



JainHappySchool  
(AMinorityEducationalInstitution)HOL  
IDAYHOMEWORK(2022-23)  
ClassXII B (COMMERCE)

**ENGLISH**

***Let's Learn & Create Together.....***

**Project Work**

**1. PowerPoint Presentation**

Make a PowerPoint Presentation reflecting your relationship with your Parents, especially your mother. You can take inspiration from the poem 'My Mother at Sixty-six'. Make sure that the PPT doesn't consist of more than 5/6 slides and that it has pictures in it.

**2. Graphic Organizer**

Prepare a digital picture/sketch/ painting of the poem 'Aunt Jennifer's Tigers'.

**3. Collage Making**

Prepare a collage showcasing 'Gender Stereotypes' prevalent in Indian societies.

**4. Book Trailer**

Read a book of your choice and prepare a book review in the form of a BOOK TRAILER in 8-10 slides.

Instructions:

a. The book trailer is a video advertisement for a book which promotes the book and encourages readers to read it.

b. Include the following-

- What is the genre of the book- is it fantasy, thriller, biography (etc.)
- What is the catchiest thing about the book?
- Add pictures and dialogues.
- Choose a theme similar to the genre of the book.

c. Make it interesting so that everyone who watches the trailer is curious to read the book.

**5. Earning by Doing**

Every Student has to engage themselves in some kind of work. The work should lead to some kind of earnings. You can assist your parents in doing some chores, or work at shops. The duration of this task is one week. Every day you will keep an account of your experiences in the form of a report.

For this activity you will make a separate project file that must contain- • Title Page • Acknowledgement and Certificate • What work did you choose and Why • Everyday account of experience in the form of report • Learning from the Project i.e. Reflection.

**6. Project**

Make one informative project on the topic assigned to you.

The project must have-

- a. Title Page
- b. Acknowledgment and Certificate
- c. About the Author
- d. A brief summary of the prose/poetry
- e. Themes covered in the chapter

## 7. Notice Writing

Attempt the following question in your Grammar notebook

- a. As the Activity Captain of your school, you are organizing a Career Counselling Session for XI and XII standard students of your school. Write a notice giving details of it to be displayed on your school notice board. (Word Limit: 50 words)
- b. You are Nisha/Nitin, Secretary of Green Valley Apartment, Faridabad. You are concerned about the callous and indifferent attitude of the people in your Society, who are not wearing masks and also not following the norms of social distancing. As a result, they are not only exposing themselves but also others to the risk of being infected by Covid-19. Write a Notice in about 50 words for the residents of the society to strictly follow Covid-19 Protocol.

## ACCOUNTANCY

- Prepare a knowledgeable and presentable power point presentation according to the roll numbers and topics mentioned against them below. (You can refer book and internet videos, to make your PPT, but it must be your original work )

Roll no.	Topic
12051	Journal entries relating to the Profit and Loss Appropriation Account
12052	Partnership Deed
12053	Provisions affecting treatment in the absence of Partnership Deed
12054	Provisions affecting treatment in the absence of Partnership Deed
12055	Profit and Loss Appropriation Account
12056	Journal entries relating to the Profit and Loss Appropriation Account
12057	Partnership Deed
12058	Profit and Loss Appropriation Account
12059	Partner's Capital Accounts (Fluctuating Method)
12060	Partner's Capital Accounts (Fluctuating Method)
12061	Interest on Partners' Drawings
12062	Provisions relating to interest on capital
12063	Interest on Partners' Drawings
12064	Partner's Capital Accounts (Fixed Method)
12065	Partner's Capital Accounts (Fixed Method)
12066	Charge against Profit and Appropriation of Profit
12067	Provisions relating to interest on capital
12068	Charge against Profit and Appropriation of Profit
12069	Goodwill-meaning and types
12070	Methods of calculating goodwill

