## SANT NIRANKARI PUBLIC SCHOOL,FARIDABAD SUMMER HOLIDAY HOMEWORK CLASS - XII SESSION 2022-23

**Dear Parents** 

Holidays are a time to relax, rebound and rejuvenate, but as they say - vacation is just one letter different from vocation. It provides a great opportunity to smoothen the edges, to affirm the skills and to turn knowing into performing. Keeping it in mind, we have designed these assignments with a lot of care to help your ward have a meaningful, purposeful and rewarding vacation.

Compilation of work needs to be done as per the instruction given with the subject homework. Happy vacation!

## ENGLISH CORE (301)

Dear students this Experiential Learning based project work is a vital part of the Internal Assessments. It is mandatory for each of the students to submit the project work, in time, complete in all respect. Project without video will not be accepted.

## **PROJECT WORK CUM SURVEY**

Each of the students has to make a survey about any one child labourer or a slum child or a rag picker in any locality. The researcher has to employ a fixed questionnaire to interview the child. The researcher must switch on the location on the cell phone or any electronic device and video graph the entire session of interview. The video must not be larger than 25mb in size. The

questionnaire has been included with this task sheet.

RESEARCH METHODOLOGY - [INTERVIEW]

PAGE - 1: COVER PAGE

PAGE - 2: ACKNOWLEDGEMENT SHEET

PAGE – 3: CERTIFICATE PAGE

PAGE – 4: IMPORTANCE OF RESEARCH WORK [125-150 words]

PAGE – 5: QUESTIONNAIRE WITH ANSWERS OF THE INTERVIEWE

PAGE – 6: PERSONAL EXPERIENCE OF DOING THE ASSIGNMENT

PAGE – 7: PICTURES OF THE STUDENT WRITING THE PROJECT

## QUESTIONNAIRE

Questions must be asked to the child either in Hindi or in the language of the child.

Question.1. What is your name?

Question.2. Why are you doing this work?

Question.3. Do you want to go to school if you get admission in one?

Question.4. Who else is there in your family?

Question.5. Are you the only person earning bread for your family?

Question.6. Do you have any aim in life? If yes what is it and why?

#### **READING AND WRITING**

- 1. Practice Comprehension Passage .
- 2. Write Notices on the following occasions (three of each category)
- a. Tours
- b. Sports
- c. Cultural / Extra- curricular activities
- d. Lost & Found
- e. Appeals
- 3. Write Formal letters on the following topics (three of each category)
- a. Editor
- b. Job Application
- 4. Write articles on the following topics (Word-limit 150- 200)

Write articles on the following topics (Word-limit 150- 200)

a. My vision of future India

- b. Digital education in India
- c. Women safety in India
- d. 50- years of Earth Day

### LITERATURE

Revise and learn question/answers of all the Poems AND Chapters done in the class.

All the work assigned till date should be neatly written in your C.W. notebook and submitted for checking after the holidays.

## विषय - हिंदी

- आरोह व वितान में कराए गए सभी पाठों को ध्यानपूर्वक पढ़िए व उनके प्रश्नोतर याद कीजिए।
- जनसंचार माध्यम पाठ से संबंधित प्रश्नोतर याद कीजिए।

## क्रियाकलाप

- जन संचार के आधुनिक साधनों का एक सुंदर व आकर्षक कोलाज का निर्माण कीजिए।
- समाज की वर्तमान स्थिति का एक समाचार वाचक की तरह प्रस्तुतीकरण कीजिए।
   (इस प्रस्तुति को आप विडियो बनाकर या पी पी टी के रूप में कर सकते हैं।)

## परियोजना कार्य

 आधुनिक काल के लेखकों की सूची बनाइए तथा उनमें से किसी एक प्रसिद्ध लेखक का जीवन परिचय, रचनाएँ व भाषा शैली का वर्णन करते हुए उनकी एक प्रमुख रचना लिखिए ।

## MATHEMATICS

## **INFORMATICS PRACTICES**

- 1. Complete back exercises of chapters 1,5,6
- 2. Complete your practical file.
- 3. Make project on the topic chosen in class XI.

## ACCOUNTANCY

## Topic : Accounting for Partnership – Fundamentals

## Section A

## **Multiple Choice Questions :**

- **Q.1** The real test of partnership is:
  - (a) Business
  - (b) Sharing of Profits
  - (c) Agreement
  - (d) Business to be carried on by all or any of them acting for all.
- **Q.2** The partnership relation exists when:
  - (a) Joint owner of some property share profit or loss arising from the property.
  - (b) A person receives a share of profit as a part of his remuneration.
  - (c) Two friends A (age 19 years), B (17 years) decide to form a partnership.
  - (d) A and B agreed to sell clothes for their joint account and share the profits.

## Q.3 Mutual Agency is:

(a) Prima facie evidence of partnership

(b) Conclusive evidence of partnership

(c) none of these Q.4 Sharing of profits is: Prima facie evidenceof partnership (b) Conclusive evidence of partnership (a) (c) None of these Q.5 The partnership deed must be signed by the: one of the partners (a) (b) majority of the partners (c) all senior partners (d) all partners The terms laid down in the partnership deed may be varied by the consent of: Q.6 (a) all senior partners (b) majority ofpartners none of these (c) all partners (d) Q.6 Registration of a firm is: (a) Compulsory (b) Optional (c) None of these Q.7 Registration of firm can be effected: at the time of its formation at any time after its formation (a) (b) on or after formation of firm (d) none of these (c) Q.8 A partnership at will is one: Which does not have any deed (a) (b) Which does not have any partner Which does not provide for how long the business will continue (c) Which cannot be dissolved (d) Q.9 A partnership at will is one 1. Duration not fixed 2. Duration fixed 3. Dissolved at any time 4. Can be dissolved only on the happening of an event

2&3

1&3

(b)

(d)

1 & 2

3&4

(a)

(c)

- **Q.10** There is no provision in the partnership deed regarding the duration of partnership. This is
  - (a) partnership at will (b) partnership for an indefinite period
  - (c) partnership by estoppel (d) partnership, not recognized by law
- **Q.11** Suppose you have entered into a partnership agreement with me and the partnership deed provides neither for the duration nor for the determination of our partnership. What is the technical expression for this kind of partnership?
  - (a) Partnership for a fixed term

(b) Partnership at will

None of the above

(c) Particular Partnership (d) Any of these

Q.13 Anil and Sunil are partners sharing profits and losses in the ration of 3 : 2 having, the capital of ₹1,60,000 and ₹1,00,000 respectively. They are entitled to 9% p.a. interest on capital before distributing the profits. During the year firm earned ₹15,600 before allowing any interest on capital. Profits apportioned among A and B is:

(a) ₹ 9,360 and ₹ 6, 240 (b) ₹ 9,600 and ₹ 6,000 (c) ₹ 10,000 and ₹5,600 (d) None of these

Q.14 A and B are partners with the capital of ₹50,000 and ₹30,000 respectively. Interest payable on capital is 10%

p.a. Find the interest on capital for both the partners when the profits earned by the firm is ₹4,800. ;

(a)	₹5,000 and	₹3,000	
(b)	₹3,000 and	₹1,800	
(c)	No interest w	ill be paid to the partners	(d)

Q.15 Monu and Nonu are partners sharing profits and losses in the ratio 4 :1. Om was manager who received the salary of ₹8,000 p.m. in addition to a commission of 5% on net profits after charging such commission. Profits for the year is ₹13,56,000 before charging salary. Find the total remuneration of Om.

- (a) 1,56,000 (b) 1,76,000
- (c) 1,74,000 (d) 1,52,000

Q.16 X, Y and Z were capitals of 50,000; 40,000 and 30,000 respectively carrying on business in partnership. The firm's reported profit for the year was 79,200. As per provisions of the Indian Partnership Act, 1932, find out the share of each partner in the above amount after taking into account that no interest has been provided on an advance by A of ₹ 20,000, in addition to his capital contribution.

