

N.B. : (1) Question No.1 is compulsory.
(2) Attempt any four questions from the remaining six questions.

1. (a) What is a storage class? Explain the different storage classes with an example. (10)
(b) Write a program to display first n Fibonacci numbers (10)
2. (a) What is structure? How to initialize structure variable? Explain with suitable example (10)
(b) Write a program to read 10 numbers from key board and display them in ascending order. (10)
3. (a) (i) What is unconditional branching? Explain with suitable example (14)
(ii) List and explain data types supported by C language (6)
(b) Write program to swap 2 numbers using a function (6)
4. Write any four from the following (20)
 - (i) Difference between Actual parameters and formal parameters
 - (ii) Difference between Call by value and Call by reference
 - (iii) Difference between Union and Structure
 - (iv) Write a short note on Preprocessor directives
 - (v) Difference between Stack and Queue
 - (vi) What is pointer ? How to declare a pointer ? Explain with a suitable example.
5. What will be the output of the following (20)
 - (i) main()


```
{
    int a=3,b,c;
    b= --a;
    c= a--;
    printf("\n%d%d%d",a,b,c);
}
```
 - (ii) main()


```
{
    int a[10],i;
    for(i=1;i<=10;i++)
    {
        printf("\n%d%c",a[i],a[i]);
    }
}
```
 - (iii) main()


```
{
    char c[2]="A";
    printf("\n%c",c[0]);
    printf("\n%s",c);
}
```
 - (iv) main()

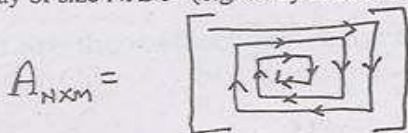

```
{
    char s[]="Mumbadevi";
    char t[25];
    char *s1,*t1;
    s1=s;
    while(*s1++=*t1++);
    printf("\n%s",t);
}
```
6. (a) What is Stack data structure? Explain the operations on linked list with suitable example. (10)
(b) What is linked list? List and explain the operations on linked list. (10)
7. (a) Write a program to accept data from the key board and write it into a file. (10)
(b) Write a program to reverse the words of a input of line of text as follows Input: Rama is good boy output : boy good is Rama. (10)

- (1) Question no. 1 is compulsory.
- (2) Answer any four questions from Question Nos 2 to 7.
- (3) All Questions carry equal marks.

- 1. (a) Define and explain control structures in C language. 10
 (b) What is a storage class? What are the different storage classes? Explain with suitable example. 10
- 2. (a) What is pointer? How to declare pointer? How call by reference is achieved using pointers? 10

(b) Write a program to fill elements in an array A in spiral way of size NXM (e.g. array A of size 4X5 is to be filled in following way)

$$A_{4 \times 5} = \begin{bmatrix} 1 & 2 & 3 & 4 & 5 \\ 14 & 15 & 16 & 17 & 6 \\ 13 & 20 & 19 & 18 & 7 \\ 12 & 11 & 10 & 9 & 8 \end{bmatrix}$$



- 3. (a) What is a structure? How to define and initialize structure variable? How to pass structure variable by value and by reference to function? 10
 (b) Write a program to read information of 50 employees (name, id, basic_salary, allowances, gross, net) thro' keyboard and display the records in ascending order sorted on id of an employee. 10
- 4. (a) "Writing functions avoids rewriting the same code over and over." Comment. 5X4
 (b) "Arrays are always passed by reference." Comment. 5X4
 (c) Write a program to find the roots of quadratic equation.
 (d) Write a program to count no of characters and words in a line of text. 5X4
- 5. Find the output of following C code segment 5X4

```
(a) main()
{ int p=1;
  while(p<=20);
  { printf("\n %d",p); p++; }
}

(b) main() {
  int l=0; for(;l ;)
  printf("\n Everybody likes C language");
}

(c) main()
{ int k,j=2;
  switch(k=j+1)
  { case 0: printf("\nTailor 0");
    case 1: printf("\nTailor 1");
    case 2: printf("\nTailor 2");
    case 3: printf("\nTailor 3");
    default: printf("No one likes C language"0;
  }
}

(d) struct mess
{ int num;
  char mess1[50];
  char mess1[5 ];
} m1={2,"If you are driven by success",
    "Make sure that it is a quality drive"
};

main()
{ struct mess m2,m3;
  m2=m1;
  m3=m2;
  printf("\n %d %s,%s ",m1.num,m2.mess1,m3.mess2);
}
```

- 6. (a) Explain in detail the advantages of Link List over arrays 10
 (b) Write a function to delete a node of a given circular doubly link list. The nodes are arranged in ascending order on info part of node. (implement Delete(Header, n) where the node containing info=n is to be deleted) 10
- 7. (a) Define and explain Queue data structure. Implement operations performed on Queue. 10
 (b) Define the problem "Towers of Hanoi" and give the solution. What data structure could be used to solve the problem? How? 10

- N.B.** (1) Question No. 1 is compulsory.
 (2) Answer any four out of remaining six questions.
 (3) **Figures** to the right indicate mark.
 (4) Answers to questions should be **grouped** and written **together** i.e. all answer to sub-question of individual question like Q. Nos. 1, 2, 3 etc. should be answered one below the other.