- Prepare a digital picture/sketch/ painting/ collage/ wall hanging/ descriptive 3D chart/ model/Designing through photoshop/ Sketching/ Cartooning/Episodes from stories from textbooks/video on the same topics given above.
- Complete all the assignments in your notebook that are sent to you

	<p>through WhatsApp.</p> <ul style="list-style-type: none"> <li>• Complete all the worksheets in fair notebook given during on line classes.</li> <li>• Complete the scanner of Ch 1 and Ch 2 of Accountancy in your fair notebooks.</li> <li>• Do objective type questions and short questions of Ch 1 and 2 that are given on the back exercise of the chapter.</li> </ul>																																										
<b>Business Studies</b>	<ul style="list-style-type: none"> <li>• Prepare a knowledgeable and presentable power point presentation according to the roll numbers and topics mentioned against them below. (You can refer book and internet videos also, to make your PPT, but it must be your original work )</li> </ul> <table border="1"> <thead> <tr> <th>Roll no.</th><th>Topic</th></tr> </thead> <tbody> <tr><td>12051</td><td>Management Definition (Efficiency, effectiveness)</td></tr> <tr><td>12052</td><td>Characteristics of Management</td></tr> <tr><td>12053</td><td>Objectives of Management - Economic</td></tr> <tr><td>12054</td><td>Management as a Science</td></tr> <tr><td>12055</td><td>Management as an Art</td></tr> <tr><td>12056</td><td>Management as a Profession</td></tr> <tr><td>12057</td><td>Functions of Management</td></tr> <tr><td>12058</td><td>Importance of Management</td></tr> <tr><td>12059</td><td>Top Level Management</td></tr> <tr><td>12060</td><td>Middle Level Management</td></tr> <tr><td>12061</td><td>Lower Level Management</td></tr> <tr><td>12062</td><td>Coordination Concept and Characteristics</td></tr> <tr><td>12063</td><td>Importance of coordination</td></tr> <tr><td>12064</td><td>Objectives of Management – social and personal</td></tr> <tr><td>12065</td><td>Characteristics of Management</td></tr> <tr><td>12066</td><td>Functions of Management</td></tr> <tr><td>12067</td><td>Importance of Management</td></tr> <tr><td>12068</td><td>Management Definition (Efficiency, effectiveness)</td></tr> <tr><td>12070</td><td>Principles of Management -Fayol – 1to 7</td></tr> <tr><td>12071</td><td>Principles of Management -Fayol – 7 to 14</td></tr> </tbody> </table> <ul style="list-style-type: none"> <li>• Prepare a digital picture/sketch/ painting/ collage/ wall hanging/ descriptive 3D chart/ model/Designing through photoshop/ Sketching/ Cartooning/Episodes from stories from textbooks/video on the same topics given above.</li> <li>• Complete all the worksheets in fair notebook and prepare the assigned project.</li> <li>• Complete the case study and objective type questions of Ch 1and Ch 2 from supplementary book.</li> <li>• Complete the case study assignment, given during the classes.</li> <li>• Write some real life business incidents that have happened in this pandemic period. Write down what types of changes have come in business.</li> <li>• Prepare a product that you would like to sell in the market. Eg. It can be a mobile, book, laptop, hand wash, toothpaste etc. Or any other product. Give it's name and features and marketing strategies for it.</li> </ul>	Roll no.	Topic	12051	Management Definition (Efficiency, effectiveness)	12052	Characteristics of Management	12053	Objectives of Management - Economic	12054	Management as a Science	12055	Management as an Art	12056	Management as a Profession	12057	Functions of Management	12058	Importance of Management	12059	Top Level Management	12060	Middle Level Management	12061	Lower Level Management	12062	Coordination Concept and Characteristics	12063	Importance of coordination	12064	Objectives of Management – social and personal	12065	Characteristics of Management	12066	Functions of Management	12067	Importance of Management	12068	Management Definition (Efficiency, effectiveness)	12070	Principles of Management -Fayol – 1to 7	12071	Principles of Management -Fayol – 7 to 14
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## ECONOMICS

