jackfruit from South,
- Guavas from Allahabad,
- Pineapples from North East India,
- Tea from Assam,
- Orchids from Sikkim and Meghalaya,
- Pottery of Manipur,
- Fishes from coastal areas.

Students may develop a Case Study on the following lines:

- (i) Research for change in price of the product. For example, apples in Himachal Pradesh during plucking and non plucking season.
- (ii) Effect on prices in the absence of effective transport system.
- (iii) Effect on prices in the absence of suitable warehouse facilities.
- (iv) Duties performed by the warehouses.
- (v) Demand and supply situation of the product during harvesting season, prices near the place of origin and away.

Students may be motivated to find out the importance of producing and selling these products and their processed items along with the roles of Transport, Warehousing, Advertising, Banking, Insurance, Packaging, Wholesale selling, Retailing, Co-operative farming, Co-operative marketing etc.

III. Project Three: Aids to Trade

Taking any one AID TO TRADE, for example Insurance and gathering information on following aspects

1. History of Insurance Lloyd's contribution.
2. Development of regulatory Mechanism.
3. Insurance Companies in India
4. Principles of Insurance.
5. Types of Insurance. Importance of insurance to the businessmen.
6. Benefits of crop, orchards, animal and poultry insurance to the farmers.
7. Terminologies used (premium, face value, market value, maturity value, surrender value) and their meanings.
8. Anecdotes and interesting cases of insurance. Reference of films depicting people committing fraudulent acts with insurance companies.
9. Careers in Insurance.

IV. Project Four: Import /Export Procedure

1. Import /Export procedure

The students should identify a product of their city/country which is imported /exported. They are required to find the details of the actual import/export procedure. They may take help from the Chambers of Commerce, Banker, existing Importers/Exporters, etc.

They should find details of the procedure and link it with their Text knowledge.

The specimens of documents collected should be pasted in the Project file with brief description of each. They may also visit railway godowns/dockyards/ transport agencies and may collect pictures of the same.

V. Project Five: A visit to any State Emporium (other than your school state).

The purpose of this project is that it leads to -

Development of deeper understanding of the diversity of products in the states like Assam, Tripura, Nagaland, Mizoram, Manipur, Meghalaya, Sikkim, Arunachal Pradesh, Jammu and Kashmir, Kerala, Chhatisgarh, Telangana, Andhra Pradesh and other states of the country.

Sensitization and orientation of students about other states, their trade, business and commerce, Understanding the cultural and socio-economic aspects of the state by the students, Developing the understanding of role of folk art, artisanship and craftsmanship of the state in its growth and economic development

Understanding the role of gifts of nature and natural produce in the development of trade, business and commerce

Understanding the role of vocational skills and abilities on the livelihood of artisans/ craftsman

Understanding of entrepreneurial skills and abilities of the artisans/craftsman

Understanding of the unemployment problem of the state and role of art and craft of the state in generating employment opportunities

Value aspect -

Sense of gratitude - by appreciating the contributions made by others in the betterment of our lives

Appreciating the dignity of work

Sensitivity towards social, cultural, ethnical and religious differences Benefits of social harmony and peace

Understanding and appreciating the unity in diversity in India

Appreciating differences in race, skin colour, languages, religion, habits, festivals, clothing coexistence

Presentation and Submission of Project Report

At the end of the stipulated term, each student will prepare and submit his/her project report.

Following essentials are required to be fulfilled for its preparation and submission.

1. Nature of the business organisation (emporium)
2. Determinants for location of the concerned emporium
3. Is the space rented or owned
4. Nature of the goods dealt in
5. Sources of merchandise of the emporium
6. Role of co-operative societies in the manufacturing and/or marketing of the merchandise

7. Role of gifts of nature or natural produce in the development of goods/merchandise
8. Types of buyers and sellers
9. Modes of goods dispersed, minimum quantity sold and type of carrying bag or package used for delivery of the products sold
10. Factors determining the pricing at the emporium
11. Comparison between the prices of goods available at the emporium with the prices in the open market. Also highlight probable causes of variations if any.
12. Kind of raw material available naturally, used in making the products
 13. The technique used in making the products i.e., hand made or machine made
 14. Has the child labour being used in making the products sold at the emporium
 15. Are the products eco-friendly, in terms of manufacturing, disposal and packing
 16. Seasonal factors if any affecting the business of the emporium
 17. Weekly/ Monthly non-working days
 18. Mode of billing and payments - Cash, Credit Card/ Debit Card, Swipe facility.
 19. Does the emporium sell its merchandise in installment / deferred payment basis
 20. Do they provide home delivery and after sales services.
 21. Different types of promotional campaigns / schemes
 22. Assistance by Sales Personnel
 23. Export orientation of this emporium and procedure used
 24. Policies related to damaged/ returned goods
 25. Any government facility available to the emporium
 26. Warehousing facilities available / availed
 27. Impact of tourism on the business of emporium
 28. Additional facility offered to customers
 29. Any Corporate Social Responsibility (CSR) assumed by the emporium
 30. Contribution made by the emporium to its locality