1. (a) Name four Popular operating System. Describe the main feature of any one of them. (10)
1. (b) What are Application program ? What are the differences between an application program and system programs ? Cite any two examples of each. (10)
2. (a) Draw a Block diagram showing internal. Architecture of either 8085 or 8086 Microprocessor ? Give any five difference between 8085 or 8086 microprocessor. (15)
2. (b) List & Explain the functions & components of a computer. (05)
3. (a) Describe the different types of input and output device of personal Computer.. (10)
3. (b) What are PROM, EPROM, UVEPROM, EEPROM. What is the different between Static and dynamic RAM? (10)
4. (a) What are the compilers ? How are they different from interpreters? Compare the features of compiler & interpreter. (10)
4. (b) Explain the drawbacks & difficulties in writing programs in low level language. (10)
5. (a) What is the need of programming language ? Give the classification of programming language in detail ? (08)
5. (b) Explain the role of computer in scientific application. (07)
5. (c) List & explain types of Computer. (05)
6. (a) What are differences between the LAN and WAN? Describe the layering Concept in the OSI model of network architecture with function of each layer in brief. (15)
6. (b) Describe floating point representation of number. (05)
7. (a) Explain the evaluation of Microprocessor. (08)
7. (b) Write a Short note on. : (12)
- i) Data as resources,
 - ii) TCP/ IP,
 - iii) Use of Internet.

N.B. :- (1) Question No 1 is Compulsory.
(2) Attempt any four questions out of remaining six questions.

1. Explain the role of an operating system with respect to following functions:- (20)
 - i) Process Management
 - ii) Memory Management
 - iii) File Management
 - iv) Security
 - v) Command Interpretation.

- 2.(A) What are the advantages & limitation of high level languages as compared to machine & assembly languages ? (10)
- (B) What is meant by network topology ? Describe three commonly used network topology with their relative advantages & disadvantages. (10)

3. (A) What is WWW browser? What types of navigation facilities are typically supported by modern browsers to help users save time while Internet surfing ? (10)
- (B) Differentiate between input & output devices .Can a device be used as both an input & output devices ? If no , explain why. If yes , give an example of such a device. (10)

4. (A) What are Computers? Explain the characteristics & classification of computer With Suitable example. (12)
- (B) Give differences between 8085 & 8086 microprocessor . (8)

5. (A) What is a compilers & Assemblers? Why is it required? A computer supports five high level languages . How many compilers will computer have? (12)
- (B) Give an example to illustrate the relationship among a character, a field, a record, & a file. (8)

6. (A) What are PROM, EPROM, UVEPROM,EEPROM?What is difference between static & dynamic RAM ? (8)
- (B) What is meant by internetworking ? What are the main issues in internetworking? Explain the difference among the following terms.
 - ❖ Bridges
 - ❖ Router
 - ❖ Gateway.
 (7)
- (C) Explain in detail types of Software. Give two example of each. (5)

7. (A) Write a short note on : (12)
 - a. Data Processing
 - b. TCP/IP
 - c. Main functions of CPU.
- (B) Find the binary difference__ (4)

| | |
|---|---|
| 1) $\begin{array}{r} 1\ 1\ 0\ 1 \\ -\ 1\ 0\ 1\ 1 \end{array}$ | 2) $\begin{array}{r} 1\ 1\ 1\ 0\ 0\ 0\ 1\ 1 \\ -\ 1\ 0\ 1\ 0\ 1\ 0\ 0\ 0 \end{array}$ |
|---|---|
- (C) Convert Octal to Hexadecimal __ (4)

| | |
|----------|---------|
| 1) 31.57 | 2) 2327 |
|----------|---------|

- N.B. : (1) Question No.1 is compulsory.
 (2) Answer any four from the remaining Q. Nos. 2 to 7.
 (3) All questions carry equal marks.
 (4) Figures to the right indicate marks.

- 1.(a) Convert the following expression to Sum-of-product form-
 $(A' + C) (A' + B' + C') (A + B')$ (5)
 (b) Write GRAY code for decimal numbers 0 to 15 and explain where it is used. (5)
 (c) Draw the block diagram of DMA. (5)
 (d) Draw instruction cycle state diagram along with indirect sub cycle. (5)
- 2.(a) What are interrupts? Explain a complete instruction cycle with interrupts, using Diagrams. (10)
 (b) Write in details about any five commonly used Performance Evaluation Techniques. (10)
3. (a) Discuss bus structure, bus types and methods of Arbitration. (10)
 (b) Discuss the various addressing modes available. (10)
- 4 (a) Discuss with the help of a diagram the functioning of an I/O Module. (10)
 (b) Discuss briefly the mapping functions in Cache memory. (10)
- 5 (a) With Reference to RISC, discuss the following - (10)
 (i) One instruction per Cycle.
 (ii) Register to register operations
 (b) Explain the working of Associative memory. (10)
- 6 (a) Write a detailed note on Six Stage instruction pipeline and the effect of Conditional branches on the same operation. (10)
 (b) Compare Asynchronous and Synchronous transmission (10)
- 7 (a) Discuss the various Superscalar Instruction Issue Policies. (10)
 (b) What are the types of Parallel processing systems? (10)