1. Prepare ppt on the following topics allotted as per your Roll no.:

- 01-07 Challenge of Education
- 08-14 Organic Farming
- 14-20 Sustainable development

(minimum 10 slides)

2. Learn all '1' marks questions of Indian Economic Development (pdf file)

3. Ch-8 Environment and Sustainable Development.

### For '3' OR '4' Marks

1. Define 'Environment'. Write example of biotic and abiotic elements environment.
2. What are the significance or functions of Environment?
3. State the meaning of Environment crisis.
4. What are the causes of Environmental crisis?

### FOR' 6' Marks

5. Define 'Sustainable Development'. Explain the strategies for Sustainable Development.
6. Identify Six factors contributing to land degradation in India.
7. Write short notes on the following topics:-
  - i. Global warming
  - ii. Ozone layer

### Ch-5 (Human Capital Formation in India)

#### For '3' or '4' Marks

1. Define 'Human Capital' and 'Human Capital Formation'.
2. Difference between 'Physical Capital' and 'Human Capital'.
3. What are the sources of 'Human Capital'?
4. How Human Capital helps in Economic growth?

OR

Explain the significance of Human Capital Formation.

#### FOR '6' Marks

5. Explain the major problems facing Human Capital Formation in India.
6. What are the importance and objectives of education?
7. Explain the problems or challenges of Education in India.

### CH-6 Rural Development

#### FOR '3' OR '4' Marks

1. Define 'Rural Development'. Name the types of lingering and emerging challenges in Rural areas.
2. How many types of 'Rural Credit'. Explain with examples.
3. What are the sources of Rural Credit? Give examples.
4. Explain the role of 'Cooperative Credit Societies' and 'NABARD' in Rural Credit.

#### FOR '6' Marks

5. Define Agricultural marketing. State the main steps taken by the government in developing rural markets.

6. Explain the employment outside the Agriculture in Rural areas.
7. Define organic farming and explain the advantage and limitations of organic farming.
8. Distinguish between 'Green Revolution' and Golden Revolution.

**Ch-7 Employment**  
**FOR '3' or '4' Marks**

1. How many types of workers.
2. Explain the types of unemployment in India.
3. What is the jobless growth? Explain it.
4. Write the formula of the following terms:-
  - i. Workforce
  - ii. Rate of unemployment
  - iii. Participation Rate.

**FOR '6' MARKS**

5. Explain the causes of unemployment in India.
6. Explain the steps taken by government to remove unemployment in India.
7. Explain some recent initiatives taken by government to remove unemployment in India.

**Ch-1 (Indian Economy on the eve of Independency)**

**FOR '3' or '4' Marks**

1. Explain the status of Indian economy on the eve of Independence.
2. Explain the status of Indian Agriculture on the eve of Independence.
3. Why handicrafts decline at the time of British government.
4. Describe the status of India's foreign trade at the time of British government.
5. Explain demographic profile at the time of British government.
6. Is there any positive impact of the British rule in India? Explain it.
7. Explain the impact of Railways in India.

**Ch-9 (Comparative Development Experiences of India and its neighbours )**

**FOR '3' OR '4' Marks**

1. Compare India, Pakistan and China on the basis of demographic Indicators.
2. Compare India, Pakistan and china on the basis of Gross Domestic Product and Sectoral Changes.
3. Compare India, Pakistan and China on the basis of Human Development.
4. Explain the path (Strategy) of Development of China.
5. Describe the Path (Strategy) of Development of Pakistan.
6. Explain the Path (Strategy) of Development of India.
7. State the meaning of 'Great Leap Forward Campaign' in 1958.
8. What is the important implication of the 'One Child norm' in China.

**FOR '6' Marks**

9. State any six indicators of Human Development.
4. Plant sapling in 10 inch black nursery pot. Take care of it and submit to school after summer vacation.

