

Dwarka International School

Class XII

Holiday Homework

COMMERCE

SUBJECT: ENGLISH

Dear Students

Summer holidays are the most awaited and when it finally arrives, it gives us the time to sit back and relax. Lazy mornings and breaking free from the shackles of a fixed schedule enable us to ponder, meditate and spend some time with ourselves. Have you ever talked to yourself? If yes, continue with the same but if no please do it. It will develop your self-esteem and confidence and most importantly help you to discover yourself.

Since it is the most significant year of your life, you need to brush up with your concepts, reinforce them and proceed further with your curriculum so that when you return back in July, you feel more confident. In order to be on the right academic track and devote required time to all the subjects a meticulous planning is required. We have planned a proper homework schedule which will assist you in your learning and help you to accomplish your goals.

Please adhere to the following schedule and undertake the given tasks with dedication and sincerity:

1. Though being lazy during summer vacation is not a sin, yet make it a habit to get up early latest by 7:30 in the morning. Meditate, read the newspaper, browse the news, have a healthy breakfast and start following your schedule. Be strict with yourself. Newspaper reading will enhance your general awareness as well as vocabulary, which is imperative for good writing skills.
2. Take 'Vistas' and read the lesson '**The Enemy**'. '**The Enemy**' is a tale of a Japanese doctor saving his enemy, an American prisoner of war. Keep yourself in Dr. Sadao's place and answer the following questions. Do write the answers in your note-book. Word limit is 100 to 120 words
 - (a) Do you take pride in saving your enemy from death? Describe your emotions when you took this decision?
 - (b) Is patriotism about killing enemies to safeguard one's motherland? If yes, then would you label yourself as a traitor who let go of his enemy? Explain yourself.
 - (c) General Takima was cruel and selfish. Throw light on this statement and tell us the truth behind the statement.
 - (d) Hana remained your true support and stood by your decisions. What motivated her to do so?
 - (e) What message would you like to convey to the readers through your act of saving the enemy?
3. Now it is Flamingo's turn. Read '**A Thing of Beauty**' by **John Keats**. Write a short summary of the poem and answer the textual questions given in your note-books.
4. **Read the passage carefully and answer the questions that follow:**

Whether work should be placed among the causes of happiness or among the causes of unhappiness may perhaps be regarded as a doubtful question. There is certainly much work which is exceedingly irksome, and an excess of work is always very painful. However, work is not, to most people, more painful than idleness. There are, in work, all grades; from more relief of tedium up to the profoundest delights, according to the nature of the work and the abilities of the worker. Most of the work that most people have to do is not interesting in itself, but even that work has certain great advantages. To begin with, it fills a good many hours of the day without the need of deciding what one shall do. Most people, when they are left free to fill their own time according to their own choice, are at a loss to think of anything sufficiently pleasant to be worth doing. And whatever they decide on, they are troubled by the feeling that something else would have been more pleasant here. To be able to fill leisure intelligently is the last product of civilization and at present very few people have reached this level. Moreover, the exercise of choice is tiresome in itself. Except, to people with unusual initiative, it is positively agreeable to be told what to do at each hour of the day, provided the orders are not too unpleasant. Most of

the idle rich suffer unspeakable boredom. At times they may find relief by hunting big game in Africa or by flying around the world, but the number of such sensations is limited, especially after youth is past. Accordingly, the more intelligent rich men work nearly as hard as if they were poor.

Work, therefore is desirable, first and foremost as a preventive of boredom, although uninteresting work is as boring as having nothing to do. With this advantage of work, another associated advantage is that it makes holidays much more delicious when they come. Provided that a man does not have to work so hard as to impair his vigour, he is likely to find far more zest than an idle man would possibly find.

The second advantage of most paid work and some of unpaid work is that it gives chances of success and opportunities for ambition. In most work, success is measured by income and while our capitalistic society continues, this is inevitable. However dull work too, becomes bearable, if it is a means of building up a reputation. Continuity of purpose is one of the most essential ingredients of happiness and that comes chiefly through work.

On the basis of your reading of the above passage make notes on it, using headings and sub – headings. Use recognizable abbreviations (wherever necessary – minimum 4) and a format you consider suitable. Also supply an appropriate title to it.

5. Public demonstration causes a lot of disturbance in daily routine of common man. You almost missed your important entrance examination as people blocked the highway. As Tarun / Taruna, a student aspiring to be a doctor, write a letter to the Editor of ‘**The Times of India**’ highlighting the need to discourage such demonstrations and disturbance by public on highways which cause a great loss of time and opportunity for many. (100-125 words)
6. By 2050, India will be amongst the countries which will face acute water shortage. You are highly alarmed and terrified of the future world without water. So, write an article on “Save water- are we doing enough? “ for the local daily in 150-200 words.
7. You have been asked to participate in a debate competition on the topic “Community service once a week should be introduced in all schools and should be graded”. Write the speech in about 200 words either for or against the motion.
8. Contribute any article/poem/story/experience/narrative on (A-4 sized sheet) for Gokul Days.

Short Answer Questions

- Q1. What was the purpose of British colonial rule in India?
Q2. Name some notable economists who estimated India's per capita income during the colonial period.
Q3. Which is regarded as the defining year to make the demographic transition from its first to the second stage?
Q4. When was India's first official census operation undertaken?
Q5. When was TATA IRON AND STEEL COMPANY TISCO incorporated?
Q6. What was the motive behind the infrastructure development during the British rule? Q7. What was the objective of the Britishers to develop roads in India?
Q8. When were railways introduced in India?
Q9. During the British rule what percentage of India's population lived mostly in villages and derived livelihood from agriculture?
Q10. Did 'commercialization of agriculture' contribute positively during British rule? Q11. Name the main items of India's exports and imports during British rule.
Q12. During colonial rule with which country did India have more than half of its foreign trade?
Q13. During British rule what was estimated
- | | |
|----------------------------|---------------------|
| (a) Overall literacy level | (b) female literacy |
| (c) Infant mortality rate | (d) life expectancy |

Long answer type Questions

- Q14. What was the focus of the economic policies pursued by the colonial government in India? What was the impact of these policies?
Q15. Explain in brief the state of agricultural sector during the colonial period?
Q16. Explain the exploitative nature of zamindari system during the British rule?
Q17. Explain in brief the state of industrial sector during the colonial period?
Q18. What was the two-fold motive behind the systematic deindustrialization affected by the British in pre independence India?
Q19. Throw light on the state of India's foreign trade during the colonial period. How did it lead "to drain of Indian Wealth?"
Q20. Comment on Demographic Condition of Indian Economy at the time of independence.
Q21. Describe in brief the nature of occupational Structure in India on the eve of independence.
Q22. Comment on the state of infrastructure during the colonial period.
Q23. Were there any positive contributions made by the British in India? Discuss.

