

ARMY PUBLIC SCHOOL
FATEHGARH CANTT
SUMMER VACATION HOMEWORK 2019-20
CLASS – XII

ENGLISH

1 Write advertisement to be published in the columns of local daily.

To purchase a second hand car.

To start Hobby Classes for teaching music and dance.

Your younger brother is lost .Write an advertisement for the same.

2 Write an article in about 150-200 words on 'Need to protect environment'.

3 Learn all the answers given in NCERT Books.

4 Write value based questions given in sample papers of 2019.

ACCOUNTANCY

UNIT 1:ACCOUNTING FOR NOT- FOR PROFIT ORGANISATION

(1 MARK QUESTIONS)

1.What is Legacy?

2.What is Life Membership Fee?

3.Define Subscription?

4.Give the difference between receipts and payment account and income and expenditure account on the basis of nature of accounts?

5. State on what basis receipt and payment account in case of not-for profit organization is prepared?

(3 MARK QUESTIONS)

1. Calculate the amount of sports material to be transferred to Income and Expenditure account of Raman Bhalla Sports Club, Ludhiana, for the year ended 31st March, 2018:-

PARTICULARS	AMOUNT (Rs.)
Sp orts Material sold during the year (Book Value Rs.50,000)	56,000
A mount paid to creditors for sports material	91,000
Ca sh purchase of sports material	40,000
Sp orts material as on 31.3.17	50,000
Sp orts Material as on 31.3.18	55,000
Cr editors for sports material as on 31.3.17	37,000
Cr editors for sports material as on 31.3.18	45,000

2.From the following information , calculate the amount of subscription to be credited to the Income and Expenditure account for the year 2017-18:

PARTICULARS	AMOUNT
Subscription received during the year	30,000
Subscription outstanding on 31 st March,2017	8,000
Subscription outstanding on 31 st March,2018	4,500
Subscription received in advance on 31 st March,2017	6,000
Subscription received in advance on 31 st March,2018	3,500
Subscription of Rs.3,000 are still in arrear for the year 2016-17	

3.Calculate the amount to be debited to Income and expenditure account from the following for 2013-14:

Particulars	01/04/2013	31/03/2014
Stock of medicine	1,300	2,300
Creditors for medicine	1,200	1,330

Amount paid for medicine during 2013-14 is Rs.2,890.

(6 MARK QUESTIONS)

1.Following is the Receipt and Payment account of Pacific sports club for the year ended 31st March,2018:

Receipts and Payment A/c

For the year ended 31st March,2018

Receipts	Amount	Payments	Amount
To bal b/d	1,50,000	By salaries and wages	1,60,000
To subscriptions:		By office expenses	35,000
2016-17	60,000		
2017-18	3,50,000		
To Donations	50,000	By sports equipments	3,40,000
To Entrance Fees	80,000	By telephone charges	24,000
		By electricity charges	32,000
		By travelling expenses	65,000
		By bal c/d	34,000
	6,90,000		6,90,000

Additional Information:

a.Outstanding subscription for the year ended 31st March,2018 Rs.55,000.

b.Outstanding salaries Rs.40,000.

c.Depreciate sports equipment by 25%.

Prepare Income and Expenditure Account of the club from the above particulars.

2. Prepare Income and Expenditure Account from the following particulars of Youth Club, for the year ended on 31st March,2018:

**Receipts and Payments A/c
for the year ended on 31st March, 2018**

RECEIPTS	AMOUNT	PAYMENTS	AMOUNT
To Balance b/d	32,500	By Salaries	31,500
To Subscription		By Postage	1,250
2016-17 1,500		By Rent	9,000
2017-18 60,000		By Printing and	
2018-19 1,800	63,300	Stationery	14,000
To Donations	90,000	By Sports Material	11,500
(Billiards table)		By Miscellaneous	
To Entrance Fees	1,100	Expenses	3,100
To Sale of old		By Furniture (1.10.2017)	20,000
magazines	450	By 10% investment	
		(1.10.2017)	70,000
		By Balance c/d (31.3.18)	27,000
	1,87,350		1,87,350

Additional Information:

- i. Subscription outstanding as at March 31st 2018 Rs. 16,200
- ii. Rs. 1200 is still in arrears for the year 2016-17 for subscription
- iii. Value of sports material at the beginning and at the end of the year was Rs.3,000 and Rs.4,500 respectively.
- iv. Depreciation to be provided @ 10% p.a. on furniture.

UNIT 2:ACCOUNTING FOR PARTNERSHIP

(1 MARK QUESTIONS)

1. Mohan and Shyam are partners in a firm. State whether the claim is valid if the partnership agreement is silent in the following matter:

- a. Shyam had advanced a loan to the firm. He claims interest@10% per annum.
- b. Mohan has contributed Rs.20,000 and Shyam Rs.50,000 as capital. Mohan wants equal share in profits.