**IMPORTANT NOTE:**

1 To 7 questions are to be done in IP register, Make project synopsis (spiral binding) and learn chapter 3(SQL),5(SOCIETAL IMAPCT)

**WEEKLY ASSESSMENT WILL BE DONE ON THE BASIS OF:**

**WEEK I :**

1. After practicals, Atharv left the computer laboratory but forgot to sign off from his email account. Later, his classmate Revaan started using the same computer. He is now logged in as Atharv. He sends inflammatory email messages to few of his classmates using Atharv's email account. Revaan's activity is an example of which of the following cyber crime? Justify your answer.

- a) Hacking
- b) Identity theft
- c) Cyber bullying
- d) Plagiarism

2. Rishika found a crumpled paper under her desk. She picked it up and opened it. It contained some text which was struck off thrice. But she could still figure out easily that the struck off text was the email ID and password of Garvit, her classmate. What is ethically correct for Rishika to do?

- a) Inform Garvit so that he may change his password.
- b) Give the password of Garvit's email ID to all other classmates.
- c) Use Garvit's password to access his account.

3. Suhana is down with fever. So she decided not to go to school tomorrow. Next day, in the evening she called up her classmate, Shaurya and enquired about the computer class. She also requested him to explain the concept. Shaurya said, "Mam taught us how to use tuples in python". Further, he generously said, "Give me some time, I will email you the material which will help you to understand tuples in python". Shaurya quickly downloaded a 2-minute clip from the Internet explaining the concept of tuples in python. Using video editor, he added the text "Prepared by Shaurya" in the downloaded video clip. Then, he emailed the modified video clip to Suhana. This act of Shaurya is an example of:

- a) Fair use
- b) Hacking
- c) Copyright infringement
- d) Cyber crime

4. Write the differences between the following:

- a) Copyrights and Patents
- b) Plagiarism and Copyright infringement
- c) Non-ethical hacking and Ethical hacking
- d) Active and Passive footprints
- e) Free software and Free and open source software

5. You are planning to go for a vacation. You surfed the Internet to get answers for the following queries:

- a) Weather conditions
- b) Availability of air tickets and fares
- c) Places to visit
- d) Best hotel deals

Which of your above mentioned actions might have created a digital footprint?

6. What is data privacy? Websites that you visit collect what type of information about you?

	<p><b><u>WEEK II: (done on SQL interface take print out and paste on IP Register)</u></b></p> <p><b>7. Complete Practical Questions With Database query using SQL</b></p> <p>i) To create a database</p> <p>ii) To create a student table with the student id ,name ,class,dob,sex, city and marks as attributes where the student id is the primary key.</p> <p>iii) To insert the details of atleast 10 students in the above table.</p> <p>iv) To delete the details of a particular student in the above table.</p> <p>v) To increase marks by 5% for those students who have studid more than 6</p> <p>vi) To display the entire content of the table.</p> <p>vii) To display studid,name and marks of those students who are scoring marks more than 450</p> <p><b><u>WEEK III-IV:</u></b></p> <p><b>8. Prepare the basic synopsis of project as per the following guidelines: (printout)</b></p> <p>The aim of the class project is to create tangible and useful IT applications. The learner may identify a realworld problem by exploring the environment. e.g. Students can visit shops/business places, communities or other organizations in their localities and enquire about the functioning of the organization, and how data are generated, stored and managed. The learner can take data stored in a csv or database file and analyze it using Python libraries and generate appropriate charts to visualize. If an organization is maintaining data offline, then the learner should create a database using MySQL and store the data in tables. Data can be imported in Pandas for analysis and visualization. Learners can use Python libraries of their choice to develop software for their school or any other social good. Learners should be sensitized to avoid plagiarism and violation of copyright issues while working on projects. Teachers should take necessary measures for this. Any resources (data, image etc.) used in the project must be suitably referenced</p> <p><b>Commerce</b></p> <p>Group 11:Esha,Chirag, Ritesh</p> <p>Group 12: Deepanshu,Abhishek,Mayank kain</p> <p>Group13:Prince,Tanishq,Fardan</p> <p>Group 14: Nidhi, Vishal,Preeti</p> <p>Choose any one topic or other for the project synopsis from the list given below:</p> <p>Player Information System</p> <p>Payroll System</p> <p>Hospital Management</p> <p>Student Management System</p> <p>Mobile Billing System</p> <p>Billing System(Any)</p> <p>Student Fee Management</p> <p>System Banking</p> <p>Library Management System</p> <p>Hotel Management System</p> <p>School Information System</p> <p>Bank Management System etc.</p>
<b>PHYSICAL EDUCATION</b>	<p>1. Complete the work of L1 &amp; L2 in your registers and learn them.</p> <p>2. Revise worksheets and notes provided on the class Whatsapp group.</p>