CHAPTER -2: INDIAN ECONOMY 1950-1990

Very Short Answer Questions – 1 Mark Each

1. What is marketable surplus?
2. What are Capital goods Industries?
3. Define a plan
4. What do you mean by structural changes?
5. What is the central objective of Planning in India?

Short Answer Questions – 3 Marks Each

1. Why was it necessary for a developing country like India to follow Self Reliance as a planning objective?
2. How did Green Revolution enable the Government to procure sufficient food grains and build buffer stocks?
3. Why does small scale industry need protection from the Government?
4. How was the licensing policy misused by some industrial houses?

5. Explain how Tariffs and Quotas protect the domestic Industry?
6. Distinguish between Planning objectives and Plan Objectives
7. How were the industries classified according to the Industrial Policy Resolution of 1956?
8. Why and how was Private sector regulated under Industrial Policy Resolution 1956?
9. Why were the land reforms not implemented successfully?
10. What were the drawbacks of the Green Revolution?

Long Answer Questions – 6 Marks Each

1. Why Public sector was assigned greater importance than Private Sector?
2. How are the Long term objectives realized through Plan Objectives?
3. ‘Subsidies encourage farmers to use new technology; they are a huge burden on government finances’. Discuss the usefulness of subsidies in the light of this fact.

SUBJECT -ECONOMICS ASSIGNMENT
TOPIC - National Income & Related Aggregates

Que.1 Calculate GNP_{MP}

	Rs (in crores)
Undistributed profits of private corporate enterprises	200
Rent	400
Interest	200
Profits	600
Dividends	300
Wages and Salaries	225
Net exports	-20
Net Indirect Taxes	70
Consumption of Fixed Capital	30
Compensation of Employee	250
Mixed Income of Self employee	100
Net Factor Income from Abroad	-10

Que.2 Calculate GNP_{MP}

	Rs. (In Lakhs)
Wages and Salaries	500
Net Capital Formation	100
Exports	50
Imports	60
Gross Capital Formation	120
Employer’s contribution to social security schemes	20
Net Factor Income from Abroad	-10
Rent and Interest	250
Profits	400
Indirect Tax	50
Subsidies	10

Que3. Calculate GDP_{MP} by

$NVA_{fc} = GVO_{MP}$ _____ Complete the equation

Change in stock = _____ - _____

Sales = _____ * _____

Q5. Sales + Change in stock = _____

Secondary Sector	400
Tertiary sector	300
Value of output of	
Primary Sector	1000
Secondary Sector	900
Tertiary sector	700

Rent	10
Emoluments of employees	400
Mixed income	650
Operating surplus	300
Net factor income from abroad	-20
Interest	5
Consumption of fixed capital	40
Net indirect taxes	10

Que4. Calculate national income

	Rs (in Crores)
Compensation of employees	400
Profits	200
Rent	150
Interest	100
Dividend	120
Employers contribution to social security schemes	40
Mixed income of self-employed	500
Direct taxes	100
Net factor income from abroad	-5

1. Calculate NI & GNP _{MP}	(Rs. in 100 billion)
(i) NDP _{MP}	114
(ii) Net Indirect Taxes	12
(iii) Consumption of fixed capital	13
(iv) Net Factor Income from abroad (NFIA)	(-) 2

2. Calculate NNP _{mp} & GNP _{FC}	(Rs. in 100 billion)
(i) NDP _{FC}	96
(ii) Net Indirect Taxes	10
(iii) Consumption of fixed capital	12
(iv) Net Factor Income from abroad	(-) 1

3. Calculate NDP _{FC} & NNP _{FC}	(Rs. in 100 crores)
(i) GNP _{mp}	200
(ii) NFIFA	(-) 4
(iii) Consumption of fixed capital	10
(iv) Indirect Taxes	20
(v) Subsidies	4

4. Calculate GDP _{mp} & GNP _{mp}	(Rs. in 100 crores)
(i) NDP _{FC}	300
(ii) NFIFA	5
(iii) Indirect Taxes	20
(iv) Consumption of fixed capital	30
(v) Subsidies	10

5. Calculate NDP _{FC} & NI	(Rs. in 100 crores)
(i) GNP _{mp}	400
(ii) NFIFA	10
(iii) Consumption of fixed capital	30
(iv) Indirect Taxes	40
(v) Subsidies	10

6. Calculate GNPFC & NDPmp	(Rs. in 100 crores)
(i) Factor income received from abroad	20
(ii) Consumption of fixed capital	30
(iii) Subsidies	10
(iv) Indirect Taxes	40
(v) Factor income paid to abroad	30
(vi) NDPFC	260

7. Calculate GNPmp & NI	(Rs. in 100 crores)
(i) Net Indirect Taxes	50
(ii) NDPFC	500
(iii) Factor income paid to abroad	(-) 20
(iv) Subsidies	10
(v) Consumption of fixed capital	40

8. Calculate GDPmp & NNPFC	(Rs. in 100 crores)
(i) NDPmp	74,905
(ii) Net Indirect Taxes	8,344
(iii) Net Factor Income from abroad	(-)232
(iv) Depreciation	4,486
(v) Indirect taxes	17

**HOLIDAY HOMEWORK
ASSIGNMENT 2019-20
SUBJECT- INFORMATICS PRACTICES
CLASS -XII**

CHAPTER 13:DATABASE FUNDAMENTALS - MYSQL REVISION TOUR

Q1 Consider a database LOANS with the following table:

Table: LoanAccounts

AccNo	CustName	LoanAmount	Installment	Intrate	StartDate
1	R K Gupta	300000	36	12.00	19-07-2009
2	S P Sharma	500000	48	10.00	22-03-2008
3	K P Jain	300000	36	NULL	08-03-2007
4	M P Yadav	800000	60	10.00	06-12-2008
5	S P Sinha	200000	36	12.50	03-01-2010
6	P Sharma	700000	60	12.50	05-06-2008
7	K S Dhall	500000	48	NULL	05-03-2008

Write SQL commands for the tasks 1 to 12 and write the output for the SQL commands:

1 Create Database and use it

Create the database LOANS.
Use the database LOANS.

2.Create Table / Insert Into

Create the table LoanAccounts and insert tuples in it.

3. Simple Select

Display the details of all the loans.
Display the AccNo, CustName, and LoanAmount of all the loans.

4.Conditional Select using Where Clause

Display the details of all the loans with less than 40 instalments.
Display the AccNo and LoanAmount of all the loans started before 01-04-2009.
Display the IntRate of all the loans started after 01-04-2009.

5.Using NULL

Display the details of all the loans whose rate of interest is NULL.
Display the details of all the loans whose rate of interest is not NULL.