- N.B. :** (1) Question No.1 is compulsory.
 (2) Attempt any four from the remaining Nos. 2 to 7.
 (3) All questions carry equal marks.
 (4) Figures to the right indicate full marks.

- | | | | |
|----|-----|--|----|
| 1. | i) | Using K-Maps, simplify the expression in four variables $F(A,B,C,D) = ABD + A'BC + B'CD + A'B'C'D + A'BCD$ | 5 |
| | ii) | Convert Binary number 10110 Gray Code number. | 5 |
| | i) | Draw the block diagram of an I/O Module. | 5 |
| | ii) | What are Flip-Flops? Discuss their basic properties... | 5 |
| 2. | (a) | What are interrupts? Explain a complete instruction cycle with interrupts, using diagrams. | 10 |
| | (b) | Compare and contrast RISC Vs. CISC design Philosophy. | 10 |
| 3. | (a) | Discuss the various Superscalar Instruction Issue Policies. | 10 |
| | (b) | i) Write a short note on Mapping Functions in Cache Memory. | 5 |
| | | ii) Discuss the following addressing modes with diagrams: 1. Register Indirect 2. Displacement | 5 |
| 4. | (a) | Discuss any five commonly used Performance Evaluation Techniques. | 10 |
| | (b) | i) Explain in details the functioning of any two levels of RAID. | 5 |
| | | ii) Write a short note on Half Adder Circuit. | 5 |
| 5. | (a) | Write a detailed note on Six Stage instruction pipeline and the effect of conditional branch on the same operation.. | 10 |
| | (b) | i) Name the categories of Parallel Computers given by Flynn. Draw the diagram for each. | 5 |
| | | ii) Discuss the different Bus Types. | 5 |
| 6. | (a) | Discuss 4 to 1 multiplexer using Truth Table. Draw its implementation using appropriate gates. | 10 |
| | (b) | i) Write a short note on Associative Memory. | 5 |
| | | ii) Depict diagrammatically a Microprogrammed Control Unit. | 5 |
| 7. | (a) | Discuss in details the functioning of a DMA. | 10 |
| | (b) | i) Compare Asynchronous and Synchronous Transmission | 5 |
| | | ii) Write a short note on any one Optical Memory. | 5 |

- N.B. (1) Question No. 1 is compulsory.
 (2) Answer any four out of remaining six questions.
 (3) Assume any necessary data but justify the same.
 (4) Figures to the right indicate marks.

Q 1. a) (i) Obtain a disjunctive normal form of $\neg(P \vee Q) \leftrightarrow (P \wedge Q)$. [5]

(ii) Let $C = \{2, 8, 14, 18\}$. Define a relation R by xRy if and only if $x - y > 5$. Draw the digraph of R. Give M_R . [5]

b) (i) Determine whether the following set A together the binary operation * is a semigroup, monoid or neither. If it is a monoid, specify the identity. If it is a semigroup or a monoid determine whether it is commutative. [5]

A = Set of all positive integers, $a \cdot b = \max\{a, b\}$ i.e. bigger of a and b.

(ii) Define isomorphism of graphs. Give one example of isomorphic graphs. [5]

Q 2. a) (i) Using truth table show that $(P \rightarrow (Q \vee R)) \equiv ((P \rightarrow Q) \vee (P \rightarrow R))$. [5]

(ii) Let P be the proposition "It is raining", Q be the proposition "I have time", and R be the proposition "I will go to a movie". Translate the following sentences into propositional forms using logical connectives. [5]

If it is not raining and I have time then I will go to a movie.

It is raining and I will not go to a movie.

It is not raining.

I will not go to a movie.

I will go to a movie only if it is not raining.

b) (i) Let A be a collection of subsets of a set S. Show that (A, \subseteq) is a poset. Draw Hasse diagram when $S = \{a, b, c\}$. [10]

Q 3. a) (i) Using the principal of induction prove that [5]

$$1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$$

(ii) Can we conclude S from the following premises? [5]

(i) $P \rightarrow Q$

(ii) $P \rightarrow R$

(iii) $\neg(Q \wedge R)$

(iv) $S \vee P$

b) (i) Write negation of [5]

(1) All men are animals.