(a) ₹26,000 for Partner Y and Z & ₹27,200 for partner X

(b) ₹26,400 each partner

(c) ₹33,000 for X, ₹26,400 and ₹19,800 for Z

(d) None of these

Q.17 A, B and C are partners in a firm. At the time of division of profit for the year there was dispute between the partners. Profits before interest on partners' capital was ₹12,000. A wanted interest on capital @ 20% as his capital contributions was 2,00,000 as compared to that of B and C which was ₹1,50,000 and ₹1,00,000 respectively.

(a) Profits of ₹12,000 will be distributed equally.

(b) A will get the interest of ₹40,000 and loss of ₹28,000 will be shared equally.

(c) All the partners will get interest on capital and the loss of ₹78,000 will be shared equally.

(d) None of these

Q.18 W, X and Y are partners in a firm. At the time of division of profit for the year there was dispute between the partners. Profits before interest on partner's loan was ₹12,000 and X determined interest @ 24% p.a. on his loan of ₹1,60,000. There was no agreement on this point. Calculate the amount payable to W, X and Z respectively.

- (a) ₹4,000 to each partner
- (b) Loss of ₹8,800 for W and X & Y will take home ₹25,600
- (c) ₹800 for W, ₹10,400 for X and ₹800 for Y. (d) ₹4,800 to each partner

Q.19 A, B and C are partners in a firm. At the time of division of profit for the year there was dispute between the partners. Profits before interest on partner's capital was ₹12,000 and C demanded minimum profit of ₹10,000 as his financial position was not good. However, there was no written agreement on this profit.

(a) Other partners will pay A the minimum profit and will suffer loss equally.

- (b) Other partners will pay C the minimum profit and will suffer loss in capital ratio.'
- (c) A & B will take ₹1,000 each and C will take ₹10,000.
- (d) 4,000 to each of the partners.

Ans :	(1)	d	(2)	d	(3)	b	(4)	А	(5)	d
	(6)	С	(7)	b	(8)	С	(9)	С	(10)	d
	(11)	а	(12)	b	(13)	b	(14)	В	(15)	а

(16) a (17) a (18) c (19) D

#### Section B

Very short answer type questions :

Q.1 Why interest on capital is charged?

Q.2 Is it necessary to have a partnership agreement is compulsory?

Q.3 Does a partnership firm posses separate legal entity?

Q.4 What is the purpose of partnership deed?

Q.5 What do you mean by 'partner' and 'Firm'?

Q.6 Distinguish between a charge and an appropriation.

Q.7 In the absence of any provision in the partnership deed, at what rate is a working partner is entitled for remuneration?

Q.8 A a partner claims 6% p.a. interest an capital. Is his claim valid

(a) if partnership deed in silent in this matter?

(b) if partnership deed provides for interest on capital & the rate is not specified.

Q.9 B has made drawings of 60,000 during the year. Firm wants to charge 10% p.a. interest on this amount. Can the interest be charged if partnership deed is silent in this matter?

Q.10 Write two items on credit side of current account.

Q.11 Write two items on debit side of fixed capital account.

Q.12 What is meant by current account of partners?

Q.13 What is meant by fluctuating capital of partners?

Q.14 How are mutual relations of partners governed in the absence of partnership deed?

Q.15 What can be the maximum number of partners in a firm as per Companies Act 2013.

Q.16 Amit is an active partner. He wants a salary of 40000 per year. State whether his claim is valid if the partnership agreement is silent in this matter?

Q.17 For what period the interest an drawings will be calculated in the following cases:

a. A fixed amount withdrawn on the last day of end of every month.

- b. A fixed amount withdrawn on the middle day of every half-year.
- c. A fixed amount withdrawn on the first day of every bio-monthly.
- d. A fixed amount withdrawn on the first day of every month.
- e. A fixed amount withdrawn on the last day of every quarter.

Q.18 Name the items which may change the balance of partner's fixed capital account A/c.

Q.19 P, Q & R are partners in a firm having no partnership agreement. They contributed ₹5,00,000, ₹600000 and ₹900000 respectively. P & Q desire that the profit should be divided in the ratio of Capital contribution. P does not agree to that. How will you settle the dispute?

Q.20 Give one point of difference between profit & loss account and Profit & loss Appropriation Account.

#### **Questions based on Assertion and Reasoning**

1. Assertion :A) partners salary is recorded in the profit and loss appropriation account Reason :R) In partnership business there is no relationship of employer and employee.

a) Both A and R are correct

- b) Both A and R are incorrect
- c) only A is correct and R is false
- d) only R is correct.

2. Assertion: A) in the absence of partnership deed partner share profits and losses in the ratio of capital employed.

Reason: R) capital ratio is more profitable to the partners

a) Both A and R are correct

- b) Both A and R are incorrect
- c) only A is correct and R is false
- d) only R is correct.

3. Assertion: A) salary to a partner under fixed capital account is credited two partners current account. Reason: R) Partners capital account baby maintained by fixed and fluctuating capital account method

a) Both A and R are correct

b) Both A and R are incorrect

c) only A is correct and R is false

d) only R is correct.

4. Asertion: Interest on partners loan is not ah part off profit and loss appropriation account Reason: R) Interest on loan is not a charge against profit and loss account

a) Both A and R are correct

b) Both A and R are incorrect

c) only A is correct and R is false

d) only R is correct.

5. Assertion : A ) interest on loan given to a partner of a firm will be entitled 6% rate of interest at least. Reason: R) when partnership deed is silent.

a) Both A and R are correct

b) Both A and R are incorrect

c) only A is correct and R is false

d) only R is correct.

#### Section C

#### Short Answer type questions :

Q.1 P and Q entered into a partnership on 1st April, 2019 without any partnership deed. They introduced capitals of ₹5,00,000 and ₹3,00,000 respectively. On 31st October, 2019, P advanced ₹2,00,000 by way of loan to the firm

without any agreement as to interest.

The profit and loss account for the year ended 31st March, 2020 showed a profit of ₹4,30,000, but the partners could not agree upon the amount of interest on loan to be charged and the basis of division of profits. Pass a journal entry for the distribution of the profit between the partners and prepare the capital accounts of both the partners and loan account of P.

(Ans : Interest on Loan ₹6000, Profit : ₹212000 each.)

- Q.2 P, Q and R were partners in a firm. On 1.1.2019 their capitals stood at ₹1,00,000
   ₹50,000 and ₹50,000 respectively. As per provisions of the partnership deed :
- a. R was entitled for a salary of ₹2000 p.m.

- b. Partners were entitled to interest on capital @ 5% p.a.
- c. Profits were to be shared in the ratio of capitals.

The net profit for the year 2019 of ₹66000 was divided equally without providing for the above terms. Pass an adjustment entry to rectify the above error.

(Ans : Debit P₹1000, Debit Q ₹11500, Credit R ₹12500)

- Q.3 R, S and T were partners in a firm. On Ist Jan 2019 their capitals stood at ₹1,00,000;
   ₹50,000 and ₹50,000 respectively. As per the provisions of the deed :
- a. T was entitled for a Salary of ₹1500 per month.
- b. Partners were entitled to interest on capital @ 5% p.a.
- c. Profits were to be shared in the ratio of capitals.

The net profit for the year 2019 of ₹45000 was divided equally without providing for the above terms. Pass an adjustment entry to rectify the above error. (Ans: Dr. R ₹3000, S ₹16500 Cr

#### T ₹19500)

Q.4 J and K are partners sharing profits and losses in the ratio of 3 : 1. Following is the Balance Sheet of the firm as

Liabilities	₹	Assets		₹
Sundry Creditors	20,000	Fixed Assets		102000
J's Capital	90,000	Current Assets		20,000
K's capital	30,000	Drawings : J :	12000	
		К:	6000	18000
	1,40,000			1,40,000

Profit for the year 2019 24000 was divided between the partners in their profit sharing ratio, but interest on capital @ 5% p.a. and on drawings @ 6% p.a. was inadvertently ignored. Give adjustment entry.