6. Using DISTINCT Clause

Display the amounts of various loans from the table LoanAccounts. A loan amount should appear only once.

Display the number of instalments of various loans from the table LoanAccounts. An instalment should appear only once.

7.Using Logical Operators (NOT, AND, OR)

Display the details of all the loans started after 31-12-2008 for which the number of instalments are more than 36.

Display the CustName and LoanAmount for all the loans which do not have number of instalments 36.

Display the CustName and LoanAmount for all the loans for which the loan amount is less than 500000 or intrate is more than 12.

Display the details of all the loans which started in the year 2009.

Display the details of all the loans whose LoanAmount is in the range 400000 to 500000.

Display the details of all the loans whose rate of interest is in the range 11% to 12%.

8. Using IN Operator

Display the CustName and LoanAmount for all the loans for which the number of instalments are 24, 36, or 48.

9. Using BETWEEN Operator

Display the details of all the loans whose LoanAmount is in the range 400000 to 500000.

Display the details of all the loans whose rate of interest is in the range 11% to 12%.

10. Using LIKE Operator

Display the AccNo, CustName, and LoanAmount for all the loans for which the CustName ends with 'Sharma'.

Display the AccNo, CustName, and LoanAmount for all the loans for which the Cust_Name ends with 'a'.

Display the AccNo, CustName, and LoanAmount for all the loans for which the

Cust_Name contains 'a'

Display the AccNo, CustName, and LoanAmount for all the loans for which the Cust_Name does not contain 'P'.

Display the AccNo, CustName, and LoanAmount for all the loans for which the CustName contains 'a' as the second last character.

11 Using ORDER BY clause

Display the details of all the loans in the ascending order of their LoanAmount.

Display the details of all the loans in the descending order of their StartDate.

Display the details of all the loans in the ascending order of their LoanAmount and within LoanAmount in the descending order of their StartDate.

12 Using UPDATE, DELETE, ALTER TABLE

Change the interest rate 11.50% for all the loans for which interest rate is NULL.

Increase the interest rate by 0.5% for all the loans for which the loan amount is more than 400000.

For each loan replace Interest with $(\text{LoanAmount} * \text{IntRate} * \text{Instalments}) / 12 * 100$.

Delete the records of all the loans whose start date is before 2007.

Delete the records of all the loans of 'K.P. Jain'

Add another column Category of type CHAR(1) in the Loan table.

CHAPTER – 14: DATABASE TRANSACTIONS

1. What is the concept of Database transaction?
2. Describe briefly the ACID Properties of the Transaction?
3. Describe the following command
 - a) COMMIT
 - b) ROLLBACK
 - c) SAVEPOINT
4. What will happen when COMMIT statement is issued?
5. What will happen when ROLLBACK statement is issued?
6. Write one difference between COMMIT and ROLLBACK command?

CHAPTER 15: MORE ON SQL-GROUPING RECORDS AND TABLE JOINS

Q1: Difference between WHERE and HAVING clause in MySQL? Explain with the help of an example.

Q 2 :Consider the tables Doctors and Patient given below:

TABLE: DOCTORS

DocID	DocName	Department	OPDdays
101	K.K.Mathur	ENT	TTS
102	Ashish Sharma	Paed	MWF
201	Vivek Khurana	Ortho	MWF

TABLE: PATIENT

PatNo	PatName	Department	DocID
1	AKASH	ENT	101
2	NEHA	Ortho	102
3	SUNITA	ENT	101

With reference to these two tables, write a SQL query for (i) and (ii) and output for (iii).

(1) Display Patient Name, Patient No and corresponding doctor name for each patient.

(2) Display the list of all patients who's OPDdays are 'TTS'.

(3) SELECT OPDdays, count(*) FROM Doctors, Patients
WHERE Doctors.Department=Patients.Department
GROUP BY OPDdays;

Q 3 In a database there are two table BOOKS and ISSUES.

Table: BOOKS

Book_ID	Book_Name	Author_Name	Publisher	Price	Qty
L01	Maths	Raman	ABC	70	20
L02	Science	Agarkar	DEF	90	15
L03	Social	Suresh	XYZ	85	30
L04	Computer	Sumita	ABC	75	7
L05	Telugu	Nannayya	DEF	60	25
L06	English	Wordsworth	DEF	55	12

Table: ISSUES

ISSUE_ID	Book_ID	Qty_Issued
14	L02	13
19	L04	5
3	L05	21

i. How many rows and how many columns will be there in the Cartesian product of these two tables?

Which column in the 'ISSUES' table is the foreign key?

Lesson 16: Table and Integrity Constraints

1. What is the use of ALTER TABLE Command?
2. What are integrity constraints? Write the names of the integrity constraints.
3. What is Primary key Constraint?
4. What is Foreign key constraint?
5. What is difference between Unique and Primary Key?
6. Write SQL command to view the constraints of emp table.
7. What is NULL?
8. What is the significance of NOT NULL constraint?

9. Write a query to add new column aadharno in a table student.
10. Write a query to modify data type (char to int) of the existing column emp_id of emp table.
11. Write a query to delete a column pincode form a table employee.
12. Can constraints be added in an existing table? How?
13. Write a statement to enable and disable the constraints of table.
14. When a Primary key constraint is included in a table, what other constraints does this imply?

Short Answer Type questions (2 Marks)

1 Write SQL command to create table Coach the following table structure.

Field	Type	Constraint
PCode	Integer	PRIMARY KEY
Name	Varchar(20)	NOT NULL
ACode	Integer	FOREIGN KEY which refer the Acode in Table Activity
City	Varchar(20)	Default = "delhi"

2 Write a command to create following table with P_ID as foreign key from person table.
The "Orders" table is:

O_Id	OrderNo	P_Id
1	77895	3
2	44678	3

- 3 What are different constraints? Explain any two with example.
- 4 Ms. Shilpa created two tables with Deptno as Primary key in Table1 and Foreign Key in Table2, while inserting a row in Table2, Ms. Shilpa is not able to enter a value in the column Deptno. What could be the possible reason there for it?
- 5 Write a MySQL command for creating a table "CLUB" whose structure is given below:

Field Name	Datatype	Size	Constraint
MEMBER_No	Integer	10	Primary key
Member_Name	Varchar	20	
Join_Date	Date		
Member_Type	char	1	Not Null
Charges	Decimal	10,2	

ACCOUNTANCY and BUSINESS STUDIES

Vacation is always a great chance to relax and helps us to gain a healthy mentally, lots of refreshment by both mentally or physically. Have a nice vacation! Go to beautiful places, go shopping, enjoy!

Have a Happy Trip! Here's hoping you enjoy your trip! May every single minute, in every way, hold only good times in it!