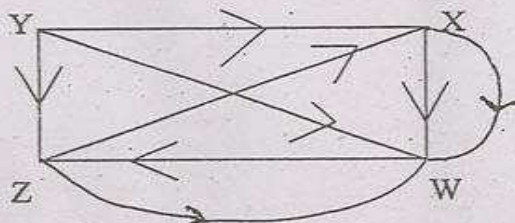
(2) Some men are animals.

(3) If it snows, then they do not drive the car.

(4) No teacher is a millionaire.

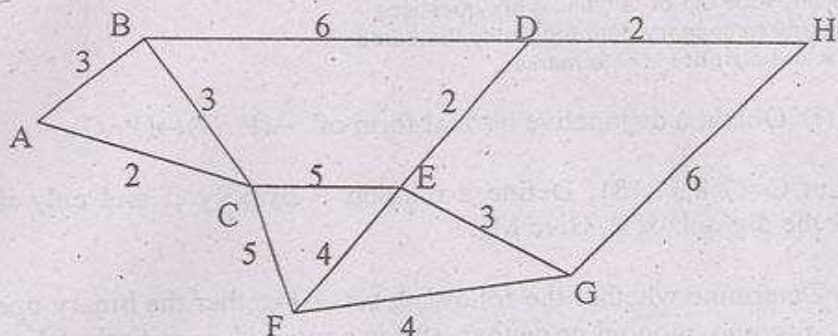
(5) Mala is not good.

(ii) Find the adjacency matrix and path matrix of the following graph. [5]



[TURN OVER

Q 4. a) Find minimum spanning tree using Prim's algorithm. Start with node A. [10]



b) Let $A = \{1,2,3,4\}$, $R = \{(1,2), (2,3), (3,4), (2,1)\}$. Find the transitive closure of R. Use Warshall's algorithm. [10]

Q 5. a) (i) Consider the group $G = \{1,2,3,4,5,6\}$ under multiplication modulo 7. Find the multiplication table of G. Find $2^{-1}, 3^{-1}, 6^{-1}$. [5]

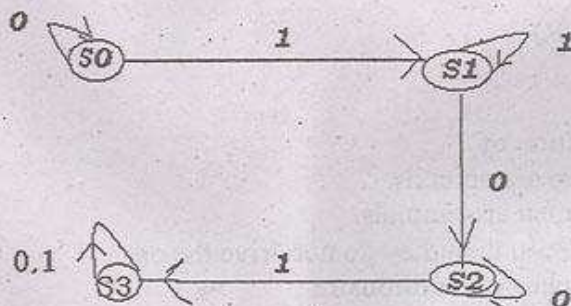
(ii) Let G be a group of real numbers under addition and G' be the group of positive numbers under multiplication. Let $f: G \rightarrow G'$ be defined by $f(x) = e^x$. Show that f is an isomorphism from G to G' . [5]

b) (i) Define group code. Show that (2,5) encoding function $e: B^2 \rightarrow B^5$ defined by $e(00) = 00000$, $e(01) = 01110$, $e(10) = 10101$, $e(11) = 11011$ is a group code. [5]

(ii) Consider the (2,4) encoding function e as follows. How many errors will e detect?
 $e(00) = 0000$ $e(01) = 0110$ $e(10) = 1011$ $e(11) = 1100$ [5]

Q 6. a) (i) Define weight of a codeword. Find the weights of the following.
 (1) $x = 010000$ (2) $x = 11100$ (3) $x = 00000$ (4) $x = 11111$ [5]

(ii) Construct the state transition table of the finite state machine whose diagram is shown: [5]



b) (i) Let the state transition table for a finite state machine be [5]

| | | |
|-------|-------|-------|
| | 0 | 1 |
| S_0 | S_0 | S_1 |
| S_1 | S_1 | S_2 |
| S_2 | S_2 | S_3 |
| S_3 | S_3 | S_0 |

List values of the transition function f_w for (1) $w=01001$, (2) $w=11100$.

(ii) Let $V=\{v_0,w,a,b,c\}$, $S=\{a,b,c\}$ and \mapsto be the relation on V^* given by