(Ans : Interest on Capital. J 1200 K 3600; Interest on Drawings J 360, K 180)

Q.5 P & Q are partners with capitals of ₹60,000 and ₹20,000 respectively. On 31 Dec. 2019 the trading profit (before taking into account the provisions of deed) was ₹24000. Interest on capitals is to be allowed at 6% p.a. B was entitled to a salary of 6,000 p.a. The drawings of the partners P & Q were ₹6000 and ₹4000 respectively. The interest on Drawings for P being ₹200 and Q ₹100. Assuming that P & Q are equal partners, prepare the Profit & Loss Appropriation A/c and Partner's Capital Accounts as at 31st Dec. 2019. (Ans : P & Q will get ₹6750 each)

#### Section D

#### Long Answer type Questions :

#### Q. 6 Following is the Balance sheet of A and B on 31.3.2017.

**Balance Sheet** 

Liabilities	₹	Assets	₹
Capital		Land	3,00,000
A	4,00,000	Plant and Machinery	1,50,000
В	3,80,000	Stock	1,60,000
		Debtors	1,00,000
Creditors	1,00,000	Cash	1,50,000
		Drawings : B	20,000
	8,80,000		
			8,80,000

Calculate interest on capital if partnership deed provides interest on capital @ 8%p.a. B

introduced additional capital of 80000 on 1 October 2018. Profits for the year ended 31.3.2019 was ₹60000. B's drawings was ₹12000. Interest on capital was omitted

(Ans : Interest on Capital A 29600; B 24800)

Q.7 P & Q are equal partners in a firm. They admit R into partnership on the following conditions

a. That R will be given 1/3rd share of profits.

b. That P guarantees that R's share of profit shall be ₹7,000 after charging interest on loan given by partner to the firm.

P's loan amount to ₹20,000 and Q's loan amount to ₹10,000. The profit for the year ended 31 December 2019 amounted to ₹19,800 before charging interest on partners' loans. Prepare P & L appropriation account at the end of the year.

(Ans : Profit : P 9000; Q9000)

Q.8 Ashu and Rishu were partners sharing profit in the ratio of 3 : 2. Their capitals as on 31 st March, 2020 were ₹5,50,000 and ₹4,50,000 respectively after distributing profit of ₹1,50,000 and after their drawings of ₹60,000 nd ₹40,000 respectively. It was noticed that profit was distributed wrongly committing following errors :

1. They had agreed to share profits equally w.e.f. 1 st April, 2019.

2. An item in inventory was valued at ₹12,800 as on 31st March, 2020 whereas its net realisable value (market value) was ₹8,300.

3. Insurance premium for inventory paid was ₹24,000 and was shown in the debit of Profit and Loss Account.The inventory was insured up to 30th June, 2020.

4. Loan was given to Ritul on 1st January, 2019 of ₹50;000 bearing interest @ 10% p,a. Interest was not charged by the firm. .

5. Ashu had given a loan to the firm of ₹1,00,000 on 1 st October, 2019. Interest was not allowed by the firm.

6. interest on capital @ 5% was not allowed and similarly interest on Drawings was not charged @ 8% p.a.

#### Section E (CASE STUDY BASED QUESTIONS:)

I.A and B are partners sharing profits and losses equally. They admit C as a partner with an equalshare giving him a guarantee of minimum₹50,000 per annum. The profit for the year after C'sadmission was₹1,20,000. What will be the net amount that will be credited to A's capital account ?

a) 50,000 b) 40000 c) 35000 d) 80000

Ans : (c)

2. If a partner withdraws an equal amount in the beginning of each month for a period of 10 months what will be the average. For calculation of interest on drawings?

a) 6.5 months b) 7.5 months c) 6 months d) 5.5 months

Ans (d)

3. Read the following information carefully and answer the questions that follow:

X and Y our partners sharing profits in the ratio of 3 : 2. Their capital balances as on 1st April 2020 amounted to ₹ 2,00,000 each. On1st February, 2021,X contributed an additional capital of ₹1,00,000. following other terms of the deed:

-interest on capital at the rate of 6% p.a.

-interest on drawings at the rate of 8% p.a.

-salary to X ₹1500 per month

- Commission to Y @ 10% on the net profit after charging interest on capital, salary and his Commission.

Drawings of the partners work ₹20000 and ₹30000 respectively during the year. net profit earned by the firm was ₹ 208000.

Choose the correct option based on the above information:

i.	What is the am	ount of interest	t on capit	als of X	and Y ?	
a)	12,000 each	b) 12000	to X and	13000	to Y	
c)	13,000 to X and	d 12000 to Y	d)	None c	of the above.	
Ans: (c)	)					
ii.	What is the am	ount of interest	on draw	/ings of X	K and Y:	
a)	1200 and	1800 respectiv	ely	b)	800 and	1200 respectively
c)	1200 and	800 respective	ly	d)	1600 and	2400 respectively
Ans: IO	D will be calcula	ited for an avera	age perio	d of 6 m	onths since time	e of drawings is not given.
iii.	What is the am	ount of Commis	ssion pay	able to `	Y?	
a)	15,000 b)	16, 500 c)	800, 20	) d)	none of these	
Ans : (a	a)					
iv.	What is X's sha	re in the net div	visible pro	ofit ?		
a)	12440 b)	83600 c)	91200	d)	60800	
v.	What will be th	ne closing capita	l of X aft	er all adj	ustments?	
a)	422200 b)	401400 c)	300000	) d)	423000	
II.	Read the follow	ving informatior	n carefull	y and ar	nswer the questi	ons that follows

A, B and C who are partners sharing profits in the ratio of1:2:3. there fixed capitals on1st April 2020 were: A ₹300000; B ₹450000 and C ₹1000000. their partnership deed provided the following:

i) A provides his personal office to the firm for business use for business use charging yearly rent of ₹150 000.

ii) Interest on capitals@ 8%p.a. and interest on drawings @ 10 % p.a.

iii) A was allowed a salary of ₹ 10 000 per month.

iv) B was allowed a Commission of 10% of the net profit as shown by profit and loss account, after charging such Commission.

v) C was guaranteed a profit of ₹3 00,000 after making all adjustments

The net profit for the year 31st of March 2021 was ₹10 30 000 before making the above adjustments you are informed that A has withdrawn? 5000 at the end of each month and C has withdrawn ₹24000 in the beginning of each quarter.

choose the correct option based on the above information:

i.	A's rent will be	shown i	n :					
a)	profit and loss	account	b)	profit a	nd loss a	appropriation ac	count	
c)	A's capital acco	ount	d)	none of	f the abo	ove		
ii.	Net profit for t	he year i	s:					
a)	₹10 30 000	b)	₹11800	00	c)	₹730000	d)	₹880000
iii.	What will be th	ie divisib	le profit	?				
a)	₹556000	b)	₹55000	0	c)	₹552000	d)	₹553000
iv.	What will be th	ie total i	nterest c	on drawi	ngs?			
a)	₹24000 b)	₹12000	) c)	₹36000	) d)	₹48000		

Topic : Valuation of Goodwill and Change in profit sharing Ratio Among the existing partners:

#### Section A

Multiple Choice Questions :

- Q.1 Following are the factors affecting goodwill except:
- (a) Nature of business (b) Efficiency of management
- (c) Technical knowhow (d) Location of the customers
- Q.2 Under average profit basis goodwill is calculated by:
- (a) No. of years purchased multiplied with average profits.
- (b) No. of years purchased multiplied with super profits.
- (c) Summation of the discounted value of expected future benefits.
- (d) Super profit divided with expected rate of return.