2. One of the partners in a partnership firm has withdrawn Rs. 9,000 at the end of each quarter, throughout the year. Calculate interest on drawings at the rate of 6% per annum.

3. What is the maximum number of partners that a partnership firm can have? Name the act that provides for the maximum number of partners in a partnership firm?

4. Nusrat and Sonu were partners in a firm sharing profits in the ratio of 3:2. During the year ended 31st March,2015 Nusrat had withdrawn Rs.15,000. Interest on her drawings amounted to Rs.300. Pass

necessary journal entry for charging interest on drawings assuming that the capitals of the partners were fixed.

(4 MARKS QUESTIONS)

1. A and B are partners sharing profits and losses in the ratio of 3:2. Their capital accounts showed balances of Rs.1,50,000 and Rs. 2,00,000 respectively on Jan 01, 2003. Show the treatment of interest on capital for the year ending December 31, 2006 in each of the following alternatives:

If the partnership deed is silent as to the payment of interest on capital and the profit for the year is Rs.50,000;

If partnership deed provides for interest on capital @8% p.a. and the firm incurred a loss of Rs.10,000 during the year;

(a) If partnership deed provides for interest on capital @8% p.a. and the firm earned a profit of Rs.50,000 during the year;

(b) If the partnership deed provides for interest on capital @8% p.a. and the firm earned a profit of Rs.14,000 during the year.

2. . On 1-4-2013 Jay and Vijay, entered into partnership for supplying laboratory

equipments to government schools situated in remote and backward areas. They

contributed capitals of ` 80,000 and ` 50,000 respectively and agreed to share the

profits in the ratio of 3 : 2. The partnership deed provided that interest on capital shall

be allowed at 9% per annum. During the year the firm earned a profit of ` 7,800.

Showing your calculations clearly, prepare 'Profit and Loss Appropriation Account' of

Jay and Vijay for the year ended 31-3-2014.

BUSINESS STUDIES

CHAPTER 1:NATURE AND SIGNIFICANCE OF MANAGEMENT

(1 MARKS QUESTIONS)

1. Name the process of designing and maintaining an environment inwhich individual working together in groups efficiently accomplish selected aims.

2. Which function of management is concerned with finding the right people for the right job?

3. The productionmanager of a company is trying to produce goods with minimum cost. Name the concept which is being focused by management.

4. To meet the objectives of the firm, management of Angora Ltd. offers employment to physically challenged persons. Identify the organizational objectives it is trying to achieve.

5. Surya Enterprise Ltd. manufactures toys. The production department produces more of toys than required and sales department is not able to sell the total production. What quality of management do you think the company is lacking?

(3-4 MARKS QUESTIONS)

1. How is "Management a goal-oriented process?"

2. Sulekha is working as 'Operations Manager' in ParagLtd. Name the managerial level at which she is working. State any three functions she will perform 'Operations Manager' in this company.

3. "Management is a science like physics or chemistry". Do you agree with this statement? Give three reasons in support of your answer.

4. Explain the 'social objectives' of management.

5. Explain the features of management that do not establish it as a profession.

(5-6 MARKS QUESTIONS)

1. "Coordination is needed at all level of management and it is the responsibility of all managers." Explain how.

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

(a) Identify and explain the concept of management in the above para.

(b) What characteristics does the above para highlight? State.

3. High 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 leads to satisfied shareholders. So, it pays competitive salaries and perks to all its 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 High Tech. Ltd. fulfilling its objectives? Justify your answer by giving reasons.

4. Ganesh 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. Sagar responsible for the welfare and survival of the organisation. He formulates overall organization goals and strategies for their achievement. Mr. Bharat ensures that quality of output is maintained, wastage of materials is minimized and safety standards are maintained. Mr. Nagar assigns necessary duties and responsibilities to the personnel and motivates them to achieve desired objects.

5. ABC handlooms Ltd. Set up a factory for manufacturing jute bags in a remote village as there was no raw materials available. The revenue earned by the company was sufficient to cover the costs and the risks. The demand of bags was increasing day by day, so the company decided to increase production to generate higher sales. For this they decided to employ people from the nearby villages as very few job opportunities were available in that area. The company also decided to open schools and creches for the children of its employees

1. Identify and explain the objectives of management discussed above.

2. State any two values which the company wanted to communicate to the society.

CHAPTER 2:PRINCIPLES OF MANAGEMENT

(1MARKS QUESTIONS)

1. “Workers should be encouraged to develop and carry out their plans for development”. Identify the principle of management formulated by Fayol.
2. What is meant by ‘mental revolution’ according to Taylor?
3. Which principle of management envisages that each group of activities having the same objectives must have one head and one plan? Explain the principle with a suitable example.
4. Name the technique of scientific management which focuses on separation of planning and execution function.
5. What is the objective of method study ?