Make the trip you always wanted, travel with your family and take many pictures, get energy for when you return to school. We are waiting to see your smiling and stress free face!

Though in vacation mode, adhere to the following schedule:

- 1. Make the project as per the guidance given by teacher in classroom.**
- 2. Gather all the relevant information about the concerned project as discussed in classroom.**
- 3. Have a clipping of cut off list of colleges for your future references.**
- 4. Read the newspapers daily to get awareness about the changes in business environment for future case studies.**
- 5 solve the paper attached.**

Paper 1

Practice Paper

NAME:
CLASS: XII
SUBJECT: ACCOUNTANCY

ROLL NO:
TIME: 2 Hrs
M.M: 50

General Instructions:

- I. All parts of the question must be attempted at one place.
- II. Show working notes wherever necessary.

Q 1 Would a “charitable dispensary” run by 8 members be deemed a partnership firm? Give reason in support of your answer. 1

Q 2 In which account interest on partner’s loan is debited to and why? 1

Q 3 How does the factor “efficiency of management” affect the goodwill of a firm? 1

Q 4 P and Q are sharing profits equally. With effect from 1st April, 2017 they decided to share profits in the ratio of 4:3. Calculate individual partner’s gain or sacrifice due to change in profit sharing ratio. 1

Q 5 Nishtha and Anshu were partners sharing profits in the ratio of 3:2. They admitted Jyoti as a new partner for 3/10th share which she acquired 2/10th from Nishtha and 1/10th from Anshu. Calculate the new profit sharing ratio of Nishtha, Anshu and Jyoti. 1

Q 6 The average net profit expected in future by XYZ firm is Rs 36,000 per year. Average capital employed in the business by the firm is Rs 2, 00,000. The normal rate of return from capital invested in this class of business is 10%. Remuneration of the partners is estimated to be Rs 6,000 p.a. find out the value of goodwill based on two year’s purchase of super profit. 3

Q 7 Sahil, Babita and Vishal are partners sharing profits and losses in the ratio of 5:3:2. They decided to share future profits and losses in the ratio of 2:3:5 with effect from 1st April, 2017. following items appear in the balance sheet as at 31st March, 2017:

General reserves	Rs 1, 50,000
Advertisement Suspense A/c (Dr)	Rs 1, 00, 000
Contingence reserve	Rs 50,000
Profit and Loss account (Dr)	Rs 75,000

Pass necessary journal entry. 3

Q 8 Anil and Sunil were partners in a firm sharing profits and losses in the ratio of 3:2. They admitted Ram for ¼th share on 1st April, 2018. It was agreed that goodwill of the firm will be valued at 3 years purchase of the average profit of last 4 years which were Rs 50,000 for 2014 – 15, Rs 60,000 for 2015 – 16, Rs 90,000 for 2016 – 17 and Rs 70,000 for 2017 – 18. Ram did not bring his share of goodwill premium in cash. Record the necessary Journal entries in the books of the firm on Ram’s admission. Goodwill appears in the books at Rs 2, 02,500. 3

Q 9 On 31st March, 2017, the balances in the Capital Account of Eleen, Monu and Ahmad after making adjustments for profits and drawings were Rs 1, 60,000, Rs 1, 20,000 and Rs 80,000 respectively. Subsequently, it was discovered that the interest on capital and drawings had been omitted.

- I. The profits for the year ended 31st March, 2017 were Rs 40,000.
- II. During the year Eleen and Monu each withdrew a total sum of Rs 24,000 in equal installments in the beginning of each month and Ahmad withdrew a total sum of Rs 48,000 in equal installments at the end of each month.
- III. The interest on drawings was to be charged @ 5% p.a. and interest on capital was to be allowed @ 10% p.a.
- IV. The profit sharing ratio among the partners was 2:1:1.

Showing your working notes clearly, pass the necessary rectifying entry. 4

Q 10 A, B and C sharing profits and losses in the ratio of 4:3:2, decided to take D as a partner for 1/5th share in the firm with effect from 1st April, 2018. An extract of their Balance Sheet as at 31st March, 2018 is:

Liabilities	Amount	Assets	Amount
Workmen compensation reserve	90,000		

Show the accounting treatment of workmen compensation reserve on the admission if a claim on account of workmen compensation is estimated at Rs 45,000. 4

Q 11 X and Y are partners sharing profits and losses in the ratio of 3:2. They admit Z into partnership for 1/4TH share in goodwill. Z brings in his share of goodwill in cash. Goodwill for this purpose is to be calculated at two years' purchase of the average normal profit of past three years. Profits of the last three years ended 31st March, were:

2016 – Profit Rs 50,000 (including profit on sale of assets Rs 5,000)

2017 – Loss Rs 20,000 (including loss by fire rs 30,000)

2018 – Profit Rs 70,000 (including insurance claim received Rs 18,000 and interest on investments and Dividend received Rs 8,000)

Calculate value of goodwill. Also calculate goodwill brought in by Z.

6

Q 12 (a) Why is revaluation of assets on reconstitution of partnership necessary?

(b) A, B and C are sharing profits and losses in the ratio of 2:2:1. They decided to share profits w.e.f 1st April, 2018 in the ratio of 5:3:2. They also decided not to change the values of assets and liabilities in the books of accounts. The revised values and book value as on date of change were as follow:

	Book value	Revised value
Machinery	2, 50,000	3, 00,000
Computers	2, 00,000	1, 75,000
Sundry creditors	90,000	75,000
Outstanding expenses	15,000	25,000

Pass an adjustment entry.

6

Q 13 Karan, Arjun and Vikram are partners sharing profits and losses in the ratio of 2:1:1 with capitals amounted to Rs 1,87,500; Rs 1,00,000 and Rs 75,000 respectively and their current Account shows the balance Karan : Rs 24,800, Arjun: Rs 11,200 (Dr) and Vikram : Rs 6,400 as on 31st March 2017. The account for 2017 – 18 showed a profit of Rs 1, 13,000 before taking into account, interest on capital and drawings @ 4% p.a. and 6% p.a. respectively.

I. Drawings made by partners: Karan Rs 20,000; Arjun Rs 24,000 and Vikram Rs 16,000.

II. Interest on drawings: Karan Rs 1096, Arjun Rs 880 and Vikram Rs 680.

Before closing the accounts, following points were noticed:

I. Life Insurance Premium of Karan Rs 3,500 was paid by the firm on 31st March 2018 charged to Trade Expenses A/c.

II. Personal expenses paid to Arjun for Rs 6,800 was debited to Trade Expenses A/c on 30th September, 2017.

III. Repair of building Rs 20,000 debited to Building A/c and depreciation thereon @25% was charged.

Prepare P&L Appropriation account for the year ended 31st March, 2018 and the Partner's Current Account.