- Q.3 Under super profit method goodwill is calculated by:
- (a) No. of years purchased multiplied with average profits.
- (b) No. of years purchased multiplied with super profits.
- (c) Summation of the discounted multiplied with super profits.
- (d) Super profit divided with expected rate of return.
- Q.4 Under capitalisation basis goodwill calculated by:
- (a) No. of years purchased multiplied with average profits
- (b) No. of years purchased multiplied with super profits
- (c) Summation of the discounted multiplied with super profits
- (d) Super profit divided with expected rate of return
- Q.5 Under capitalisation basis goodwill calculated by:
- (a) No. of years purchased multiplied with average profits.
- (b) No. of years purchased multiplied with super profits
- (c) Summation of the discounted multiplied with super profits,
- (d) Super profit divided with expected rate of return.
- Q.6 Firm has earned exceptionally high profits from a contract which will not be renewed. In such a case the profit from this contract will not be included in .....
- (a) Profit share of the partners (b) Calculation of the goodwill
- (c) Both (d) None
- Q.7 Weighted average method of calculating goodwill should be followed when:
- (a) Profits are uneven (b) Profits has increasing trend
- (c) Profits has decreasing trend (d) Either 'b' or 'c'

Q.8 The profits of last five years are ₹1,70,000; ₹1,80,000; ₹1,40,000; ₹2,00,000 and ₹1,60,000. Find the value of goodwill, if it is calculated on average profits of last five year on the basis of three year's purchase.

- (a) ₹1,70,000 (b) ₹5,10,000
- (c) ₹5,30,000 (d) ₹5,70,000

Q.9 The following particulars are available in respect of the business carried on by a partnership firm: Trading Results as at 31 March was:

Year 2018	Loss	₹10,000
Year 2019	Loss	₹12,000
Year 2020	Profit	₹1,50,000
Year 2021	Profit	₹1,20,000

The value of goodwill on the basis of 5 years' purchase of average profit of the business is:

(a)	₹2,50,000	(b)	₹3,10,000
(c)	₹20,000	(d)	₹3.40,000

Q.10 The profits and losses for the last 4 years are Losses ₹20,000; Losses ₹5,000; Profits ₹1,96,000 & Profits ₹ 1,52,000. The average capital employed in the business is ₹4,00,000. The rate of interest expected from capital invested is 12%. The remuneration of partners is estimated to be₹2,000 per month. The value of

goodwill on the basis of two years' purchase of super profits based on the average of four years is:

(a) 18,000 (b) 17,500

(c) 17,000 (d) 16,500

Q.11 The profits for the last three years are ₹40,000; ₹60,000 & ₹66,500. The total liabilities of the firm are ₹10,00,000 of which outsiders liabilities is ₹5,42,500. The rate of interest expected from capital invested is

10%. The value of goodwill on capitalisation basis is:

(a) 97,000 (b) 97,250

(c) 97,500 (d) 97,750

Q.12 The profits for Year I are ₹4,000; for Year II is ₹52,200 and for Year III is ₹62,400. Closing stock for Year II and Year III includes the defective items of ₹4,400 and ₹12,400 respectively which were considered as having market value NIL. The value of goodwill on average profit method is:

(a) 47,400 (b) 35,400

(c) 27,400 (d) 34,600

Q.13 Total Capital Employed in the firm 16,00,000 Reasonable Rate of Return 15%

Profits for the year ₹24,00,000

The value of goodwill using capitalisation method is:

(c) 1,44,00,000 (d) 84,00.000

Q.14 X and Y shared profit and losses in the ratio of 3:2. With effect from 1st April they agreed to share profits equally. The goodwill of the firm was valued at ₹30,000. The necessary single adjusting entry will involve.

(a)	Debit Y and Credit X by ₹3,000 (b)	Debit X and Credit Y with ₹3.000
(c)	Debit X and Credit Y with ₹300 (d)	Debit Y and Credit X with ₹300

Q.15 A, B and C are sharing profits & losses in the ratio of 5:3:2. They decide to share future profits & losses in the ratio of 2:3:5 with effect from 1st April. They also decide to record the effect of following revaluations without affecting the book values of the assets & liabilities, by passing a single adjusting entry:

**Book Figure Revalued Figure** 

Land & Building 60,000 90,000 Plant & Machinery 90,000 84,000 Trade Creditors 30,000 27,000 **Outstanding Expenses** The necessary single adjusting entry will involve: 27,000 36,000 (a) Debit C and Credit A with 5,400 (b) Debit A and Credit C with 5,400 Debit B and Credit A with Debit A and Credit B with 5,400 (c) 5,400 (d)

Q.16 A, B and C are sharing profits & losses in the ratio of 5:3:2. They decide to share future profits & losses in the ratio of 2:3:5 with effect from 1st April. They also decide to record the effect of the following accumulated profits, losses & reserves without affecting their book figures, by passing a single adjusting entry.

	Book Figure
General Reserve	₹24,000
Profit & Loss A/c	₹6,000

Advertisement Suspense A/c (Dr.) ₹12,000

The necessary single adjusting entry will involve

(a)	Debit C and Credit A with ₹5,400	(b)	Debit A and Credit C with ₹5,400
(c)	Debit C and Credit A with ₹5,400	(d)	Debit A and Credit B with ₹5.400

Q.17 X, Y and Z are partners sharing profits and losses in the ratio 5:3:2 decide, to share the future profits in the ratio 2:3:5. What will be treatment for workmen compensation fund appearing in the balance sheet on the date if no information is available for the same?

(a) Distributed to the partners in old profit sharing ratio.

(b) Distributed to the partners in new profit sharing ratio

(c) Distributed to the partners in capital ratio.

(d) Carried forward to new balance sheet without any adjustment.

Ans :	(1)	d	(2)	а	(3)	b	(4)	d	(5)	b
	(6)	d	(7)	b	(8)	b	(9)	b	(10)	С
	(11)	d	(12)	b	(13)	с	(14)	а		
	(15)	а	(16)	а						

#### Section **B**

Questions based on Assertion and Reason :

1. Assertion (A): super profit can be calculated as Average profit - Normal profit. Reason (R): Capital employed-net profit.

a) Both A and R are correct.

b) Both A and R are incorrect

c) only A is correct and R is false

d) only R is correct.

2. Assertion (A): Better quality of product will increase the sales and profit Reason (R): Because of efficiency of management

- a) Both A and R are correct.
- b) Both A and R are incorrect
- c) only A is correct and R is false
- d) only R is correct.

Very short answer type questions :

- Q.1 What is meant by Super Profits.
- Q.2 What is meant by sacrificing partners?
- Q.3 Mention the occasions on which reconstitution of partnership firm can take place.
- Q.4 Give two circumstances in which gaining ratio may be applied.
- Q.5 What is meant by reconstitution of a partnership firm?
- Q.6 What does a change in profit sharing ratio imply?
- Q.7 What is gaining ratio? Give its formula.
- Q.8 Why sacrificing ratio is calculated.
- Q.9 Give two circumstances in which sacrificing ratio may be applied.
- Q.10 What is gaining ratio? Give its formula.
- Q.11 What do you mean by self-generated goodwill?
- Q.12 Give any two characteristics of goodwill.
- Q.13 Name any two factors effecting goodwill of a partnership firm.
- Q.14 How is goodwill valued under the capitalization of super profit method?

Q.15 When there is change in profit sharing ratio among existing partners does it require adjustment for goodwill?

#### Section C

Short answer type questions :

Q.1 X, Y and Z are sharing profits & losses in the ratio of 6 : 4 : 2 respectively. With effect from 1st April they agreed to share profits equally. The goodwill of the firm is valued at₹18000. Make necessary journal entry.