(3-4 MARKS QUESTIONS)

1. The directors of Bhupender Ltd. an organisation manufacturing computers want to double the sales & have given this responsibility to their sales manager. The sales manager has no authority either to increase the sales expenses or appoint new salesman. Hence he could not achieve this target. Is the sales manager responsible for not achieving the target? Explain in brief, the relevant principle in support of your answer.
2. Sita and Geeta are typists in a company having same educational qualifications. Sita is getting Rs. 3000 per month and Geeta Rs. 400 per month as salary for the same working hours. Which principle of management is violated in this case? Name and explain the principle.
3. The production manager of Bharat Ltd. instructs a salesman to go slow in selling the product, whereas the marketing manager is insisting on fast selling to achieve the target. Which principle of management is being violated in this case? State the consequences of violation of this principle.
4. Nikita and Salman completed their MBA and started working in a multinational company at the same level. Both are working hard and happy with their employer. Salman had the habit of backbiting and wrong reporting about his colleagues to impress his boss. All the employees in the organisation knew it. At the time of performance appraisal Nikita was judged better than Salman. Even then their boss, Mohammad Sharif decided to promote Salman stating that being a female Nikita will not be able to handle the complications of higher post.
 - i) Identify and explain the principle of management which was not followed by this company.
 - ii) Identify the values which are being ignored by the company.
5. Explain the following principles of management given by Fayol.
 - (a) Unity of command
 - (b) Order

(5-6 MARKS QUESTIONS)

1. ABC ltd. is engaged in producing electricity from domestic garbage. There is almost equal division of work responsibility between worker and management. The management even takes workers into confidence before taking important decisions.

- (a) State the principle of management described in the above para.
- (b) Identify any two values which the company want to communicate to the society.

2. Explain the nature of management principles.

3. Kushal Ltd. is a leading automobile company in which the various department are setting up their own objective without paying any interest to the organizational objectives.

I. Which aspects of management of company is lacking? What will be impact on the organization?

II. Identify the principle of management which has been over looked by the organization.

III. State any two value which is neglected by the people of organization.

4. Explain the following principles of management:

a)Scalar chain; b)Harmony,not discord; c)Subordination of Individual interest to general interest;

d)Science,not rule of thumb.

5. Explain the importance of management principles.

CHAPTER 3:BUSINESS ENVIRONMENT

(1MARKS QUESTIONS)

1. Which environment prohibits the advertisement of alcoholic beverages
2. Banking sector reforms have led to easier credit terms and better services. This is an example of a key component of the “Business Environment “name this component?
3. ‘Demand for reservation in jobs for minorities refers to an example of key component of general environment of business. Name this component.
4. In the year 2006, Centre for Science and Environment (CSE) claimed to have found pesticides in Pepsi Co and Coco Cola soft drink 50 times more than permissible health limit- These companies sales being adversely affected in that year”. This is the effect of which environment?
5. Out of liberalization, privatization and globalization, which one is associated with “Abolition of licensing requirement in most of the industries”?

(3-4 MARKS QUESTIONS)

1. With change in the consumption habit of people, Neelesh, who was running a sweet shop shifted to chocolate business. On the eve of diwali he offered chocolate in attractive packages at reasonable price. He anticipated huge demand and created a website chocolove.com for taking order online. He got lot of orders online and earned huge profit by selling chocolates. Identify and explain the dimensions of business environment discussed in the above case.

2. Lately many companies have planned for significant investment in organised retailing in India. Several factors have prompted their decision in this regard- customer income is rising. People have developed a taste for better quality products even though they may have to pay more. The government permitted cent percent foreign direct investment in some sectors of retailing.

Identify the change in business environment under different dimension quoting the line from the above para.

3. Mr. Ajay after completing MBA from USA comes to India to start a new business under the banner Ecom creations Ltd. He launches a new product in e-learning for senior secondary school students in commerce stream, which already has an established market in UK and USA but not in India. His business starts flourishing in India. Now more Indian companies entered into the market with other subject also.

Identify and quote the line from above para which highlight the significance of understanding business environment.

4. Explain “increasing competition” and “more demanding customers” as impact of government policy changes on business and industry?

5. Explain dynamic nature and uncertainty as features of business environment.

(5-6 MARKS QUESTIONS)

1. Ultra paint co. which is manufacturing paints had been enjoying a prominent market position as it is manufacturing best quality paints made timely payment of taxes to government. It assembled various inputs like finance, machines, raw materials, etc. form its environment but since last year it has been dumping its untreated poisonous waste on the river bank which has created many health problems for the people. As a result, the court passed an order to seal the manufacturing unit of the company.

(a) State the importance of business environment highlighted quoting the line form the above case.

(b) Identify any two dimension of business environment mentioned in above case by quoting line from it.