8

Q 14 Raghu and Rishu are partners sharing profit in the ratio 3:2. Their Balance Sheet as at 31st March, 2009 was as follow:

Balance Sheet

As at 31st march, 2009

Liabilities	Amount	Assets	Amount
Creditors	86,000	Cash in hand	77,000
Employees provident fund		Debtor	42,000
Investment fluctuation reserve	10,000	Less: provision	7,000
Capital a/c:	4,000	Investments	21,000
Raghu	1,19,000	Building	98,000
Rishu	1,12,000		
	2,31,000	Plant and machinery	1,00,000
	<u>3,31,000</u>		<u>3,31,000</u>

Rishabh was admitted on that date for 1/4th share of profit on the following terms:

I. Rishabh will bring Rs 50,000 as his share of capital.

II. Goodwill of the firm is valued at Rs 42,000 and rishabh will bring his share of goodwill in cash.

III. Buildings were appreciated by 20%.

IV. All debtors were good.

V. There was a liability of Rs 10,800 included in creditor which was not likely to arise.

VI. New profit sharing ratio will be 2:1:1.

- VII. Capital of Raghu and Rishu will be adjusted on the basis of Rishabh's share of capital and any excess or deficiency will be made by withdrawing or bringing in cash by the concerned partners as the case may be. Prepare revaluation account, partner's capital account and balance sheet of the new firm.

8

Paper 2

DWARKA INTERNATIONAL SCHOOL
SEC-12, DWARKA, NEW DELHI – 75
2018 -2019
Unit Test

NAME:
CLASS: XII
SUBJECT: ACCOUNTANCY

ROLL NO:
TIME: 2 Hrs
M.M: 50

General Instructions:

- III. All parts of the question must be attempted at one place.
IV. Show working notes wherever necessary.

- Q 15 State the provision of Indian Partnership Act regarding the payment of remuneration to a partner for services rendered. 1
- Q 16 Can a partner be exempted from sharing the losses in a firm? If yes, under what circumstances? 1
- Q 17 How does the factor "quality of product" affect the goodwill of the firm? 1
- Q 18 A, B and C are sharing profits and losses in the ratio of 5:3:2. With effect from 1st April, 2017 they decided to share profits in the ratio of 5:2:3. Calculate individual partner's gain or sacrifice due to change in profit sharing ratio. 1
- Q 19 Nishtha and Anshu were partners sharing profits in the ratio of 3:2. They admitted Jyoti as a new partner who gets 1/5th of his share of profit entirely from Nishtha. Calculate the new profit sharing ratio of Nishtha, Anshu and Jyoti. 1
- Q 20 The total capital of the firm of Sakshi, Mehak and Megha is Rs 1, 00,000 and the market rate of interest is 15%. The net profits for the last 3 years were Rs 30,000; Rs 36,000 and Rs 42,000. Goodwill is to be valued at 2 years' purchase of the last 3 years' super profits. Calculate the goodwill of the firm. 3
- Q 21 Sahil, Babita and Vishal are partners sharing profits and losses in the ratio of 5:3:2. They decided to share future profits and losses in the ratio of 2:3:5 with effect from 1st April, 2017. following items appear in the balance sheet as at 31st March, 2017:
- | | |
|--------------------------------|-----------|
| General reserves | Rs 6,000 |
| Advertisement Suspense A/c(Dr) | Rs 12,000 |
| Profit and Loss account (Dr) | Rs 24,000 |
- Pass necessary journal entry. 3
- Q 22 Anil and Sunil were partners in a firm sharing profits and losses in the ratio of 3:2. Their books show goodwill at Rs 2,000. Charu is admitted with 1/4th share of profits and brings in Rs 10,000 as his capital but is not able to bring in cash for his goodwill Rs 3,000. Draft Journal entries. 3
- Q 23 Ajay, Binay and Chetan were partners sharing profits in the ratio of 3:3:2. The partnership provided for the following:
- Salary of Rs 2,000 per quarter to Ajay and Binay.
 - Chetan was entitled to a commission of Rs 8,000.
 - Binay was guarantee a profit of Rs 50,000 p.a.
- The profit of the firm for the year ended 31st March 2018 was Rs 1, 50,000 which was distributed among Ajay, Binay and Chetan in the ratio of 2:2:1 without taking into account of the provisions of Partnership Deed. Pass the necessary rectifying entry for the above adjustment in the books of the firm. Show your working clearly. 4
- Q 24 A, B and C sharing profits and losses in the ratio of 4:3:2, decided to take D as a partner for 1/5th share in the firm with effect from 1st April, 2018. An extract of their Balance Sheet as at 31st March, 2018 is:

Liabilities	Amount	Assets	Amount
Workmen compensation reserve	90,000		

Show the accounting treatment of workmen compensation reserve on the admission if a claim on account of workmen compensation is estimated at Rs 99,000. 4

Q 25 A and B are partners sharing profits and losses in the ratio of 3:2. They admit C into partnership for $\frac{1}{4}$ th share in goodwill. C brings in his share of goodwill in cash. Goodwill for this purpose is to be calculated at two years' purchase of the average normal profit of past three years. Profits of the last three years ended 31st March, were:

2016 – Profit Rs 1, 00,000 (including profit on sale of assets Rs 10,000)

2017 – Loss Rs 40,000 (including loss by fire rs 60,000)

2018 – Profit Rs 1, 40,000 (including insurance claim received Rs 36,000 and interest on investments and Dividend received Rs 16,000)

Calculate value of goodwill. Also calculate goodwill brought in by Z. 6

Q 26 (a) Do you distribute Reserve at the time of Reconstitution of a firm? Why?

(b) A, B and C are sharing profits and losses in the ratio of 5:3:2. They decided to share profits w.e.f 1st April, 2018 in the ratio of 4:3:3. They also decided not to change the values of assets and liabilities in the books of accounts. The revised values and book value as on date of change were as follow:

	Book value	Revised value
Investment	22,000	25,000
Machinery	25,000	20,000
Land and building	40,000	50,000
Sundry creditors	70,000	60,000
Outstanding expenses	5,600	6,000
Sundry debtors	60,000	50,000

Pass an adjustment entry. 6

Q 27 Raj, Shammi and Shashi are partners sharing profits and losses in the ratio of 2:1:1 with capitals amounted to Rs 93,750; Rs 50,000 and Rs 37,500 respectively and their current Account shows the balance Raj : Rs 12,400, Shammi: Rs 5,600 (Dr) and Shashi : Rs 3,200 as on 31st March 2017. The account for 2017 – 18 showed a profit of Rs 56,500 before taking into account, interest on capital and drawings @ 4% p.a. and 6% p.a. respectively.