Q.2 P, Q and R are partners sharing profits in the ratio of 3 : 2 : 1 . On 1.4.2017 they decided to share profits equally. On that date there was a credit balance of ₹60000 in P & L A/c and a balance of ₹30000 in General reserve A/c Instead of closing the general reserve and P & L A/c it is decided to record an adjustment entry for the same.

You are required to record the necessary adjustment entry to give effect to the above arrangement.

Q.3 R, S and T were partners in a firm sharing profits and losses in the ratio of 3:3:2. On 31 March 2019 their Balance sheet showed General Reserve appearing at ₹40000 and Deferred

Revenue expenditure at ₹8000. Partners decided that with effect from 1st April 2010 they would share profits and losses in the ratio of 4:3:2. For this purpose when assets and liabilities were revalued it resulted in a profit of ₹14600.

Partners agreed that revised values of assets and liabilities are not to be recorded in the books. They do not want to distribute the General Reserve.

Give necessary journal entries to be made in the books of the firm on account of change in profit sharing ratio.

Q. 4 Kanav, Kabir and Kartik are partners in a firm sharing profits and losses in the ratio of 2:2:1. Yatish has been the partner for the past 10 years for 1/5th profit. Kanav and Kabir decide that the profit sharing ratio of the partners be made equal and that Kartik be not charged any goodwill for the gain in profit share. What value has been fulfilled by Kanav and Kabir?

Section D

Q.5 Following information is available about the business of a firm :

i. Profits in 2019 ₹40,000, in 2020 ₹50,000 in 2021 ₹60,000.

ii. Non recurring income of ₹4000 is included in the profits of 2020.

iii. Profits of 2019 have been reduced by ₹6000 because goods were destroyed by fire

(iv) Goods have not been insured but it is thought to insure them in future. The insurance premium is estimated at ₹400 per year.

(v) Reasonable remuneration of the proprietor of business is ₹6000 per year, but it has not been taken into account for calculation of above mentioned profits.

(vi) Profits of 2021 include ₹5000 as income on investment.

Goodwill is agreed to be valued at two years' purchase of the weighted average profits of the past three years. The appropriate weights to be used are :

2019 : - 1; 2020 - : 2; 2021 - : 3. Calculate goodwill. (Ans : 88200)

Q.6 A partnership firm earned net profits during the last four years as follows :

Year

2021 1,12,000

₹

2020 1,28,000

2019 1,20,000

2018 1,24,000

The capital investment in the firm throughout the above mentioned period has been ₹6,00,000. Having regard to the risk involved, 15% is considered to be a fair return on the capital.

Calculate the value of goodwill on the basis of 3 years' purchase of average super profits earned during the above mentioned four years. (Ans : 93,000)

Q.7 The profit earned by a firm during the last four years were as follows :

Year ended 31 March Profits (₹)

2018 1,60,000

2019 2,00,000

2020 2,20,000

2021 3,00,000

Calculate the value of goodwill on the basis of three years' purchase of weighted average profits. Weights to be used are 1, 2, 3 and 4 respectively to the profits for 2018, 2019, 2020 and 2021.

(Ans : ₹726000)

Q.8 Calculate goodwill on the basis of two year's purchase of average profits of last six years. Profits are as follows :

Year

Profit/Loss (₹)

2021	60,000		Profit	
2020	40,000	Loss		
2019	30,000	Loss		
2018	1,00,000	Profit		
2017	1,70,000	Profit		
2016	2,20,000	Profit	(Ans :	160000)

Q.9 A, B and C are partners in a firm sharing profits and losses in the ratio of 2:2:1. A has been the partner for the past 10 years for 1/5th share in profit. A and B decide that the profit sharing ratio of the partners be made equal. It was also decided that assets shall not be revalued although the market value is higher than the book value. Similarly liabilities shall not be reassessed. What value has been fulfilled by A and B?

Q.10 The average profits of a firm is ₹48,000. The total assets of the firm are 8,00,000. Value of other liabilities is ₹5,00,000. Average rate of return in the same business is 12%.

Calculate goodwill of the firm by capitalisation of average profits method. (Ans : 100000)

Section E (CASE STUDY QUESTIONS)

I. Read the following paragraph and answer the questions that follow :

Any changes in the relations of partnership will result in the reconstitution of the partnership firm. All the reserves and surplus will be distributed among the partners in the existing profit sharing ratio. When it is decided by the partners to make changes in the existing ratio a separate account is opened which is known as Profit and loss adjustment or Revaluation account to make the revaluation of assets and reassessment of liabilities with a motive to calculate actual economic benefits

1. The need of revaluation of assets and liabilities:

a) assets and liabilities should appear at revised values

b) Any profit or loss on account of change in values belong to old partners. c) All unrecorded assets and liabilities get recorded.

d) None of the above

- 2. Revaluation account is a:
- a) Real account b) Nominal account
- c) Personal account d) None of the above

3. Any change in the relationship of existing partners which results in the end of the existing agreement and enforces making of new agreement is called:

a) Revaluation of partnership

b) Reconstitution of partnership c) Realization of partnership

d) None of the above

4. In case of change in profit sharing ratio, the accumulated profits are distributed to the partners in:

- a) New ratio b) Old ratio
- c) Sacrificing ratio d) Equal ratio
- 5. Increase and decrease in the value of assets and liabilities are recorded through :
- a) Partners capital account
- b) Revaluation account
- c) Profit and loss appropriation account
- d) Balance sheet.

#### II. Read the following paragraph and answer the following questions

Bhavya and Naman were partners in a firm carrying on a Tiffin service in Hyderabad. Bhavya noticed that a lot of food is left at the end of the day. To avoid wastage she suggested that it can be distributed to the needy. Naman wanted that it should be mixed with food being served the next day .Naman then gave a suggestion that if his share in the profit is increased he will not mind free distribution of leftover food. Bhavya happily agreed so they decided to change their profit sharing ratio 1 : 2 with immediate effect. On that date revaluation of assets and reassessment of liability was carried out that resulted in a gain

of 18000. On that day goodwill of the firm was valued at 120000.

- 1. Sacrificing ratio equal to
  - a) Old ratio minus new ratio b) New ratio minus old ratio
  - c) Old share plus new share d) old share.
- 2. Sacrificing/gain of Bhavya and Naman will be
  - a) Bhavya sacrifice 1/6, naman gains1/6 b)Bhavya gains1/6, Naman sacrifice1/6

c) only Bhavya gains1/6

d)only Naman sacrifice 1/6

3. At the time of change in profit sharing ratio gaining partner capital account is -----and sacrificing partner is -

----- for the adjustment of goodwill.

#### a) Credited, Debited

b) Increased or Decreased

c) Debited, Credited0d0Decreased or Increased

d). Pass the journal entry for adjustment of goodwill

a)	Naman's capital account	Dr	1,20,000	

To Bhavya's Capital A/c 1,20,000

b)	Bhavya's capital account	Dr.	60,000	
	To Naman's	capital ac	count	60,000
c)	Naman's capital account	Dr.	20,000	
	To Bhavya's	capital ac	count	20,000
d)	Naman's capital account	Dr.	1,00,000	
	To Bhavya's	1,00,000		

#### **BUSSINESS STUDIES**

Learn Chapter 1to 4 and do the following assignment . Chapter 1 Nature and Significance of Management

Q. 1. Ramesh is working as 'Operations Manager' in ABC Ltd. Name the managerial level at which he is working. State any four functions he will perform as 'Operations Manager' in this company.

Q. 2. XYZ Ltd's target is to produce 10000 shirts per month at a cost of Rs. 100/- per shirt. The Production Manager achieved this target at a cost of Rs. 90/- per shirt. Do you think the 'Production Manager' is effective? Give one reason in support of your answer.