(c) State any two values which have been overlooked by the company?

2. Karodimal ltd. manufactures fashionable and designer clothes. Recently it finds that the demand for its product been declining. After market research it was discovered that fashion and tastes of the consumers is changing a pace. Consumers demand is increasing. New competitors have entered the market with new design. It is difficult for the company to predict future happening. Also it is difficult to know the extent of the relative impact of the social, economic, political, technological or legal factors on decrease in demand of its product in the market. A meeting was held in which managers from different functional level heading production, marketing, financial etc. for example, chief operating officer, chief finance officer, vice president (marketing) were present to discuss how to deal with the situation. After a long discussion, it was decided that they would study and analyze the market first to identify customers taste and fashion and then manufacture garments accordingly. It was also decided to increase expenditure on advertising, after sale service, etc. Identify any two features a business environment by quoting the lines from the above case.

(a) At which level of management the meeting of managers in Karodimal Ltd. was held.

(b) Identify any two impacts of government policy changes on business, quoting lines from the above case.

(c) State the importance of understanding of environment by business managers in the light of the above para.

3. Understanding of environment by business managers enables them not only to identify and evaluate, but also to react to the forces external to their firm. In light of the statement, explain by giving any five points why in the present day competitive market, it is essential for a business enterprise to remain alert and aware of its environment.

4. The court passed an order that all school must have water purifier for the school children as society in general is more concerned about quality of life.

Innovative techniques are being developed to manufacture water purifier at competitive rates.

Incomes are rising and children at home are also drinking purified water.

The government is also showing positive attitude towards the water purifier business.

Identify the different dimensions of business environment by quoting lines from the above details.

5. The court passed an order to ban polythene bags as

(i) The bags are creating many environment problems which affect the life of people in general.

(ii) Society in general is more concerned about quality of life.

The government decided to give subsidy to jute industry to promote this business.

Innovative techniques are being developed to manufacture jute bags at low rates. Incomes are rising and people can afford to buy these bags.

Identify the different dimensions of business environment by quoting the lines from the above particulars.

COMPUTER SCIENCE

Find output of the following programs: 2/3 Marks

(1) #include <iostream.h>

```
struct GAME
```

```
{ int Score, Bonus};
```

```
void Play(GAME &g, int N=10)
```

```
{
```

```
    g.Score++;g.Bonus+=N;
```

```
}
```

```
void main()
```

```
{
```

```
    GAME G={110,50};
```

```
    Play(G,10);
```

```
    cout<<G.Score<<": "<<G.Bonus<<endl;
```

```
    Play(G);
```

```
    cout<<G.Score<<": "<<G.Bonus<<endl;
```

```
    Play(G,15);
```

```
    cout<<G.Score<<": "<<G.Bonus<<endl;
```

```
}
```

(3) In the following program, if the value of Guess entered by the user is 65, what will be the expected output(s) from the following options (i), (ii), (iii) and (iv)?

```
#include <iostream.h>
```

```
#include <stdlib.h>
```

```
void main()
```

```
{ int Guess;
```

```
  randomize();
```

```
  cin>>Guess;
```

```
  for (int l=1;l<=4;l++)
```

```
{
```

(2) #include <iostream.h>

```
void Secret(char Str[ ])
```

```
{
```

```
  for (int L=0;Str[L]!='\0';L++);
```

```
  for (int C=0;C<L/2;C++)
```

```
  if (Str[C]=='A' || Str[C]=='E')
```

```
  Str[C]='#';
```

```
  else
```

```
  {
```

```
    char Temp=Str[C];
```

```
    Str[C]=Str[L-C-1];
```

```
    Str[L-C-1]=Temp;
```

```
  }
```

```
}
```

```
void main()
```

```
{
```

```
  char Message[ ]="ArabSagar";
```

```
  Secret(Message);
```

```
  cout<<Message<<endl;
```

```
}
```

(4) void swap(char &c1,char &c2)

```
{ char temp;
```

```
  temp=c1; c1=c2; c2=temp;
```

```
}
```

```
void update(char *str)
```

```
{ int k,j,l1,l2;
```

```
  l1 = (strlen(str)+1)/2;
```

```
  l2=strlen(str);
```

```
  for(k=0,j=l1-1;k<j;k++,j--)
```

```
  { if(islower(str[k]))
```

```
    swap(str[k],str[j]);
```

```
  }
```

```
New=Guess+random(l);
cout<<(char)New;
}
}
```

- (i) ABBC
- (ii) ACBA
- (iii) BCDA
- (iv) CABD7

```
(5) void main ( )
{
    int *Queen,
    Moves [ ] = {11, 22, 33, 44};
    Queen = Moves; Moves [2] += 22;
    cout<< "Queen @"<<*Queen<<endl;
    *Queen -= 11;
    Queen += 2;
    cout<< "Now @"<<*Queen<<endl;
    Queen++;
    cout<< "Finally@"<<*Queen<<endl;
    cout<< "New Origin @"<<Moves[0]<<endl;
}
}
```