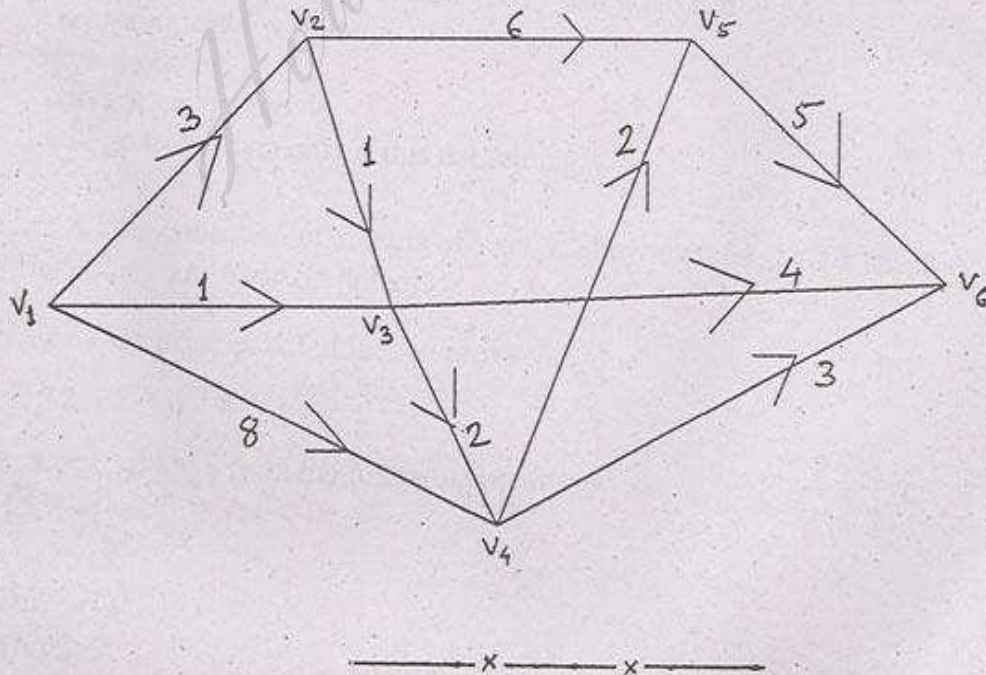
- (1) $v_0 \mapsto av_0b$
- (2) $v_0b \mapsto bw$
- (3) $abw \mapsto c$

Let $G=(V,S,v_0, \mapsto)$ be the corresponding phase structure grammar. Determine the form of allowable sentences in $L(G)$. [5]

Q 7. a) Determine whether the relation R on a set A is reflective, irreflexive, symmetric, asymmetric, antisymmetric or transitive. Give necessary explanation to your answer. [10]

$A = \mathbb{Z}$; set of all integers, and aRb iff $a \leq b+1$.

b) Find the critical path in the following PERT graph. [10]



- N.B. : (1) Question No.1 is compulsory.
 (2) Attempt any four questions out of the remaining six questions.
 (3) Assume any necessary data but justify the same.

1. (a) (i) Obtain a disjunctive normal form of

$$P \vee (\neg P \rightarrow (Q \vee (Q \rightarrow \neg R)))$$

[5]

(ii) Let A = set of real numbers. We define the following relation R on A.

[5]

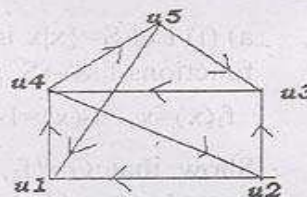
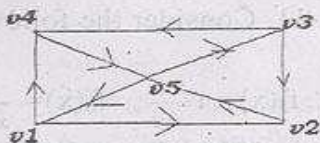
xRy if and only if x and y satisfy the equation $\frac{x^2}{4} + \frac{y^2}{9} = 1$. Find $R(x)$ and $R(1)$.

(b) (i) Determine whether the set of even integers together with the binary operation $a * b = \frac{ab}{2}$ is a semigroup, a monoid or neither. If it is a monoid, specify the identity. If it is a semigroup or a monoid determine whether it is commutative.

[5]

(ii) Show that following graphs are isomorphic.

[5]



2. (a) (i) Using truth tables show that $(P \rightarrow (Q \rightarrow R)) \rightarrow ((P \rightarrow Q) \rightarrow (P \rightarrow R))$ is a tautology.

[5]

ii) Let P be the proposition "It is raining", Q be the proposition "I have time", and R be the proposition "I will go to a movie". Translate the following sentences into propositional forms.

[5]

- (1) If it is not raining and I have time then I will go to a movie.
- (2) It is raining and I will not go to a movie.
- (3) It is not raining.
- (4) I will not go to a movie.
- (5) I will go to a movie only if, it is not raining.

(b) Let $A = \{1, 2, 3, 4, 12\}$ and R be defined by aRb if and only if $a|b$. Show that R is a partial order relation on A. Draw the Hasse diagram of R.

[10]

3. (a) (i) Using mathematical induction prove that

[5]

$$1^3 + 2^3 + 3^3 + \dots + n^3 = \frac{n^2(n+1)^2}{4}$$

(ii) Check the validity of the following arguments.

[5]

If Ram has completed M.C.A or M.B.A, then he is assured a good job. If Ram is assured a good job, he is happy. Ram is not happy. So Ram has not completed M.B.A.

(b) (i) Let the universe of discourse be $D = \{0, 1, 2, \dots, 9\}$. Let $Q(x, y)$ be the statement " $x + y = x - y$ ". Determine the truth values of the following.