Presentation and submission of project report.

At the end of the stipulated term, each student will prepare and submit his/her project report.

Following essentials are required to be fulfilled for its preparation and submission.

1. The total project will be in a file format, consisting of the recordings of the value of shares and the graphs.
2. The project will be handwritten.
3. The project will be presented in a neat folder.
4. The project report will be developed in the following sequence-

Cover page should project the title, student information, school and year.

List of contents.

Acknowledgements and preface (acknowledging the institution, the news papers read, T.V. channels viewed, places visited and persons who have helped).

Introduction.

Topic with suitable heading.

Planning and activities done during the project, if any.

Observations and findings while conducting the project.

News paper clippings to reflect the changes of share prices.

Conclusions (summarised suggestions or findings, future scope of study).

Appendix (if needed).

Teachers report.

Teachers will initial preface page.

At the completion of the evaluation of the project, it will be punched in the centre so that the report cannot be reused but is available for reference only.

The projects will be returned after evaluation. The school may keep the best projects.

ASSESSMENT

The marks will be allocated on the following heads.

1	Initiative, cooperativeness and participation	2 Mark
2	Creativity in presentation	2 Mark
3	Content, observation and research work	4 Marks
4	Analysis of situations	4 Marks
5	Viva	8 Marks
	Total	20 Marks

Science Stream 11 B

PHYSICS

To submit a working model using any topic of interest related to physics

CHEMISTRY

To submit an investigatory project of any topic in chemistry

BIOLOGY

To submit an investigatory project of any topic in biology

ACCOUNTANCY

PROJECT WORK:

- 1) To be done in separate A4 project sheets.
- 2) No binding required. Keep it in a simple file folder together.

Question 1. Write all Journal Entries for the transactions given below for the year 2025 and post all the Journal Entries in all the required Ledger Accounts and thereafter prepare the Trial Balance from the respective Ledger Balances as calculated.

		Rs.
May 1	Amitabh started business with cash	80,000
May 2	Purchased furniture from Modern Furnishers for Cash	10,000
May 5	Deposited in Bank	30,000
May 6	Purchases goods for Cash	5,000
May 8	Purchases goods on credit from Hari	4,500
May 10	Purchases goods from Suresh for Cash	3,000
May 12	Purchases goods from Ajay	4,000
May 14	Sold goods for Cash	7,000
May 15	Sold goods to Karim	6,500
May 16	Sold goods to Ganesh for Cash	5,000
May 18	Sold goods to Bansi	3,500
May 19	Withdrew from bank for office use	5,000
May 20	Karim paid on account	5,000
May 29	Paid rent for residence	6,000
May 30	Purchased a cycle for his son	3,000
May 30	Paid to Ajay in Settlement of his account	3,800

Question 2. Write all Journal Entries for the transactions given below for the year 2025 and post all the Journal Entries in all the required Ledger Accounts and thereafter prepare the Trial Balance from the respective Ledger Balances as calculated.

		Rs.
April 1	Business started with cash	1,00,000
April 2	Goods purchased for cash	25,000
April 3	Goods purchased from Pankaj on credit	18,000
April 5	Goods sold to Naresh on credit	9,000
April 7	Goods returned to Pankaj	12,000
April 9	Goods returned by Naresh	1,400
April 10	Cash paid to Ajay	6,000
April 12	Commission received	2,700
April 15	Furniture purchased	7,000
April 16	Rent paid to Amit	5,000
April 19	Sold goods to Sumit for Cash	6,000
April 24	Cash sales	7,000
April 30	Cash received from Naresh on account	5,000
April 30	Salaries paid	10,000

GEOGRAPHY

Part A --Written Project

Make a detailed report on any of the major natural disasters in India from the given options.