(7) Go through the C++ code shown below, and find out the possible output or outputs from the suggested Output Options (i) to (iv). Also, write the minimum and maximum values, which can be assigned to the variable MyNum.

```
#include <random>
void main ( )
{
    randomize ( ) ;
    int MyNum, Max=5;
    MyNum = 20 + random (Max) ;
    for (int N=MyNum; N<=25;N++)
        cout<<N<<"*";
}
}
```

- (i) 20*21*22*23*24*25 (ii) 22*23*24*25*
- (iii) 23*24* (iv) 21*22*23*24*25

(10) In the following C++ program, what will the maximum and minimum value of r generated with the help of random function.

```
for(k=l1,j=l2-1;k<j;k++,j-)
{ if(isupper(str[k]))
  swap(str[k],str[j]); }
}
void main()
{ char data[100]={"gOoDLUck"};
  cout<<"OriginalData"<<data<<endl;
  update(data);
  cout<<"UpdatedData"<<data;
}
}
```

```
(6) void SwitchOver(int A [ ], int N, int Split)
{
    for (int K=0 ; K<N; K++)
        if (K<Split)
            A[K]+ =K;
        else A [K]*=K;
}
void Display (int A [ ], int N)
{
    for (int K=0 ; K<N ; K++)
        (K%2==0)
            cout<<A[K]<<"%";
        cout<<A[K]<<endl;
}
}
```

```
void main ( )
{int H[ ]= {30,40,50,20,10,5};
  SwitchOver (H, 6, 3);
  Display (H, 6);
}
}
(8) int A[][4] = {{11,21,32,43}, {20,30,40,50}};
for (int i = 1; i<2; i++)
{ for (int j = 0; j<4; j++)
  cout<<A[i][j]<<"*\n";
}
}
```

```
(9) int a = 5;
void demo(int x, int y, int &z)
{ a += x+y; z = a+y; y += x;
  cout<<x<<'* '<<y<<'* '<<z<<endl;
}
void main()
{ int a = 3, b = 4;
  demo(a,a,b);
  demo(a,a,b);
}
}
```

```
#include voidmain()
{ int r;
  randomize();
  r=random(20)+random(2);
  cout<<r;
}
```

2 / 3 MARKS QUESTIONS

- Q1. What is an abstract class? How is it different from a concrete class?
- Q2 What is OO Paradigm? How is it different from Procedural Programming Paradigm?
- Q3 What is polymorphism? Give an example in C++ to show how it is implemented in C++?
- Q4 What is function overloading? Give an example in C++ to show how it is implemented in C++?
- Q5 Which functions in classes in C++ are inline by default. What is the significance of these functions?
- Q6. What happens if no constructor is provided by the user in a class?
- Q7 When is memory allocated to a constructor?
- Q8. Reusability of classes is one of the major properties of OOP. How is it implemented in C++?
- Q9. Consider a class Item with the following specifications:

```
class Item
{ private: :
  int Ino ;
  char IName[25];
  float Price
public:
  Item(); //f1
  Item (int n,char nm[25],float rate); //f2
  Item(Item &obj); //f3
}
```

- a) Write function definitions of all the member functions.
- b) Name the feature of OOP implemented in the class above.
- c) Write the constructor invocation statement for the above functions.

- Q.10 CONSIDER a class Candidate with the following specifications :

```
Class Result
{ Private: :
  int Cno ;
  char Name[20];
  int mks;
Public:
  Candidate(); //f1
  Candidate(int Cn,char nm[20],int marks); //f2
  ~ Candidate(); //f3
}
```

- a) What are the member functions f1..f3 called in C++.
- b) Write the definitions of all functions.
- c) Create an object for f1 and f2 to invoke them.

4 MARKS QUESTIONS

- Q.11 Define a class hotel with the following specifications:

Private: members :

Roomno integer
Name string
Charges_day float
No_of_days integer

Compute() -To calculate and return the total charges as charges_day * No_of_days

Public members :

Getit () -to enter the data members
Showit() to show the data member
A constructor function to initialize the data members.

Q.12 Define a class Stock with the following specifications :

Private: members :

Itemno integer
Item Name string
Price, qty, total ,discount float

Compute() -To calculate and return the total .Find discount as

If qty >=50 discount=10% on total amount

If qty<50 discount = nil

Public members :

Getit() -to enter the data members
Showit() -to show the data member
A constructor function to initialize the data

Q13. Define a class Clothing with the following specification:

Private: members: Code string
 Type string
 Size integer
 Material string
 Price float

Calculate() function which computes the Price as follows:

For the value of Material as "COTTON"

Type	Price (Rs.)
TROUSER	1500
SHIRT	1200

Public members:

- Constructor to initialize the values as 0 to Size & Price and NULL to Code, type and Material.
- ReadData() function which accepts the data values and invoke the function Calculate().
- DisplayData() function which prints the data on the screen.