[5]

- (1) $Q(1, 1)$,
- (2) $\exists y \forall x Q(x, y)$
- (3) $\forall y \exists x Q(x, y)$,
- (4) $\exists x Q(x, 2)$
- (5) $\forall x \exists y Q(x, y)$

[TURN OVER

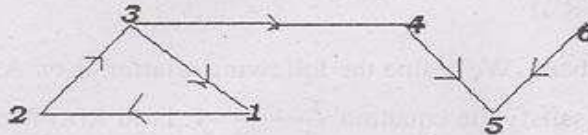
(ii) Explain with suitable examples: Eulerian and Hamiltonian graphs.

[5]

[TURN OVER

4 (a)(i) Construct a tree representing the following algebraic expression [5]
 $(3 \times (2-x)) \div ((4 \div (7-(y \div 2))) \times (7+(x+y)))$

ii) Find strong components, unilateral components and weak components in the following digraph. [5]



(b) Let R be the relation whose matrix is [5]

$$\begin{bmatrix} 1 & 0 & 0 & 1 & 1 \\ 0 & 0 & 1 & 0 & 0 \\ 1 & 0 & 1 & 1 & 0 \\ 0 & 1 & 0 & 0 & 1 \\ 1 & 1 & 0 & 1 & 0 \end{bmatrix}$$

Find i) the reflective closure of R. ii) the symmetric closure of R.

5. a) (i) Let $S = \{x \mid x \text{ is a real number and } x \neq 0, x \neq -1\}$. Consider the following functions $f_i: S \rightarrow S, i=1,2,\dots,6$: [6]

$$f_1(x)=x, f_2(x)=1-x, f_3(x)=\frac{1}{x}, f_4(x)=\frac{1}{1-x}, f_5(x)=1-\frac{1}{x}, f_6(x)=\frac{x}{x-1}$$

Show that $G = \{f_1, f_2, f_3, f_4, f_5, f_6\}$ is a group under the operation of composition. Give the multiplication table of G.

ii) Let G be a group with identity e. Show that if $a^2=e$ for all a in G, then every element is its own inverse. [4]

b) Define group code. Test whether the following (2,5) encoding function is a group code? [10]

$$e(00) = 00000, e(10) = 10101, e(01) = 01110, e(11) = 11011$$

Define minimum distance of an encoding function. Find the minimum distance of the above encoding function. How many errors will it detect?

6. a) (i) Let $H = \begin{bmatrix} 1 & 1 \\ 0 & 1 \\ 1 & 0 \\ 1 & 0 \\ 0 & 1 \end{bmatrix}$ be a parity check matrix. [5]

Determine the (3,5) group code $e_H: B^3 \rightarrow B^5$.

ii) Draw the diagram of the machine whose state transition table is shown below. Remember to label the edges with appropriate inputs. [5]

| | 0 | 1 | 2 |
|----------------|----------------|----------------|----------------|
| S ₀ | S ₀ | S ₂ | S ₁ |
| S ₁ | S ₁ | S ₃ | S ₂ |
| S ₂ | S ₂ | S ₁ | S ₃ |
| S ₃ | S ₃ | S ₃ | S ₂ |

b) (i) Let the state transition table for a finite state machine be

[5]

| | | |
|-------|-------|-------|
| | 0 | 1 |
| s_0 | s_0 | s_1 |
| s_1 | s_1 | s_2 |
| s_2 | s_2 | s_3 |
| s_3 | s_3 | s_0 |

List values of the transition function f_w for (i) $w=01001$, (ii) $w=11100$.

ii) Let $S=\{\text{Ramesh, Seema, drives, jogs, carelessly, rapidly, frequently}\}$
 $N=\{\text{sentence, noun, verbphrase, verb, adverb}\}$ and let $V=S \cup N$.

[5]

Let $v_0=\text{sentence}$, and suppose that the relation \mapsto on V^* is described by

- sentence \mapsto noun verbphrase
- noun \mapsto Ramesh
- noun \mapsto Seema
- verbphrase \mapsto verb adverb
- verb \mapsto drives
- verb \mapsto jogs
- adverb \mapsto carelessly
- adverb \mapsto rapidly
- adverb \mapsto frequently

Write the above productions using BNF notations.

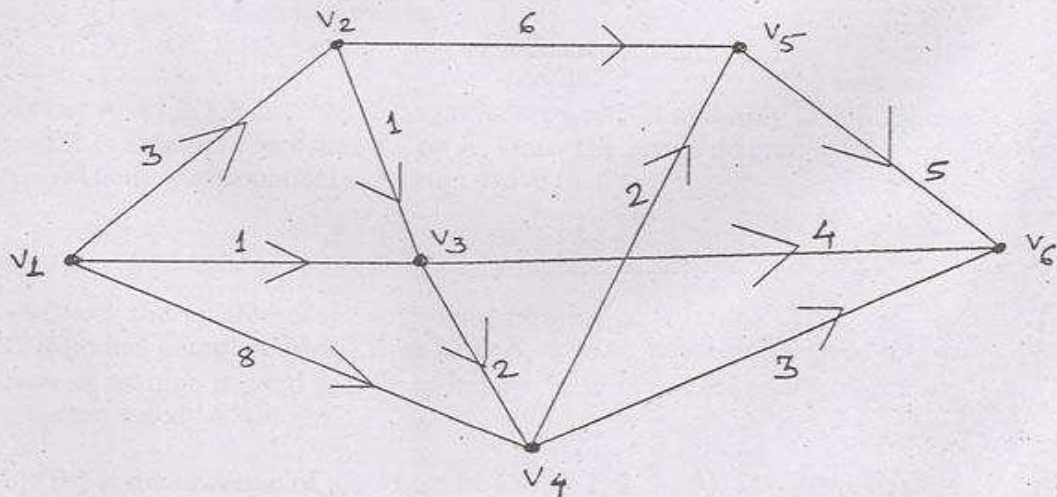
7. a) Determine whether the relation R on a set A is reflexive, irreflexive, symmetric, asymmetric, antisymmetric or transitive. Give necessary explanation to your answer.