III. Drawings made by partners: raj Rs 10,000; Shammi Rs 12,000 and Shashi Rs 8,000.

IV. Interest on drawings: Raj Rs 548, Shammi Rs 440 and Shashi Rs 340.

Before closing the accounts, following points were noticed:

IV. Life Insurance Premium of Raj Rs 1,750 was paid by the firm on 31st March 2018 charged to Trade Expenses A/c.

V. Personal expenses paid to Shammi for Rs 3,400 was debited to Trade Expenses A/c on 30th September, 2017.

VI. Repair of building Rs 10,000 debited to Building A/c and depreciation thereon @25% was charged.

Prepare P&L Appropriation account for the year ended 31st March, 2018 and the Partner's Current Account. 8

Q 28 Raghu and Rishu are partners sharing profit in the ratio 3:2. Their Balance Sheet as at 31st March, 2009 was as follow:

Balance Sheet

As at 31st march, 2009

Liabilities	Amount	Assets	Amount
Creditors	86,000	Cash in hand	77,000
Employees provident fund		Debtor	42,000
Investment fluctuation reserve	10,000	Less: provision	7,000
Capital a/c:	4,000	Investments	21,000
Raghu	1,19,000	Building	98,000
Rishu	1,12,000		
	<u>2,31,000</u>	Plant and machinery	<u>1,00,000</u>
	<u>3,31,000</u>		<u>3,31,000</u>

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Rishabh was admitted on that date for $\frac{1}{4}$ th share of profit on the following terms:

- VIII. Rishabh will bring Rs 50,000 as his share of capital.
 - IX. Goodwill of the firm is valued at Rs 42,000 and rishabh will bring his share of goodwill in cash.
 - X. Buildings were appreciated by 20%.
 - XI. All debtors were good.
 - XII. There was a liability of Rs 10,800 included in creditor which was not likely to arise.
 - XIII. New profit sharing ratio will be 2:1:1.
 - XIV. Capital of Raghu and Rishu will be adjusted on the basis of Rishabh's share of capital and any excess or deficiency will be made by withdrawing or bringing in cash by the concerned partners as the case may be.
- Prepare revaluation account, partner's capital account and balance sheet of the new firm.

**HOLIDAY HOMEWORK
ASSIGNMENT 2019-20
SUBJECT- MATHEMATICS (041)
CLASS -XII**

RELATION AND FUNCTIONS

- If $f(x) = (5-x^2)^{1/2}$, then find $f \circ f(x)$.
- If a function $f : A \rightarrow [-6, \infty)$ given by $f(x) = 9x^2 + 6x - 5$ is invertible, find $f^{-1}(x)$.
- Show that the relation S in the Set $A = \{5,6,7,8,9\}$ given by $S = \{(a, b) : |a - b| \text{ is divisible by } 2\}$ is an equivalence relation. Find the set of all elements related to 6.
- Let $A = \{1, 2, 3, 4\}$ and $R = \{(1, 1), (2, 2), (3, 3), (4, 4), (1, 2), (1, 3), (3, 2)\}$. Show that R is reflexive and transitive but not symmetric
- Let $f(x) = x + 7$ and $g(x) = x - 7$, $x \in \mathbb{R}$. Find $(f \circ g)(7)$
- Let \mathbb{R}_+ be the set of all positive real numbers. Let $f : \mathbb{R}_+ \rightarrow [4, \infty[: f(x) = x^2 + 4$. Show that f is invertible and find f^{-1} (CBSE 2013)
- Prove that the function $f: \mathbb{N} \rightarrow \mathbb{N}$ defined by $f(x) = x^2 + x + 1$ is one-one but not onto.
- If $f(x) = \sqrt{x^2 + 1}$; $g(x) = \frac{x+1}{x^2+1}$ and $h(x) = 2x-3$, then find $f' [h' \{g'(x)\}]$ (CBSE 2015)
- Consider $f: \mathbb{R}_+ - \{-9, \infty\}$ given by $f(x) = 5x^2 + 6x - 9$. Prove that f is invertible with $f^{-1}(y) = \left(\frac{\sqrt{54+5y}-3}{5}\right)$ (CBSE 2015)
- If the function $f: \mathbb{R} \rightarrow \mathbb{R}$ be defined by $f(x) = x^2 + 5x + 9$ Find $f^{-1}(9)$.
- Show that $f: \mathbb{R} \rightarrow \mathbb{R}$, defined by $f(x) = \sin x$, is neither one - one nor onto.
- Show that the function $f: \mathbb{R} \rightarrow \mathbb{R}$ defined by $f(x) = \frac{x}{x^2+1} \forall x \in \mathbb{R}$, is neither one - one nor onto.
- If $f : \mathbb{R} \rightarrow (0,2)$ defined by $f(x) = \frac{e^x - e^{-x}}{e^x + e^{-x}} + 1$ is invertible, find f^{-1} .
- If function f and g are given by $f = \{(1, 2), (3, 5), (4, 1), (2,6)\}$, $g = \{(2, 6), (5,4), (1, 3), (6, 1)\}$, find the range of f and g and write down the function $f \circ g$ and $g \circ f$.

INVERSE TRIGONOMETRIC FUNCTIONS

- Show that $\tan\left(\frac{1}{2} \sin^{-1} \frac{3}{4}\right) = \frac{4-\sqrt{7}}{3}$ (EXAMPLER)
- Solve $\cos(\tan^{-1} x) = \sin(\cot^{-1} \frac{3}{4})$ (CBSE 2013)
- Prove that $\tan^{-1} \frac{63}{16} = \sin^{-1} \frac{5}{13} + \cos^{-1} \frac{3}{5}$
- Prove that $\cos[\tan^{-1}(\sin(\cot^{-1} x))] = \sqrt{\frac{1+x^2}{2+x^2}}$
- Prove that $\tan^{-1}\left(\frac{1}{3}\right) + \tan^{-1}\left(\frac{1}{5}\right) + \tan^{-1}\left(\frac{1}{7}\right) + \tan^{-1}\left(\frac{1}{8}\right) = \frac{\pi}{4}$ (CBSE 2010, 2008)
- Prove that $\cot^{-1} \left[\frac{\sqrt{1+\sin x} + \sqrt{1-\sin x}}{\sqrt{1+\sin x} - \sqrt{1-\sin x}} \right] = \frac{x}{2}$, $x \in (0, \frac{\pi}{4})$ (CBSE 2011, 2014)
- Prove that $\frac{9\pi}{8} - \frac{9}{4} \sin^{-1}\left(\frac{1}{3}\right) = \frac{9}{4} \sin^{-1}\left(\frac{2\sqrt{2}}{3}\right)$ (CBSE 2011)
- Prove that $\tan^{-1} x + \tan^{-1} \frac{2x}{1-x^2} = \tan^{-1} \left(\frac{3x-x^3}{1-3x^2} \right)$, $x^2 < \frac{1}{3}$ (CBSE 2010)
- Prove that $\tan^{-1} 1 + \tan^{-1} 2 + \tan^{-1} 3 = \pi$ (DELHI CBSE 2010)
- If $y = \cot^{-1}(\sqrt{\cos x}) - \tan^{-1}(\sqrt{\cos x})$ prove that $\sin y = \tan^{2x} \frac{x}{2}$ (FOREIGN 2013)
- Solve for $x : \tan^{-1}(x+1) + \tan^{-1}(x-1) = \tan^{-1} \frac{8}{31}$ (CBSE 2015)
- Prove the following : $\cot^{-1}\left(\frac{xy+1}{x-y}\right) + \cot^{-1}\left(\frac{yz+1}{y-z}\right) + \cot^{-1}\left(\frac{zx+1}{z-x}\right) = 0$ (CBSE 2015)