Q14. Define a class Housing with the following specification:

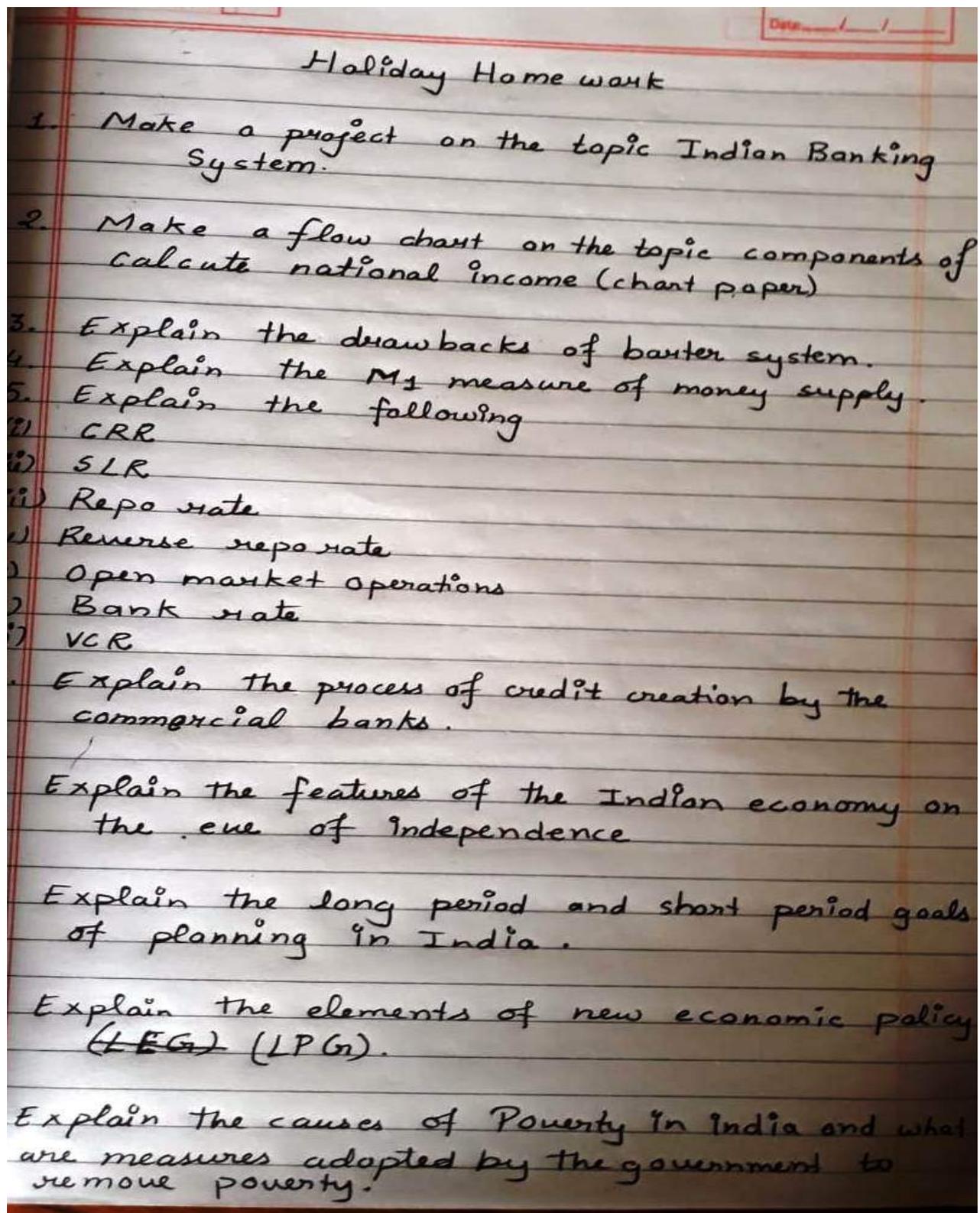
Private: members: Name 20 Characters
 Type Character
 Cost float
 Reg_no integer(range 10-1000)

Public members:

- ReadData() function to read an object of Housing type.
- DisplayData() function which prints the details of an object.

Function Draw_nos() to chose and display the details of two houses selected randomly from an array of ten objects of type Housing. Use random function to generate the registration numbers to match with Reg_no from the array.