[10]

$A =$ set of all positive integers, aRb iff $\text{GCD}(a,b)=1$.

b) Find the critical path in the following PERT graph.

[10]



- N.B. : (1) Question No. 1 is compulsory.
 (2) Attempt any two from question Nos. 2 to 4.
 (3) Attempt any two from question Nos. 5 to 7.
 (4) Attempt the question for accounting and managerial economic separately.
 (5) All questions carry equal marks.

1. (a) (i) Define managerial economics with definition. 6
 (ii) B-E Analysis.
 (b) Following is the Trial Balance of M/s. ABC, prepare Trading A/c, Profit and Loss A/c for the year ended 31-3-2006 and also Balance Sheet as on that date : 14

Trail Blance as on 31-3-2006.

| Particulars | Debit | Credit |
|-------------------------|-----------------|-----------------|
| Travelling Expences | 8,500 | — |
| Rent Received | — | 4,000 |
| Carriage Inward | 13,000 | — |
| Debtors | 16,000 | — |
| Creditors | — | 21,000 |
| Office Premises | 25,000 | — |
| Salary and Wages | 9,000 | — |
| Purchases | 1,21,000 | — |
| Sales | — | 2,04,000 |
| Capital | — | 44,250 |
| Drawings | 7,000 | — |
| Printing and Stationery | 3,000 | — |
| Octroi | 5,800 | — |
| Commission (Given) | 2,000 | — |
| Sales Return | 2,000 | — |
| Cash in Hand | 1,700 | — |
| Cash at Bank | 14,500 | — |
| Stock on 1-4-2005 | 21,000 | — |
| Machinery | 16,000 | — |
| Fixed Deposit | 11,000 | — |
| Interest Received | — | 3,250 |
| | <u>2,76,500</u> | <u>2,76,500</u> |

Stock on 31-3-2006 was values at Rs. 10,000/-.

2. (a) Explain the following concepts :- 10
 (i) Fixed Cost and Variable Cost
 (ii) Direct Cost and Indirect Cost
 (iii) Production Cost and Selling Cost
 (iv) Internal Economies and External Economies.
 (b) Draw diagram of the following cost curves and explain their nature. 10
 TFC, TVC, TC, AFC, AVC, AC and MC.
3. (a) Explain the main features of oligopoly market. 10
 (b) What do you mean by price Discrimination ? 10
4. Write short notes (any four) :- 20
 (i) Methods of Demand Forecasting
 (ii) Responsibilities of Managerial Economist
 (iii) Delphi Method
 (iv) Law of Supply
 (v) Law of Demand.
5. (a) Write short notes on any one :- 8
 (i) Budgetary Control
 (ii) Define any 3 Methods of Costing.

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(b) From the following information given by the Accountant, prepare a Bank Reconciliation statement as on 31-3-2006, cash book balance Rs. 15,000/- : 12

- (i) The following cheques were issued but not get presented for payment.
 - (a) Cheque in favour of Mrs. Rani for Rs. 300/- dated 27th March, 2006.
 - (b) Cheque in favour of Mrs. Rajani for Rs. 3000/- on 31st March, 2006.
- (ii) The following cheques were paid into the bank cleared and credited by the bank on the dates mentioned.
 - (a) A cheque from Mr. John Rs. 1000/- cleared on 1st April, 2006.
 - (b) A cheque from Mr. Singh Rs. 750/- cleared on 5th April, 2006.
- (iii) The Bank has, as per standing instruction, paid Insurance premium for Rs. 300/- on 28th March, 2006, the bank intimation was received on 5th April, 2006.
- (iv) The Bank has received from clients Rs. 3,500/- being the collection on account on 26th April 2006, but credit intimation was received on 10th April, 2006 only.

6. (a) Write a short note (any two) :- 8

- (i) Types of Account
- (ii) Types of Cash Book
- (iii) Suspense Account.