- a) **Bhuj Earthquake 2001**
- b) **2004 Indian Ocean Tsunami**
- c) **Uttarakhand Flash flood 2013**
- d) **Odisha Super Cyclone 1999**

The report should follow the below sequence of headings:

- I) *Introduction*
- II) *Factors leading to the disaster (Should involve the physical factors/forces and the role of human activities)*
- III) *Extent of Damage (Should cover the areas affected, damages to life and property).*
- IV) *Disaster Mitigation (Should focus on disaster preparedness)*
- V) *Conclusion/ Way forward*

Part B – Map Work

Make maps on the following themes:

- a) **Seismic Zones Map:** Illustrates the earthquake risk zones across India.
- b) **Flood-Prone Areas Map:** Highlights regions in India with high flood vulnerability.
- c) **Cyclone-Prone Areas Map:** Shows areas frequently affected by cyclones in India
- d) **Drought-Prone Regions Map:** Depicts areas with recurring drought conditions across India

Instructions:

A) For Written Work

- **The report is to be hand written and not to be copied from internet sources.**
- **It should not be more than 1000 words.**
- **Include any of the art forms into the topic (documents, designs with colors, sketching, painting, photographs, infographics etc)**

B) For Map Work

- **Use Clear Labels:** Ensure all zones and regions are clearly labeled.
- **Color Coding:** Apply distinct colors for each hazard zone for easy identification.
- **Accuracy:** Refer to official maps and resources for precise information.
- **Include Legends in maps.**

HISTORY

FEW SUGGESTIVE TOPICS FOR CLASS XI PROJECTS

- 1) Facets of the Industrialization in sixteenth- eighteenth centuries.
- 2) Crusades: causes; rationale; events; outcomes; Holy Alliance
- 3) Ancient History in depth: Mesopotamia
- 4) Greek Philosophy and City States
- 5) Contributions of Roman Civilization
- 6) The spirit of Renaissance: Manifestation in art; Literature; Sculpture; Influence on Trading Community; Social Fabric; Philosophy; Political Values; Rational Thinking; Existentialism
- 7) Aspects of Development -South American States /Central American States
- 8) Different schools of thoughts- Realism: Humanism: Romanticism
- 9) Piecing together the past of Genghis Khan
- 10) Myriad Realms of Slavery in ancient, medieval, and modern world
- 11) History of Aborigines – America /Australia
- 12) Facets of Modernization – China /Japan/Korea

given below: - Guidelines for History Project Work: 20 Marks One Project to be done as per the existing scheme.

1. Steps involved in the conduct of the project: Students may work upon the following lines as a suggested flow chart: Choose a Title/Topic Need of the Study, Objective of the Study Hypothesis Content -Timeline, Maps, Mind maps, Pictures, etc. (Organization of Material/Data Present Material/Data) Analyzing the Material/Data for Conclusion Draw the Relevant Conclusion Bibliography

2. Expected Checklist for the Project Work: • Introduction of topic/title • Identifying the causes, events, consequences and/or remedies • Various stakeholders and effect on each of them • Advantages and disadvantages of situations or issues identified • Short-term and long-term implications of strategies suggested during research • Validity, reliability, appropriateness, and relevance of data used for research work and for presentation in the project file • Presentation and writing that is succinct and coherent in project file • Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc. 3. Assessment of Project Work: • Project Work has broadly the following phases: Synopsis/ Initiation, Data Collection, Data Analysis and Interpretation, Conclusion. •

PROJECT GUIDELINES

- The student is required to do a project on a landmark judgement by the Supreme Court.
- The student is required to prepare and present the project in the form of a power-point presentation.
- The presentation is to be shared with me on divyanka@thelawrenceschool.org by July 20, 2025.
- The topics for the project are as follows:
 - i. Aarav Deo – Puttuswamy Case
 - ii. Satyam Kumar – Indira Sawhney Case
 - iii. Ishana Fathima – Shah Bano Case
 - iv. Tanisha – Vishaka and the State of Rajasthan
 - v. Saeed- NALSA and Union of India (2014)
 - vi. Yokesh- Kesavananda Bharati Case
 - vii. Yuvan - Aruna Shanbaug Case
- The research on the cases must include the following points:
 - i. Name of the case
 - ii. Parties to the case
 - iii. Bench
 - iv. Nature of the case (Civil, Criminal or Constitutional)
 - v. Facts of the case and issues involved
 - vi. View of the Petitioner and the Respondent
 - vii. Case Judgement
 - viii. Your Analysis of the Judgement
- The introductory slide should carry the following information:
 - i. Name of the Case
 - ii. Year
 - iii. The court where the case was decided
 - iv. Your Name
- There should be a minimum of 5 sources in the bibliography.