Q. 3. Yash Ltd. is facing a lot of problems these days. It manufactures electronic goods like washing machines, microwave ovens, refrigerators and air-conditioners. The company's margins are under pressure and the marketing department blames production department for producing

goods, which are not of good quality to meet customers' expectations. The finance department blames both production and marketing departments for declining return on investment and bad marketing.

- 1. What quality of management do you think the company is lacking? Justify your answer.
- 2. State the importance of the concept identified in (a).

Q.4 Sonali is the manager of a large company manufacturing garments for kids. She plans her winter collection in the month of August itself. Then, she ensures that there is adequate workforce. She continuously monitors whether production is proceeding according to plans. She asks the marketing department to prepare their promotional and advertising campaigns also.

- 1. Identify and explain the concept of management explained in the above para.
- 2. What characteristic feature does the above para highlight? State.

Q.5. H. Tech Ltd. is a company producing IT services. The company's profits are enough for the survival and growth. The management of the company believes that a satisfied employee creates a satisfied customer, who in turn creates profits that lead to satisfied shareholders. So, it pays competitive salaries and perks to its all employees. All the employees are happy working in the organization because of personal growth and development.

The company has a strong sense of social responsibility. It has set up an engineering college in which one-third of the students are girls to whom the company gives 50% scholarship.

Is the management of H. Tech Ltd. fulfilling its objectives? Justify your answer by giving reasons.

Q.6. Govinda Ltd. is a highly reputed company. Different functions are performed by different individuals in this company, who are bound together in a hierarchy of relationships. Every individual in the hierarchy is responsible for successful completion of a particular task. Mr. Gauranga is responsible for the welfare and survival of the organization. He formulates overall organizational goals and strategies for their achievement. MR. Nityanand ensures that quality of output is maintained, wastage of materials is minimized and safety standards are maintained. Mr. Sanatan assigns necessary duties and responsibilities to the personnel and motivates them to achieve desired objectives

At what levels of management are MR. Gauranga, Mr. Nityanand and Mr. Sanatan working in Govinda Ltd.? justify your answer.

Q.7.The management of Vrinda Ltd. strongly believes that the members of an organization should work towards fulfilling the common organizational goals. This requires team work and integration of efforts of all individuals, departments and specialists. This is because all the individuals and departments depend on each other for information and resources to perform their respective activities. Managers need to reconcile differences in approach, timing, effort or interest. At the same time it should enable all its members to grow and develop. Thus, there is a need to harmonize individual goals and organizational goals.

- 1. Identify the concept of management discussed above.
- 2. State any three features of the concept identified in (a).
- 3. Identify and explain the characteristic of management which is reflected from the above para.

## Chapter 2. Principles of Management

Q.1. In a factory the toolbox was kept under the table of every worker, whenever worker needs tools he had to bend tape out tool from tool box and keep it back after use. The newly

appointed supervisor observed it and suggested to keep a stool near every worker's chain where toolbox can he placed so that workers do not waste their energy in bending again and again.

- 1. Which technique of scientific management is used by New Supervisor.
- 2. State the objective of motion study.

Q.2Mr. Mukesh used to manufacture shoes by employing labour who were easily available. When his son after completing his MBA joined the business, he analysed that if we use capital intensive method by using a machine it will reduce the cost and the quality of shoes will also improve.

- 1. Which technique of Scientific management is used by his son.
- 2. What is the objective of that technique.

Q. 3. Mr. Kapoor, Finance manager of ABC Ltd. applied for leave to attend a family function in Amritsar. The director of the company requested him to cancel his leave as there is an important meeting schedule on that date. Mr. Kapoor immediately agreed and cancelled his trip as he thought attending meeting is more important for company's benefit.

- 1. Which principle of Fayol is applied by Mr. Kapoor?
- 2. Explain that principle.

Q.4. The manager of ABC Ltd. asked his workers to work overtime to increase the production and earn more but he did not paid extra wages to workers for extra time worked. The workers started feeling dissatisfied and stop contributing maximum.

- 1. Which principle of Fayol is violated in the above case.
- 2. Explain that principle.

Q.5. Mr. Rajiv is the owner of 'Laxmi Dairy.' He is producing various milk products. He always tests various ways of producing different products and chooses the best and most economical way of production. He is also very particular about fixing a place for everything and he makes sure that all the employees are given a fixed place so that there is no wastage of time and delay in production.

- 1. Which technique of scientific management is applied by Mr. Rajiv?
- 2. Which principle of Henry Fayol is followed by him?

Q.6.Mr. Rajiv the senior manager of Unique enterprise considered himself very wise and used to take all the decisions himself without consulting the employees, he never used to help any one nor he used to take help of anyone. The employees of unique enterprise were not working efficiently and company's profit margin started declining to tackle the problem, the company appointed a new manager from IIM Bangalore. The new manager after joining made a policy that all the decisions will be taken after consulting employees in the meeting. All employees must give some suggestions and best suggestions will be rewarded with financial and nonfinancial incentives. This policy had a very positive effects on company.

- 1. State the principle of Henry Fayol used by new manager.
- 2. State the technique of scientific management related to above case.

Q.7. In a school principal makes sure that every instruction, order or information given by him must be passed to vice-principal then Head of the department and then to teachers and students must be informed by respective teachers only. He never allows teachers to directly communicate with him.

- 1. State the Principle of Henry Fayol followed by the school principal.
- 2. In case of emergency which concept of Scalar Chain can be used by teacher to pass urgent message directly to principal.

Q.8. Pawan is working as a Production Manager in CFL Ltd. which manufactures CFL bulbs. There is no class-conflict between the management and workers. The working conditions are very good. The company is earning huge profits. As a policy, the management shares the profits earned with the workers because they believe in the prosperity of the employees.

- 1. State the principle of management described in the above paragraph.
- 2. Identify any two values which the company wants to communicate to society.

## **Chapter 3 Business Environment**

Q1 It is interesting to know that the menu items of multinationals fast food chains are customized to suit the taste of local people in the region. McDonalds fast food giant adopted globalization strategy in Indian markets.Company changed its product menu to accommodate the new delicacies given the taste of population in the country. Company has been reduced the product price by close to20% to suit Indian pockets.

a) Identify the characteristic of business environment highlighted above?

b) State any other characteristic of business Environment?

.Q2. A recent rate cut in the interest on loans announced by the banks encouraged Amit, a science student of Progressive school to take a loan from State Bank of India To experiment and develop cars to be powered by fuel produced from garbage. He developed such a car and exhibited it in the Science Fair organised by Directorate of Education. He was awarded first prize for his invention.

Identify and explain dimensions of business environment discussed above?

Q3. In the month of July 2016 Kerala become the first state in India to impose 14.5% tax on burger,pizza.doughnuts.pasta and other cooked items served in the fast food chains.The new tax has been imposed as a preventive measure as kerala has the second highest rate of obesity in India.This initiative of the government will help to discourage the undesirable trends changing food habits of people leading to lifestyle diseases like obesity.diabetes etc. In the context of above case identify and explain any 2 related dimensions of business environment?

Q4.Identify and explain the economic reform in the following statements

a) Easy movement of information and technology with the rest of the world

b) NDPL and BSES instead of Delhi Vidyut Board

c) Lifting of unnecessary control over the firms

## **Chapter 4 Planning**

Q. 1. After completing a diploma in Bakery and Patisserie, Payal sets up a small outlet at Goa Airport to provide a healthy food option to the travellers. To begin with, she has decided to sell five types of patties, three type of pizzas and low sugar muffins in four flavours. Thus, by deviding in advance what to do and how to do, she is able to reduce the risk of uncertainty and avoid overlapping and wasteful activities. But sometimes her planning does not work due to some unavoidable circumstances like cancellation of flights due to bad weather conditions, government alert etc. which adversely affects her clientele.