	<p>3. Write the following in your Physical Education Lab Manual (Practical File) -</p> <p><u><b>PART A. PHYSICAL FITNESS TEST –</b></u> SAI Khelo India Test, Brockport Physical Fitness Test (BPFT)</p> <p><u><b>PART B. GAMES AND SPORTS-</b></u> Any one game out of the options below according to your roll no. Labelled diagram of field, rules, equipment, etc.</p> <ul style="list-style-type: none"> <li>• Roll No. 1 To 5 – Cricket / Football</li> <li>• Roll No. 6 To 10 – Swimming / Volleyball</li> <li>• Roll No. 11 To 15 – Badminton / Hockey</li> <li>• Roll No. 16 To 20 – Basketball / Boxing</li> <li>• Roll No. 21 To 25 – Kabaddi / Handball</li> <li>• Roll No. 26 To 30 – Tennis / Bocce</li> </ul> <p><u><b>PART C. GAMES/ SPORTS FOR CWSN-</b></u> Any one game of your choice out of the list below. Labelled diagram of field, rules, equipment, etc. (boccia, sitting volleyball, wheelchair basketball, unified badminton, unified basketball, unified football, blind cricket, goalball, floorball, wheelchair races and throws)</p> <p><u><b>PART D. YOGA-</b></u> Do practice of any five asana at your home on daily basis.</p> <p><u><b>PART E. ASANAS-</b></u> Procedure for asana, benefits and contraindication of any two asana for lifestyle diseases- Diabetes, Obesity, Hypertension, Asthma.</p> <p>4. Make a self-video of explaining any one chapter/one topic with a PowerPoint presentation (PPT) and send it to this mail-id - <a href="mailto:jhsphysicaleducation1@gmail.com">jhsphysicaleducation1@gmail.com</a>. Instructions for making a video –</p> <ol style="list-style-type: none"> <li>Use a clear background while shooting the video.</li> <li>Wear school uniform only.</li> <li>Voice should be audible.</li> <li>Duration – 2 min.</li> <li>Video should include school name and logo, your name and class.</li> <li>Use English language only for explanation.</li> </ol>
<p><b>MATHS</b></p>	<p>Do the following activities in the mathematics lab manual</p> <p><u><b>Activity 1</b></u> To verify that the relation R in the set L of all lines in a plane defined by <math>R = \{ (l, m) : l \parallel m \}</math> is an equivalence relation.</p> <p><u><b>Activity 2</b></u> To demonstrate a function which is not one-one but is onto.</p> <p><u><b>Activity 3</b></u> To draw the graph of <math>\sin^{-1} x</math>, using the graph of <math>\sin x</math> and demonstrate the concept of mirror reflection (about the line <math>y = x</math>).</p> <p><u><b>Activity 4</b></u> To sketch the graphs of <math>a^x</math> and <math>\log_a x</math>, <math>a &gt; 0</math>, <math>a \neq 1</math> and to examine that they are mirror images of each other.</p> <p><u><b>Activity 5</b></u> To find analytically the limit of a function <math>f(x)</math> at <math>x = c</math> and also check the continuity of the function at that point.</p> <p><u><b>Activity 6</b></u> To understand the concepts of decreasing and increasing functions.</p> <p><u><b>Activity 7</b></u> To construct an open box of a maximum volume from a</p>



given rectangular sheet by

cutting equal squares from each corner.