PSYCHOLOGY

GENERAL INSTRUCTIONS:

1. Watch the movie. The first time that you watch the movie, look for overarching themes or patterns, and establish what the film is primarily about. ...
2. Watch the movie again and take notes. ...
3. Evaluate the film's form and content. ...
4. Write your review. ...
5. Create citations. ...
6. Revise and proofread.
7. Movie could be related to the psychological issues, disorders, application of psychological principles.
8. Prepare the PPT, you could include the scenes into the PPTs.
9. You are requested to present the PPT of the movie review in the class, after the arrival to school and the same would be evaluated.
10. **Movie Review could contain the following content:**
 1. Psychological Issues covered.
 2. Age and Gender suffering from the issues.
 3. Symptoms /Clinical features
 4. Pictures of the various symptoms and disorders.
 5. Director
 6. Your take aways from the movie
 7. Impact on the society
 8. Awareness created through the movie.



ECONOMICS

GST: The One Nation, One Tax Puzzle

Imagine you're a business consultant in 2017, just after GST was launched. A small business owner is confused about how GST will change things for her.

In about 150 words, explain:

1. What GST is (in simple terms)
2. How it might affect her pricing, paperwork, and profits
3. One benefit and one challenge she might face
4. Use real-life examples or case studies if you like!
5. Use visuals like charts, infographics, or memes if you want to make your answers more creative!

REGULAR MATHEMATICS

WORK SHEET - 1

1. **Let** $A = \{1,2,3,4,5,6\}$, $B = \{2,4,6,8\}$, then find (i) $A - B$ (ii) $B - A$

2. Using Venn diagram, prove the De Morgan's law

a) $(A \cup B)' = A' \cap B'$

b) $(A \cap B)' = A' \cup B'$

3. **Let** $A = \{1,5,6\}$, $B = \{2,4,6,8\}$ find $A \times B$

4. In a school there are 20 teachers who teach mathematics or physics. Out of these 12 teach mathematics and 4 teach both physics and mathematics. How many teach physics ?

5. Write the set $A = \left\{ \begin{array}{l} x : x \text{ is a two digit natural number} \\ \text{the sum of its digits is 8} \end{array} \right\}$ in

roster form.

6. Let $A = \{1,2,3,4,\dots,14\}$. Define a relation R from A to A by $R =$

$\{(x, y) : 4x - y = 0, \text{ Where } x, y \in A\}$. Write down its domain, co-domain and range.

7. Let $A = \{1,2\}$, $B = \{1,2,3\}$. Is $A \subset B$? What is $A \cup B$?

8. Find the domain and range of $f(x) = -2|x|$

9. Find the domain and range of the function $f(x) = \sqrt{36 - x^2}$

10. write down all possible subsets of each of the following sets

i) $\{a, b, c\}$ ii) $\{1, 2, 3, 4\}$

11. If $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ and $A = \{1, 3, 5, 7, 9\}$, Find A'

12. Write the following set in the roster form $A = \{x : x^2 \leq 100, x \text{ is an integer}\}$

13. If $A = \{1, 2, 3\}$, $B = \{3, 4\}$, and $C = \{4, 5, 6\}$, Find i) $(A \times B) \cap (A \times C)$
 ii) $A \times (B \cup C)$

14. Write the set $\left\{\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}\right\}$ in the set-builder form

$$\cup = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}, A = \{1, 3, 5, 7, 9\} \text{ and } B = \{5, 10\}$$

15. Prove that i) $(A \cup B)' = A' \cap B'$
 ii) $(A \cap B)' = A' \cup B'$

16. Prove that: $\tan A + \tan(60+A) + \tan(120+A) = 3\tan 3A$

17. For the functions $f(x) = ax + b$, $f(-1) = -5$ and $f(3) = 3$, find a and b .

18. Find the range of the following functions:

(i) $f(x) = -|x + 5|$

(ii) $f(x) = x^2 + 4$

(iii) $f(x) = \sqrt{16 - x^2}$

(iv) $f(x) = x^3$

19. Let $A = \{1, 2, 3, 4, 5, 6\}$. Define a relation R from A to A by

$$R = \{(x, y): y = x + 1, \text{ where } x, y \in A\}$$

- (i) Write down its domain, co-domain and range

- (ii) Depict this relation using an arrow diagram

20. Given $A = \{-1, 0, 2, 5, 6, 11\}$, $B = \{-2, -1, 0, 18, 28, 108\}$ and $f(x) = x^2 - x - 2$. Find $f(A)$. Is $f(A) = B$.