In context of the above case:

- 1. Identify and explain the points highlighting the importance of planning mentioned in the above paragraph.
- 2. Describe briefly the limitation of planning which adversely affects Payal's business.

Q. 2. Rahul, a worker, is given a target of assembling two computers per day. Due to his habit of doing things differently, an idea struck him which would not only reduce the assembling time of

computers but would also reduce the cost of production of the computers. Rahul's supervisor instead of appreciating him, ordered him to complete the work as per the methods and techniques decided earlier as nothing could be changed at that stage. The above para describes one of the limitation of planning function of management. Name that limitation.

#### ECONOMICS

1. Write the synopsis of the discussed CBSE projects in the class :-

Suggested topics are-

- •Government budget and its components
- Credit creation
- •Exchange rate system
- •Balance of payment
- •Rural Development
- •Human Capital Formation
- Unemployment in India
- •Globalisation and its Impact on the Indian Economy
- •Environment and Sustainable Economic Development
- Five Year Plans in India

•Any other relevant topics such as G.S.T, Demonetization, Self Help Groups, HDI etc. The project should be handwritten on A4 size sheet.

- 2. Students should prepare the Economics Project as per the following headings:-
- -Acknowledgement
- -Index
- -Cover page
- -Introduction of the concept
- -Analysis/explanation and interpretation
- -Conclusion
- -Credits / List of resources used / -Bibliography
- 3. Prepare a PPT on any one element of NEP.
- 4. Prepare for the upcoming July test series.

#### One marks questions

Differentiate the following with respect to x:

1. 
$$2^{\cos^2 x}$$
 Ans:- $2^{\cos^2 x} sin 2x log 2$  (NCERT EXEMPLAR)  
2.  $\log(x + \sqrt{a + x^2})$  Ans: $\frac{1}{\sqrt{x^2 + a}}$  (NCERT EXEMPLAR)  
3.  $\sqrt{e^{\sqrt{x}}}$  Ans: $\frac{e^{\sqrt{x}}}{4\sqrt{xe^{\sqrt{x}}}}$ 

#### Four marks questions

1. If siny = x sin(a + y), prove that 
$$\frac{dy}{dx} = \frac{\sin^2(a+y)}{\sin a}$$

2. If y = x siny, prove that 
$$\frac{dy}{dx} = \frac{y}{x(1 - x\cos y)}$$
.

3. If 
$$\sqrt{1-x^6} + \sqrt{1-y^6} = a(x^3 - y^3)$$
, prove that  $\frac{dy}{dx} = \frac{x^2}{y^2} \sqrt{\frac{1-y^6}{1-x^6}}$ 

4. If x = a(cost +tsint) and y = a (sint - tcost), find the value of  $\frac{dy}{dx}$  and  $\frac{d^2y}{dx^2}$ , when  $t = \frac{\pi}{4}$ .

5. If 
$$y = \log[x + \sqrt{x^2 + 1}]$$
, prove that  $(x^2 + 1)y_2 + xy_1 = 0$ .

6. If 
$$y = e^{a\cos^2 x}$$
,  $-1 \le x \le 1$ , show that  $(1 - x^2)y_2 - xy_1 - a^2y = 0$ .

7. Differentiate with respect to x:

a) 
$$\tan^{-1}\left(\frac{\sqrt{1+\sin x}+\sqrt{1-\sin x}}{\sqrt{1+\sin x}-\sqrt{1-\sin x}}\right)$$
 Ans:  $\frac{dy}{dx}=-\frac{1}{2}$ 

8. If 
$$y = \sin^{-1}\left(\frac{2x}{1+x^2}\right) + \sec^{-1}\left(\frac{1+x^2}{1-x^2}\right)$$
, prove that  $\frac{dy}{dx} = \frac{4}{1+x^2}$ .

- 9. Verify Rolle's theorem for the function f(x) = sinx sin2x on  $[0, \pi]$ .
- **10.** Verify Mean Value theorem for the function  $f(x) = x^2 2x + 4$  on [1, 5].
- 11. Find the values of 'a' and 'b' when

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

12. If 
$$x^{13}.y^7 = (x+y)^{20}$$
, prove that  $\frac{dy}{dx} = \frac{y}{x}$ .

13. If 
$$y = \sqrt{\sin x + \sqrt{\sin x + \sqrt{\sin x + \dots + \cos x}}}$$
, prove that  $\frac{dy}{dx} = \frac{\cos x}{2y-1}$ .

14. Check, the function  $f(x) = \begin{cases} |x - a| \sin \frac{1}{x - a}, & \text{if } x \neq 0 \\ 0, & \text{if } x = a \end{cases}$  is continuous or discontinuous at x = a. (NCERT EXEMPLAR).

15.Examine the differentiability of f, where f is defined by

$$f(x) = \begin{cases} x[x], & \text{if } 0 \le x < 2\\ (x-1)x, & \text{if } 2 \le x < 3 \end{cases} \text{ at } x = 2, (NCERT EXEMPLAR).$$

16. Find  $\frac{dy}{dx}$  of the function expressed in parametric form give  $x = \frac{1 + logt}{t^2}$ ,  $y = \frac{3 + 2logt}{t}$ . (NCERT EXEMPLAR). Ans : t

17.Find  $\frac{dy}{dx}$  when x and y are connected by the relation given by  $\sin(xy) + \frac{x}{y} = x^2 - y$ (NCERT EXEMPLAR). Ans:  $\frac{2xy^2 - y^3 cos(xy) - y}{xy^2 cos(xy) - x + y^2}$ 

18. Discuss the applicability of Rolle's Theorem on the function given

by 
$$f(x) = \begin{cases} x^2 + 1, & \text{if } 0 \le x \le 1 \\ 3 - x, & \text{if } 1 \le x \le 2 \end{cases}$$

(NCERT EXEMPLAR)

#### INVERSE TRIGONOMETRIC FUNCTIONS

#### ONE MARK QUESTIONS

Find the principal value of the following:

 a) sin<sup>-1</sup>(<sup>1</sup>/<sub>√2</sub>) b) cos<sup>-1</sup>(<sup>-1</sup>/<sub>√2</sub>) c) tan<sup>-1</sup>(<sup>-1</sup>/<sub>√3</sub>) d) cosec<sup>-1</sup>(-2) e) sec<sup>-1</sup>(-<sup>2</sup>/<sub>√3</sub>)

 Find the value of the following:

 a) sin<sup>-1</sup>(sin<sup>3π</sup>/<sub>5</sub>) b) cos<sup>-1</sup>(cos<sup>13π</sup>/<sub>6</sub>) c) tan<sup>-1</sup>(tan<sup>7π</sup>/<sub>6</sub>) d) cosec<sup>-1</sup>(cosec<sup>π</sup>/<sub>8</sub>) e) sec<sup>-1</sup>(sec<sup>3π</sup>/<sub>4</sub>).

 Evaluate the following:

 a) sin {<sup>π</sup>/<sub>3</sub> - sin<sup>-1</sup>(<sup>-1</sup>/<sub>2</sub>)} b) sin (<sup>1</sup>/<sub>2</sub> cos<sup>-1 4</sup>/<sub>5</sub>) c) tan <sup>1</sup>/<sub>2</sub>(cos<sup>-1 4</sup>/<sub>5</sub>).

 Evaluate: cos (sin<sup>-1 3</sup>/<sub>5</sub> + cos<sup>-1 12</sup>/<sub>13</sub>).
 Show that an<sup>-1</sup>(√x) = <sup>1</sup>/<sub>2</sub> cos<sup>-1</sup>(<sup>1-x</sup>/<sub>1+x</sub>).