ECONOMICS



Geography

1. Complete the map work of both the books-
Fundamental of human geo.
India and Economy
2. Write the internal questions of ch 01 to 06 of the book fundamental of human Geo.
3. Prepare the flow chart of internal questions based on main headings(Both the book)

Physical Education

1. Project Work related to yoga.
2. Project work related to specific games- Volleyball, Basketball, Football, Athletics

Physics

Activity file and project file (Separately given to each student)

Biology

Activity file and project file (Separately given to each student)

History

Activity file and project file (Separately given to each student)

Psychology

Separate assignment sheets were given to 9 students individually.

Hindi

1. दिए गए परियोजना कार्य को पूर्ण करना
2. पढ़ाये गए पाठों से अतिरिक्त प्रश्न तैयार करना

Holiday Homework

Class: XII

Subject: Mathematics

Topic: Matrices And Determinants

1 MARK QUESTIONS

1. If a matrix has 5 elements, write all possible orders it can have.
2. For a 2×2 matrix $A = [a_{ij}]$, whose elements are given by $a_{ij} = \frac{(i+2j)^2}{4}$, write the value of a_{21} .
3. Find the value of p , such that the matrix $\begin{bmatrix} -1 & 2 \\ 4 & p \end{bmatrix}$ is singular.
4. If points $(2, 0)$, $(0, 5)$ and (x, y) are collinear, then show that $\frac{x}{2} + \frac{y}{5} = 1$.
5. If for matrix A , $|A| = 3$, find $|5A|$, where matrix A is of order 2×2 .
6. A is a non-singular matrix of order 3 and $|A| = -4$. Find $|\text{adj. } A|$
7. If A is a square matrix of order 3 and $|A| = -2$, find the value of $|-3A|$.
8. If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, find determinant $|A \cdot (\text{adj. } A) I|$.
9. Evaluate: $\begin{vmatrix} \sin 30^\circ & \cos 30^\circ \\ -\sin 60^\circ & \cos 60^\circ \end{vmatrix}$
10. If $\begin{vmatrix} x+1 & x-1 \\ x-3 & x+2 \end{vmatrix} = \begin{vmatrix} 4 & -1 \\ 1 & 3 \end{vmatrix}$, then write the value of x .
11. If $\Delta = \begin{vmatrix} 1 & 2 & 3 \\ 2 & 0 & 1 \\ 5 & 3 & 8 \end{vmatrix}$ write the minor of element a_{23} , a_{32} and a_{13} .

4 and 6 MARKS QUESTIONS

12. If $A = \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$, $f(x) = x^2 - 2x - 3$, show that $f(A) = 0$ and hence find A^{-1} .
13. Find the value of x , if: $[1 \ x \ 1] \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 3 & 2 & 5 \end{bmatrix} \begin{bmatrix} 1 \\ -2 \\ 3 \end{bmatrix} = 0$

14. For the matrix $A = \begin{bmatrix} 3 & 2 \\ 1 & 1 \end{bmatrix}$, find the numbers a and b such that $A^2 + bA + bI = O$ and

hence find A^{-1} .

15. If $A = \begin{bmatrix} -1 \\ 2 \\ 3 \end{bmatrix}$, $B = [-2 \ -1 \ -4]$, verify that $(AB)' = B'A'$.

16. Using elementary row transformations, find the inverse of the following matrices:

a) $\begin{bmatrix} 2 & -1 & 4 \\ 4 & 0 & 2 \\ 3 & -2 & 7 \end{bmatrix}$

c) $\begin{bmatrix} 2 & 7 \\ -4 & 3 \end{bmatrix}$

b) $\begin{bmatrix} 1 & 3 & -2 \\ -3 & 0 & -1 \\ 2 & 1 & 0 \end{bmatrix}$

d) $\begin{bmatrix} -1 & 4 \\ -2 & 8 \end{bmatrix}$

17. Show that:
$$\begin{vmatrix} (y+z)^2 & xy & zx \\ xy & (x+z)^2 & yz \\ xz & yz & (x+y)^2 \end{vmatrix} = 2xyz(x+y+z)^3.$$

18. Prove that
$$\begin{vmatrix} b+c & q+r & y+z \\ c+a & r+p & z+x \\ a+b & p+q & x+y \end{vmatrix} = 2 \begin{vmatrix} a & p & x \\ b & q & y \\ c & r & z \end{vmatrix}$$

19. Solve the following system of equations using matrices.

a) $2x + 3y + 3z = 5$; $x - 2y + z = -4$; $3x - y - 2z = 3$

b) $\frac{2}{x} + \frac{3}{y} + \frac{10}{z} = 4$; $\frac{4}{x} - \frac{6}{y} + \frac{5}{z} = 1$; $\frac{6}{x} + \frac{9}{y} - \frac{20}{z} = 2$

20. Given two matrices $A = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{bmatrix}$ verify that $BA = 6I$.

Use the above result to solve the following system of equations:
 $x - y = 3$; $2x + 3y + 4z = 17$; $y + 2z = 7$.