21. $\sin^3 x + \sin^3\left(\frac{2\pi}{3} + x\right) + \sin^3\left(\frac{4\pi}{3} + x\right) = -\frac{3}{4}\sin 3x$

WORK SHEET - 2

1. If $A = \{1, 2\}$, Form the set $A \times A \times A$
2. If $A \times B = \{(p, q), (p, r), (m, q), (m, r)\}$, find A and B
3. If R is a relation from a set $A = \{2, 4, 5\}$ to set $B = \{1, 2, 3, 4, 5, 6, 8\}$ x divides y
 - a. write R as a set of ordered pairs
 - b. find the domain and the range

4. Find the domain of the function $f(x) = \frac{1}{x+2}$

5. find the domain of the function $\sqrt{x-2}$
6. In a survey it was found that 21 people liked product a, 26 liked product B and 29 liked product C . If 14 people liked product A and B, 12 people liked products C and A. 14 people liked products B and C and 8 liked all the three products. Find how many liked product C only.
7. In a survey of 400 students in a school, 100 were listed as taking apple juice, 150 as taking orange juice and 75 were listed as taking both apple as well as Orange juice. Find how many students were taking neither apple juice nor orange juice.
8. Define a) Modulus function
b) Greatest integer function
9. Prove that the set of letters needed to spell "CATARACT" and the set of letters needed to spell "TRACT" are equal.
10. Are the following pairs of sets equal? Give reasons
 $A = \{x : x \text{ is a letter of the word "WOLF"}\}$
 $B = \{x : x \text{ is a letter of the word FOLLOW}\}$
11. Find x and y, if $(x+3, 5) = (6, 2x+y)$
12. Find the domain of the function $f(x) = \frac{x^2+2x+1}{x^2-8x+12}$
13. In a survey it was found that 21 people liked product A, 26 liked product B and 29 liked product C. If 14 people liked product A and B, 12 people liked products C and A. 14 people liked products B and C and 8 liked all the three products. Find how many liked product C only.
14. Find the domain and range of the function $f(x) = \frac{1}{\sqrt{x-[x]}}$, where $[x]$ is the greatest integer function.
15. Prove that: $\frac{1+\sin 2\theta+\cos 2\theta}{1+\sin 2\theta-\cos 2\theta} = \cot \theta$
16. Let $A = \{1, 2, 3, 4, \dots, 19, 20\}$. Define a relation $R = \{(x, y) : 3x - y = 0, x, y \in A\}$.
 (i) Depict this relation using arrow diagram.
 (ii) Write down the domain, co-domain and range of R
17. Describe the following set in roster form:

$$A = \{x : x \in N, x^2 < 90\}$$
18. Find the range of the real function $f(x) = -|x+1| + 2$
19. Let $A = \{9, 10, 11, 12, 13\}$ and let $f: A \rightarrow N$ be defined by $f(n)$ = the highest prime factor of n. Find the range of f.

20. Let $A = \{1, 2, 3\}$, $B = \{3, 4\}$ and $C = \{4, 5\}$. Find

(i) $(A \times B) \cap (A \times C)$

(ii) $(A \times B) \cup (A \times C)$

(iii) $A \times (B \cap C)$

(iv) $A \times (B \cup C)$

21, Show that: i) $\cot \frac{\theta}{2} - 3 \cot \frac{3\theta}{2} = \frac{4 \sin \theta}{1 + 2 \cos \theta}$

ii) $\left(1 + \cos \frac{\pi}{8}\right) \left(1 + \cos \frac{3\pi}{8}\right) \left(1 + \cos \frac{5\pi}{8}\right) \left(1 + \cos \frac{7\pi}{8}\right) = \frac{1}{8}$

APPLIED MATHEMATICS

1. Answer all the exercise questions of the following chapters.

- Sets
- Relations and Functions
- Sequence and Series
- Numbers, Quantification and Numerical Applications

2. Complete the following chapters

- Logical Reasoning
- Quantitative Aptitude

FINE ARTS HOLIDAYS ASSIGNMENT

Draw any 10 drawings by using pencil, charcoal, charcoal pencil, and drawing pen on A4 cartridge/drawing papers.