13. Solve for x: $\sin^{-1}6x + \sin^{-1}6\sqrt{3}x = -\frac{\pi}{2}$ (CBSE Sample Paper 2015)
14. Solve the equation for x: $\sin^{-1}x + \sin^{-1}(1-x) = \cos^{-1}x$ (CBSE 2016)
15. If $\cos^{-1}\frac{x}{a} + \cos^{-1}\frac{y}{b} = \alpha$, prove that $\frac{x^2}{a^2} - 2\frac{xy}{ab}\cos\alpha + \frac{y^2}{b^2} = \sin^2\alpha$ (CBSE 2016)
16. Find the greatest and least value of $(\sin^{-1}x)^2 + (\cos^{-1}x)^2$ (Exampler)
17. Prove that $\cot\left(\frac{\pi}{4} - 2\cot^{-1}3\right) = 7$
18. If $\tan^{-1}x + \tan^{-1}y = \frac{4\pi}{5}$, then find the value of $\cot^{-1}x + \cot^{-1}y$
19. Solve : $\cos^{-1}(\sin(\cos^{-1}x)) = \frac{\pi}{3}$

MATRICES AND DETERMINANTS

1. Use elementary column operation $C_2 \rightarrow C_2 + 2C_1$ in the following matrix equation :

$$\begin{pmatrix} 2 & 1 \\ 2 & 0 \end{pmatrix} = \begin{pmatrix} 3 & 1 \\ 2 & 0 \end{pmatrix} \begin{pmatrix} 1 & 0 \\ -1 & 1 \end{pmatrix}$$
 (CBSE 2016)
2. Construct a 2x2 matrix whose element a_{ij} are given by $\frac{(2i+j)^2}{2}$.
3. If A is a square matrix of order 3 such that $|adjA| = 289$ find $|A|$
4. If $A^2 = A$ find value of $(I + A)^2 - 3A$ (CBSE 2012)
5. If $A = \begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix}$ then prove that $A^n = \begin{bmatrix} \cos n\theta & \sin n\theta \\ -\sin n\theta & \cos n\theta \end{bmatrix}$, $n \in N$
6. Using E_R - transformation find the inverse of $A = \begin{bmatrix} 3 & 0 & -1 \\ 2 & 3 & 0 \\ 0 & 4 & 1 \end{bmatrix}$ (CBSE 2009)
7. If $A = \begin{bmatrix} 1 & 2 & -3 \\ 2 & 3 & 2 \\ 3 & -3 & -4 \end{bmatrix}$, find A^{-1} and hence solve the system of linear equations:
 $x + 2y - 3z = -4$; $2x + 3y + 2z = 2$; $3x - 3y - 4z = 11$.
8. If $A = \begin{bmatrix} 1 & 2 & 0 \\ -2 & -1 & -2 \\ 0 & -1 & 1 \end{bmatrix}$, find A^{-1} . Using A^{-1} , solve the system of linear equations : $x - 2y = 10$,
 $2x - y - z = 8$, $-2y + z = 7$
9. Use the product $\begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix} \begin{bmatrix} -2 & 0 & 1 \\ 9 & 2 & -3 \\ 6 & 1 & -2 \end{bmatrix}$ to solve the following system of equations:
 $x - y + 2z = 1$; $2y - 3z = 1$; $3x - 2y + 4z = 2$. (CBSE 2011)
10. Find the adjoint of the matrix $A = \begin{bmatrix} -1 & -2 & -2 \\ 2 & 1 & -2 \\ 2 & -2 & 1 \end{bmatrix}$ and hence show that $A.(adj A) = |A| I_3$ (CBSE 2015)
11. Prove that $\begin{vmatrix} a^2 + 1 & ab & ac \\ ab & b^2 + 1 & bc \\ ca & cb & c^2 + 1 \end{vmatrix} = (1 + a^2 + b^2 + c^2)$ (CBSE 2014,2009,2013)
12. Evaluate using properties of determinant

$$\begin{vmatrix} 1 + a^2 - b^2 & 2ab & -2b \\ 2ab & 1 - a^2 + b^2 & 2a \\ 2b & -2a & 1 - a^2 - b^2 \end{vmatrix} = (1 + a^2 + b^2)^3$$
 (CBSE 2013, CBSE 2008,2009)
13. Using properties of determinants, prove the following $\begin{vmatrix} a^2 & bc & ac + c^2 \\ a^2 + ab & b^2 & ac \\ ab & b^2 + bc & c^2 \end{vmatrix} = 4a^2b^2c^2$ (CBSE 2015)

14. Using the properties of determinants, show that ΔABC is isosceles if:

$$\begin{vmatrix} 1 & 1 & 1 \\ 1 + \cos A & 1 + \cos B & 1 + \cos C \\ \cos^2 A + \cos A & \cos^2 B + \cos B & \cos^2 C + \cos C \end{vmatrix} = 0 \quad (\text{CBSE 2016})$$

15. If x, y, z are in GP than using properties of determinants where $x \neq y \neq z$ and P is any real number.

Show that
$$\begin{vmatrix} px + y & x & y \\ py + z & y & z \\ 0 & px + y & py + z \end{vmatrix} = 0 \quad (\text{CBSE Sample Paper 2015})$$

16. Without expanding, show that

$$\begin{vmatrix} \operatorname{cosec}^2 \theta & \cot^2 \theta & 1 \\ \cot^2 \theta & \operatorname{cosec}^2 \theta & -1 \\ 42 & 40 & 2 \end{vmatrix} = 0 \quad (\text{Exampler})$$

17. Show that if the determinant of $\begin{vmatrix} 3 & -2 & \sin 3\theta \\ -7 & 8 & \cos 2\theta \\ 11 & 14 & 2 \end{vmatrix} = 0$, $\sin \theta = 0$ or $\frac{1}{2}$ (Exampler)