**Activity 8** To understand the concepts of absolute maximum and minimum values of a function

in a given closed interval through its graph.

**Activity 9** To measure the shortest distance between two skew lines and verify it analytically.

**Activity 10** To explain the computation of conditional probability of a given event A when

event B has already occurred through an example of throwing a pair of dice.

**Making of PPT & working model**

Prepare a PPT and a working model according to the roll number and topic mentioned in the table below for the maths exhibition. Make beautiful and colourful charts supporting your model also.

Roll no.	Topic
12055, 12056	Area under the Curve
12057, 12061	Differential Equations
12063, 12066	Vector Algebra
12068, 12070	Three Dimensional Geometry

#### COMPLETION OF ASSIGNMENT

**CONTINUOUS AND REGULAR PRACTISE MAKE THE STUDENT PERFECT IN the subject.**

Complete the following assignment in your maths register. It will help you in recapitulating concepts done in the class.

#### **CHAPTER 3**

1) If a matrix contains 10 elements then write down all its possible orders.

2) Form a matrix of order  $2 \times 3$  in which  $a_{ij} = \frac{|2i-j|}{3}$

3) Find the value of  $w, x, y$  and  $z$  if  $A = B$  where  $A = \begin{bmatrix} w-x & 2w+y \\ 2w-x & 3y+z \end{bmatrix}$  and  $B =$

$$\begin{bmatrix} -1 & 5 \\ 0 & 13 \end{bmatrix}$$

4) If  $\begin{vmatrix} 2x+5 & 3 \\ 5x+2 & 9 \end{vmatrix} = 0$  then find the value of  $x$

5) If  $A = \begin{bmatrix} -2 & 2 \\ 4 & 3 \end{bmatrix}$  and  $B = \begin{bmatrix} -1 & 7 \\ 0 & 10 \end{bmatrix}$  then find  $AB$  and  $BA$

6) Represent matrix  $A = \begin{bmatrix} 4 & 2 & -3 \\ 1 & 3 & -6 \\ -5 & 0 & -7 \end{bmatrix}$  as the sum of symmetric and skew symmetric matrix.

7) If  $A = \begin{pmatrix} 5 & 2 \\ 3 & 1 \end{pmatrix}$  and  $B = \begin{pmatrix} 2 & 3 \\ -1 & 6 \end{pmatrix}$  then find the value of  $|AB|$

8) Find matrix A such that  $\begin{pmatrix} 2 & -1 \\ 1 & 0 \\ -3 & 4 \end{pmatrix} \cdot A = \begin{pmatrix} -1 & -8 \\ 1 & -2 \\ 9 & 22 \end{pmatrix}$

9) If A is a matrix of order 3 x 3 then value of  $|3A| =$  \_\_\_\_\_

10) Express the matrix  $A = \begin{bmatrix} 3 & -2 & -4 \\ 3 & -2 & -5 \\ -1 & 1 & 2 \end{bmatrix}$  as a sum of symmetric and skew symmetric matrix.

#### CHAPTER 4

1) For the given matrix  $A = \begin{bmatrix} 0 & 1 & -3 \\ 2 & 0 & -1 \\ 3 & 1 & 0 \end{bmatrix}$  find the inverse of matrix A.