#### FOUR MARKS QUESTIONS

6. Prove that 
$$tan^{-1}\left\{\frac{\sqrt{1+x^2} + \sqrt{1-x^2}}{\sqrt{1+x^2} - \sqrt{1-x^2}}\right\} = \frac{\pi}{4} + \frac{1}{2}cos^{-1}x^2$$
.  
7. Prove that  $tan^{-1}\frac{1}{4} + tan^{-1}\frac{2}{9} = \frac{1}{2}cos^{-1}\frac{3}{5}$ .  
8. Prove that  $cot^{-1}\left(\frac{ab+1}{a-b}\right) + cot^{-1}\left(\frac{bc+1}{b-c}\right) + cot^{-1}\left(\frac{ca+1}{c-a}\right) = 0$ . (NCERT EXEMPLAR)  
9. Prove that  $tan^{-1}\frac{3}{4} + tan^{-1}\frac{3}{5} - tan^{-1}\frac{8}{19} = \frac{\pi}{4}$ .  
10. Prove that  $cos^{-1}\frac{4}{5} + cos^{-1}\frac{12}{13} = cos^{-1}\frac{33}{65}$ .  
11. Solve for x:  $sin^{-1}(1-x) - 2sin^{-1}x = \frac{\pi}{2}$ .  
12. If  $cos^{-1}\frac{x}{a} + cos^{-1}\frac{y}{b} = \theta$ , then prove that  $\frac{x^2}{a^2} - \frac{2xy}{ab}cos\theta + \frac{y^2}{b^2} = sin^2\theta$ . (NCERT EXEMPLAR)  
13. Prove that  $tan\left(\frac{\pi}{4} + \frac{1}{2}cos^{-1}\frac{a}{b}\right) + tan\left(\frac{\pi}{4} - \frac{1}{2}cos^{-1}\frac{a}{b}\right) = \frac{2b}{a}$ . (CBSE 2010, 2013)  
14. Solve for x:  $cos^{-1}\left(\frac{x^2-1}{x^2+1}\right) + tan^{-1}\left(\frac{2x}{x^2-1}\right) = \frac{2\pi}{3}$ .

#### MATRICES

#### **ONE MARKS QUESTIONS**

1. Show by means of an example that the product of two non-zero matrices can be a zero matrix.

- 2. Construct a 3 × 2 matrix whose elements are given by  $a_{ij} = e^{ix} sinjx$ .(Exemplar)
- 3. Solve for x and y for  $x \begin{bmatrix} 2 \\ 1 \end{bmatrix} + y \begin{bmatrix} 3 \\ 5 \end{bmatrix} + \begin{bmatrix} -8 \\ -11 \end{bmatrix} = 0$  (Exemplar).

4. Give an example of matrices A,B and C such that AB = AC, Where A is non-zero matrix, but  $B \neq C$ .

5. Show that A<sup>T</sup> A and AA<sup>T</sup> are both symmetric matrices for any matrix A. (Exemplar). FOUR MARKS QUESTIONS

6. If 
$$A = \begin{pmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{pmatrix}$$
 prove that  $A^2 - 4A - 5I =$  Hence find  $A^{-1}$   
7. Given  $A = \begin{pmatrix} 3 & -4 \\ 1 & -1 \end{pmatrix}$  show by induction that  $A^n = \begin{pmatrix} 1+2n & -4n \\ n & 1-2n \end{pmatrix}$   
8. If  $X = \begin{bmatrix} 3 & 1 & -1 \\ 5 & -2 & -3 \end{bmatrix}$  and  $Y = \begin{bmatrix} 2 & 1 & -1 \\ 7 & 2 & 4 \end{bmatrix}$ , Find a matrix  $Z$  such that  $X+Y+Z$  is a zero matrix. (Exemplar).  
9. Find the matrix A satisfying the matrix equation :  
 $\begin{bmatrix} 2 & 1 \\ 3 & 2 \end{bmatrix} A \begin{bmatrix} -3 & 2 \\ 5 & -3 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ . (Exemplar).  
10. Prove by mathematical induction that  $(A^T)^n = (A^n)^T$ , where  $n \in N$  for any square matrix  $A$ . (Exemplar).  
11. If  $F(\theta) = \begin{pmatrix} \cos\theta & -\sin\theta & 0 \\ \sin\theta & \cos\theta & 0 \\ 0 & 0 & 1 \end{pmatrix}$  show that  $F(\theta)F(\varphi) = F(\theta + \varphi)$ .  
12. Find the inverse by elementary Operations  $\begin{bmatrix} 2 & -1 & 3 \\ 1 & 3 & -1 \\ 3 & 2 & 1 \end{bmatrix}$ .  
13. Express the matrix  $\begin{bmatrix} 2 & 3 & 1 \\ 1 & -1 & 2 \\ 4 & 1 & 2 \end{bmatrix}$  as the sum of a symmetric and skew symmetric matrix. (Exemplar).  
14. Find the value of  $x$ , if  $\begin{bmatrix} 1 & 3 & 2 \\ 2 & 5 & 1 \\ 15 & 3 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ x \end{bmatrix} = 0$ .

# Determinants Class 12<sup>th</sup>

**Short Questions** 

Q.1) Order 
$$3 \times 3$$
 find  $|A^{-1}| = ?$   
Sol.1) We have  $|A^{-1}| = \left|\frac{1}{|A|} \cdot Adj A\right|$   
 $= \frac{1}{|A|^3} |Adj A|$   
 $= \frac{1}{|A|^3} \cdot |A|^{3-1} = \frac{1}{|A|^3} \cdot |A|^2$   
 $\therefore |A^{-1}| = \frac{1}{|A|}$  Ans.  
Q.2) Order  $3 \times 3$ ;  $|A| = 3$  and  $|2 AB| = 120$  find  $|B'| = ?$   
Sol.2) We have  $|2AB| = 2^3 |AB|$   
 $120 = 2^3 |A| |B|$   
 $120 = 8 \times 3 \times |B|$   
 $5 = |B|$   
Since  $|B'| = |B|$   
 $\Rightarrow |B'| = 5$  Ans....  
Q.3) Order  $2 \times 2$ ;  $Adj A = \begin{bmatrix} 2 & -1 \\ 3 & 4 \end{bmatrix}$  and  $Adj B = \begin{bmatrix} 1 & 2 \\ 3 & 5 \end{bmatrix}$  find  $Adj(AB) = ?$   
Sol.3) We have  $Adj (AB) = (Adj B) (Adj A)$   
 $= \begin{bmatrix} 1 & 2 \\ 3 & 2 \end{bmatrix} \begin{bmatrix} 2 & -1 \\ 3 & 4 \end{bmatrix} = \begin{bmatrix} 8 & 7 \\ 21 & 17 \end{bmatrix}$  Ans....  
Q.4). Order  $2 \times 2$ ;  $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$  find  $A(Adj A)$  without finding Adj A.  
Sol.4) We have,  $A|Adj A| = |A| 1$   
 $= \begin{vmatrix} 1 & 2 \\ 3 & 4 \end{vmatrix} \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$   
 $= (-2) \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$   
 $= (-2) \begin{bmatrix} 0 & 0 \\ 0 & -2 \end{bmatrix}$  Ans....  
Q.5). If  $n = 3 \times 3$  find  $|Adj(Adj A|] = |A|^{7}$   
 $= |Adj A|^2$   
 $= (|A|^{3-1})^2 = |A|^4$   
 $= (5)^4 = 625$  Ans.  
Q.6) If  $A = \begin{bmatrix} 1 & 2 \\ -1 & 4 \end{bmatrix}$  find  $(BA)^{-1}$  and  $B^{-1} \begin{bmatrix} 2 & 4 \\ 3 & 6 \end{bmatrix}$   
Sol.6) We know  $(BA)^{-1} = A^{-1} B^{-1}$   
 $|B| = 12 - 12 = 0 \Rightarrow B$  is non invertible  
 $\therefore (BA)^{-1}$  not possible