18. Find the number of distinct real roots of $\begin{vmatrix} \sin x & \cos x & \cos x \\ \cos x & \sin x & \cos x \\ \cos x & \cos x & \sin x \end{vmatrix} = 0$ on the interval $-\frac{\pi}{4} \leq x \leq \frac{\pi}{4}$

19. If $x = -4$ is a root of $\begin{vmatrix} x & 2 & 3 \\ 1 & x & 1 \\ 3 & 2 & x \end{vmatrix} = 0$, then find the two other roots. (Exampler)

20. To promote the making of toilets for women, an organization tried to generate awareness through (i) house calls (ii) letters, and (iii) announcements. The cost for each mode per attempt is given as : (i) Rs. 50 (ii) Rs. 20 (iii) Rs. 40

The numbers of attempts made in three villages X, Y and Z are given below :

	(i)	(ii)	(iii)
X	400	300	100
Y	300	250	75
Z	500	400	150

Find the total cost incurred by the organisation for the three villages separately, using matrices. Write one value generated by the organisation in the society. (CBSE 2015)

21. The management committee of a residential colony decided to award some of its members (say x) for honesty, some (say y) for helping others (say z) for supervising the workers to keep the colony neat and clean. The sum of all the awardees is 12. Three times the sum of awardees for cooperation and supervision added to two times the number of awardees for honesty is 33. If the sum of the number of awardees for honesty and supervision is twice the number of awardees for helping others, using matrix method, find the number of awardees of each category. Apart from these values, namely, honesty, cooperation and supervision, suggest one more value which the management of the colony must include for awards. (CBSE 2013)

22. Using properties of determinants, prove that

$$\begin{vmatrix} 1 & 1 & 1 + 3x \\ 1 + 3y & 1 & 1 \\ 1 & 1 + 3z & 1 \end{vmatrix} = 9(3xyz + xy + yz + zx) \quad (\text{CBSE 2017})$$

23. Using elementary row transformations, find the inverse of the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 5 & 7 \\ -2 & -4 & -5 \end{bmatrix}$ (CBSE 2017)

CONTINUITY & DIFFERENTIABILITY

1. Find the constants a and b so that the function

$$\text{If } f(x) = \begin{cases} 3ax + b & , x > 1 \\ 11 & , x = 1 \\ 5ax - 2b & , x < 1 \end{cases} \text{ is continuous at } x = 1.$$

(DELHI CBSE 2011)

2. Find the value of k if the function

$$\text{If } f(x) = \begin{cases} \frac{1-\sin x}{(\pi-2x)^2} & x \neq \pi/2 \\ k & x = \pi/2 \end{cases} \text{ is continuous at } x = \pi/2$$

3. If $y = \sqrt{\frac{1-\sin 2x}{1+\sin 2x}}$, show that $\frac{dy}{dx} + \sec^2\left(\frac{\pi}{4} - x\right) = 0$

4. If the function f(x) defined below is continuous at x = 0. Find the value of k.

(CBSE 2010)

$$f(x) = \begin{cases} \frac{1-\cos 2x}{2x^2} & \text{if } x < 0 \\ k & \text{if } x = 0 \\ \frac{x}{|x|} & \text{if } x > 0 \end{cases}$$

5. Find the value of k so that the function $f(x) = \begin{cases} \frac{2^{x+2}-16}{4^x-16} & , x \neq 2 \\ k & , x = 2 \end{cases}$ is continuous at x = 2

6. Find values of p and q, for which $f(x) = \begin{cases} \frac{1-\sin^3 x}{3\cos^2 x} & \text{if } x < \frac{\pi}{2} \\ p & \text{if } x = \frac{\pi}{2} \\ \frac{q(1-\sin x)}{(\pi-2x)^2} & \text{if } x > \frac{\pi}{2} \end{cases}$ is continuous at $x = \frac{\pi}{2}$

7. If $f(x) = \begin{cases} \frac{\sin(a+1)x+2\sin x}{x} & \text{if } x < 0 \\ 2 & \text{if } x = 0 \\ \frac{\sqrt{1+bx}-1}{x} & \text{if } x > 0 \end{cases}$ is continuous at x = 0, then find the values of a and b.

8. If $f(x) = \frac{\sqrt{2}\cos x - 1}{\cot x - 1}$, $x \neq \frac{\pi}{4}$ find the value of $f\left(\frac{\pi}{4}\right)$ so that f(x) becomes continuous at $x = \frac{\pi}{4}$

9. If $\sin y = x \sin(a+y)$, prove that $\frac{dy}{dx} = \frac{\sin^2(a+y)}{\sin a}$ (DELHI CBSE 2012, CBSE 2009, 2013)

10. If $x^y = e^{x-y}$, prove that $\frac{dy}{dx} = \frac{\log x}{(1+\log x)^2}$ (CBSE 2013)

11. If $x = \sqrt{a^{\sin^{-1} t}}$, $y = \sqrt{a^{\cos^{-1} t}}$, show that $\frac{dy}{dx} = \frac{-y}{x}$ (CBSE 2012)

12. If $y = 3e^{2x} + 2e^{3x}$, prove that $\frac{d^2y}{dx^2} - 5\frac{dy}{dx} + 6y = 0$. (CBSE 2009)

13. If $y = \log [x + \sqrt{x^2 + a^2}]$. Prove that $(x^2 + a^2) \frac{d^2y}{dx^2} + x \frac{dy}{dx} = 0$ (DELHI CBSE 2013)

14. Differentiate w.r.t. x : $\sin^{-1}\left(\frac{2^{x+1} \cdot 3^x}{1+(36)^x}\right)$

15. Show that the function $f(x) = |x-1| + |x+1|$, for all $x \in \mathbb{R}$, is not differentiable at the points $x = -1$ and $x = 1$. (CBSE 2015)
16. Find $\frac{dy}{dx}$ if $x = \frac{1+\log t}{t^2}$, $y = \frac{3+2\log t}{t}$ (Exampler)
17. Find $\frac{dy}{dx} : \cos^{-1}\left(\frac{\sin x + \cos x}{\sqrt{2}}\right)$, $-\frac{\pi}{4} < x < \frac{\pi}{4}$ (Exampler)
18. If $\cos x^{\cos x^{\cos x}}$, show that $\frac{dy}{dx} = \frac{y^2 \tan x}{y \log \cos x - 1}$ (Exampler)
19. If $x = a(2\theta - \sin 2\theta)$ and $y = (1 - \cos 2\theta)$, find $\frac{dy}{dx}$ when $\theta = \frac{\pi}{3}$ (CBSE 2017)