2) Find the minors and cofactors of the matrix  $A = \begin{bmatrix} 3 & 3 & -1 \\ -2 & -2 & 1 \\ -4 & -5 & 2 \end{bmatrix}$

3) Using matrices, solve the following system of equations :

$$2x + 3y + 3z = 5, \quad x - 2y + z = -4, \quad 3x - y - 2z = 3$$

4) Find the adjoint for matrix  $A = \begin{bmatrix} 4 & 0 & -1 \\ 2 & 3 & -5 \\ -5 & 2 & -3 \end{bmatrix}$

5) Find the maximum value of  $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 + \sin x & 1 \\ 1 & 1 & 1 + \cos x \end{vmatrix}$

6) There are two values of a which makes determinant,  $A = \begin{vmatrix} 3 & -2 & -4 \\ 3 & -2 & -5 \\ -1 & 1 & 2 \end{vmatrix} = 86$ ,

then the sum of these numbers are?

7) Find the inverse of the matrix  $A = \begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$  and use it to solve the

following system of

$$\text{equations: } 2x - 3y + 5z = 11, \quad 3x + 2y - 4z = -5, \quad x + y - 2z = -3$$

8) If A is a 3x3 invertible matrix, then what will be the value of k if  $\det(A^{-1}) = (\det A)^k$

9) If  $A = \begin{vmatrix} 1 & -1 & 1 \\ 2 & 1 & -3 \\ 1 & 1 & -1 \end{vmatrix}$  then find  $A^{-1}$ .

Use it to solve the system of equations  $x + 2y + z = 4, \quad -x + y + z = 0, \quad x - 3y + z = 2$

10) Use Product  $\begin{vmatrix} -4 & 4 \\ -7 & 1 \\ 5 & -3 \end{vmatrix} \begin{vmatrix} 4 & 1 & -1 \\ 3 & 1 & -2 \\ 12 & 1 & 3 \end{vmatrix}$  and use it to solve the system of

equation

$$x - y + z = 4, \quad x - 2y - 2z = 9, \quad 2x + y + 3z = 1$$

#### CHAPTER 5

#### CONTINUITY AND DIFFERENTIABILITY

1. Differentiate  $\sqrt{\tan \sqrt{x}}$  w.r.t  $x$ .
2. Find  $\frac{dy}{dx}$ , if  $y = \tan^{-1} \left( \frac{3x - x^3}{1 - 3x^2} \right)$ ,  $-\frac{1}{\sqrt{3}} < x < \frac{1}{\sqrt{3}}$ .
3. If  $y = \sin^{-1} \{x\sqrt{1-x} - \sqrt{x}\sqrt{1-x^2}\}$  then find  $\frac{dy}{dx}$ .
4. If  $x = a \sec^3 \theta$  and  $y = a \tan^3 \theta$ , find  $\frac{dy}{dx}$  at  $\theta = \pi/3$ .
5. If  $x^y = e^{x-y}$ , prove that  $\frac{dy}{dx} = \frac{\log x}{(1 + \log x)^2}$
6. Let  $f(x) = \begin{cases} \frac{1 - \cos 4x}{x^2}, & \text{if } x < 0 \\ a, & \text{if } x = 0 \\ \frac{\sqrt{x}}{\sqrt{16 + \sqrt{x}} - 4}, & \text{if } x > 0 \end{cases}$ , for what value of  $a$ ,  $f$  is continuous at  $x = 0$ ?
7. Find  $\frac{dy}{dx}$ , if  $y = x^{\tan x} + \sqrt{\frac{x^2 + 1}{2}}$
8. If  $x = \sin t$  and  $y = \sin pt$ , prove that  $(1 - x^2) \frac{d^2 y}{dx^2} - x \frac{dy}{dx} + p^2 y = 0$ .
9. If  $x^m \cdot y^n = (x + y)^{m+n}$ , prove that :- (i)  $\frac{dy}{dx} = \frac{y}{x}$  d (ii)  $\frac{d^2 y}{dx^2} = 0$ .
10. Differentiate  $\tan^{-1} \frac{\sqrt{1-x^2}}{x}$  with respect to  $\cos^{-1} (2x \sqrt{1-x^2})$