21. If $A = \begin{bmatrix} 1 & -1 & 1 \\ 2 & 1 & -3 \\ 1 & 1 & 1 \end{bmatrix}$, find A^{-1} and use it to solve the following system of equations:

$$x + 2y + z = 4, \quad -x + y + z = 0, \quad x - 3y + z = 2.$$

23. Ten students were selected from a school on the basis of values for giving awards and were divided into three groups. The first group comprises of **hard workers**, the second group has **honest and law abiding** students and the third group has **vigilant and obedient students**. Double the number of the first group added to the number in the second group gives 13, while the combined strength of first and second group is four times that of the third group. Using matrix method, find the number of students in each group. Apart from these values, suggest one more value, which in your opinion, the school should consider for awards.

24. Find the matrix A, such that $\begin{bmatrix} 2 & 1 \\ 3 & 2 \end{bmatrix} A \begin{bmatrix} -3 & 2 \\ 5 & -3 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$.

25. If $f(x) = \begin{vmatrix} a & -1 & 0 \\ ax & a & -1 \\ ax^2 & ax & a \end{vmatrix}$, using properties of determinants, find the value of $f(2x) - f(x)$.

26. Three schools A, B and C organized a fete for collecting funds for helping the flood victims. They sold handmade fans, mats and plates at the rate of rupees 25, 100 and 50 each. The number of articles sold is as follows:

Article / School	A	B	C
Fans	40	25	35
Mats	50	40	50
Plates	20	30	40

Find the funds arranged by each school by selling the above articles. Also find the total funds collected.

Write one value generated by the above situation.

Topic: Relations And Functions

1 MARK QUESTIONS

- Find the number of all the possible one-one functions from set $A = \{1, 2, 3\}$ to itself.
- Let $f: \mathbb{R} \rightarrow \mathbb{R}$ be defined by $f(x) = |x|$. Is the function f onto? Give reasons.
- If $f(x) = e^x$ and $g(x) = \log x$, show that $f \circ g = g \circ f$, given $x > 0$.
- If $f(x) = 2x^2 - 3x$ and $g(x) = 1 - 4x$, find $f \circ g$ and $g \circ f$.
- If $f(x) = \frac{x-1}{x+1}$, ($x \neq 1, -1$), show that $f \circ f^{-1}$ is an identity function.

6. If $f(x) = \frac{5x+3}{4x-5}$, $\left(x \neq \frac{5}{4}\right)$, show that $f \circ f(x)$ is an identity function.

7. If $f(x)$ is an invertible function, find the inverse of $f(x) = \frac{3x-2}{5}$.

8. Let $*$ be a binary operation, defined by $a * b = 3a + 4b - 2$, find $4 * 5$.

9. What is the range of the function $f(x) = \frac{|x-1|}{x-1}$?

10. Let $*$ be a binary operation, defined by $a * b = 3a + 4b - 2$, find $(-2) * 3$.

4 MARK QUESTIONS

11. Show that the relation R in the set $A = \{1, 2, 3, 4, 5\}$ given by $R = \{(a, b) : |a - b| \text{ is even}\}$, is an equivalence relation. Show that all the elements of $\{1, 3, 5\}$ are related to each other and all the elements of $\{2, 4\}$ are related to each other. But no element of $\{1, 3, 5\}$ is related to any element of $\{2, 4\}$.

12. Check whether the relation R in \mathbf{R} defined by $R = \{(a, b) : a \leq b^3\}$ is reflexive, symmetric or transitive.

13. Let L be the set of all lines in XY plane and R be the relation in L defined as $R = \{(L_1, L_2) : L_1 \text{ is parallel to } L_2\}$. Show that R is an equivalence relation. Find the set of all lines related to the line $y = 2x + 4$.

14. Show that the relation R defined by $(a, b) R(c, d) \Leftrightarrow a + d = b + c$ on the set $\mathbf{N} \times \mathbf{N}$ is an equivalence relation.

15. Let R be the equivalence relation in the set \mathbf{Z} of integers given by $R = \{(a, b) : 2 \text{ divides } a - b\}$. Write the equivalence class $[0]$.

16. Let $A = \{1, 2, 3, \dots, 9\}$ and R be the relation in $A \times A$ defined by $(a, b) R(c, d)$ if $a + d = b + c$ for $(a, b), (c, d)$ in $A \times A$. Prove that R is an equivalence relation and also obtain the equivalence class for $[(2, 5)]$.

17. Let $f: \mathbf{N} \rightarrow \mathbf{N}$ be defined by $f(n) = \begin{cases} \frac{n+1}{2}, & \text{if } n \text{ is odd} \\ \frac{n}{2}, & \text{if } n \text{ is even} \end{cases}$ for all $n \in \mathbf{N}$.

State whether the function f is bijective. Justify your answer.