(b) From the following particulars prepare cash book with cash, bank and Discount columns : 12

- 2006 Jan
- 1 Cash in Hand Rs. 2,000/-
 - 2 Bank Overdraft Rs. 30,000/-
 - 3 Issued a Cheque infavour of Rekha for Rs. 25,000/- in full Settlement of Rs. 26,000/-
 - 5 Received a Cheque from Sonu for Rs. 32,500/- in full settlement of Rs. 33,000/ and deposited the cheque into Bank.
 - 7 Received an advice from the Bank stating that the Bank has paid Rs. 250/- on account of Insurance premium.
 - 9 Paid to petty cashier Rs. 100/-

7. (a) Match the following :- 8

| | |
|---------------|---|
| (i) Drawings | (a) Assets are equal or more than his liabilities |
| (ii) Capital | (b) Goods sold |
| (iii) Solvent | (c) Brief Explanation |
| (iv) Sales | (d) Amount withdrawn by Trader |
| (v) Narration | (e) Amount invested in business |
| (vi) Account | (f) Who owes something |
| (vii) Asset | (g) Properties owned by a person |
| (viii) Debtor | (h) Summarised Record. |

(b) Journalise the following Transations in the books of Baru : 12

2006 Jan.

- 1 Baru started business with cash 4,00,000/-
- 3 Purchased goods for cash 5,000/-
- 5 Sold goods for cash 3,000/-
- 6 Purchased motorcar for cash 1,50,000/-
- 22 Received Commission 1,200/-
- 25 Purchased a building on credit from Veeru 2,00,000/-

- N.B. :** (1) Question No. 1 is compulsory.
 (2) Solve any two questions from Q. No. 2 to Q. No. 4.
 (3) Solve any two questions from Q. No. 5 to Q. No. 7.
 (4) Attempt questions for Accounting and Managerial Economics separately and in sequence.
 (5) All questions carry equal marks.
 (6) Make required assumptions and state them clearly.

1. (a) Write short notes on the following (any two) :- 6
 (i) Responsibilities of Managerial Economist.
 (ii) Break-even Analysis.
 (iii) Economies of Scale.

- (b) Mr. Rajesh has prepared the following trial balance as on 31-03-2005 : 14

| | | | |
|-------------------------|----------|-------------------|----------|
| Wages | 8,000 | Sales | 88,000 |
| Salaries | 12,000 | Creditors | 28,000 |
| Opening Stock | 5,000 | Discount received | 2,000 |
| Purchases | 48,000 | Returns Outward | 1,000 |
| Rent | 11,000 | Capital Account | 80,000 |
| Printing and Stationery | 1,600 | Bills Payable | 3,000 |
| Advertising | 1,400 | | |
| Carriage Inward | 2,000 | | |
| Carriage Outward | 3,000 | | |
| Discount Allowed | 1,000 | | |
| Bad Debts | 2,000 | | |
| Returns Inward | 2,000 | | |
| Debtors | 15,000 | | |
| Building | 42,000 | | |
| Vehicles | 10,000 | | |
| Cash | 12,000 | | |
| Bank balance | 8,000 | | |
| Drawings | 18,000 | | |
| | 2,02,000 | | 2,02,000 |

Additional Information :

- (i) Closing stock as on 31-03-2004 was valued at cost Rs. 16,000/-. Market price of the same was Rs. 17,600/-.
- (ii) Rent of Rs. 1,000/- was outstanding as on 31-03-2005.
- Prepare Trading and Profit and Loss account for the year ended on 31-03-2005 and also a Balance sheet as on that date.
2. (a) Define price elasticity of demand and distinguish between its various types. Discuss the role of price elasticity of demand in business decisions. 12
 (b) Explain briefly how the demand for a commodity is affected by changes in price, income, price of substitute, advertisement and population. 8
3. (a) What is demand forecasting ? How do you estimate demand for a new product ? 6
 (b) In short run cost analysis, explain with diagram giving reasons the following statement. "The MC curve intersects both the AVC curve and ATC curve at their minimum points". 12
4. (a) Distinguish between Perfect competition and monopolistic competition. Explain and illustrate the conditions for the establishment of firm's equilibrium under perfect competition. 12
 (b) Explain the term price discrimination. How is price determined in a discriminating monopoly ? 8
5. (a) Journalize the following transactions in the Books of Mr. Suyash : 12
 (i) On 1-4-2005 stated business with cash of Rs. 47,000/-.
 (ii) On 2-4-2005 paid cash to Mr. Navin Rs. 6,000/-.
 (iii) On 4-4-2005 Sold goods worth Rs. 4,500/-.
 (iv) On 9-4-2005 bought goods of Rs. 7,500/- for cash.
 (v) On 12-4-2005 bought New Furniture on credit from Ms. Ritu Rs. 10,000/- by cheque No. 666888.
 (vi) On 13-4-2005 withdrew goods worth Rs. 700/- for personal use.
 (vii) On 17-4-2005 goods distributed as free samples Rs. 1,000/-.
 (viii) On 21-4-2005 deposited cash into bank Rs. 5,000/-.
- (b) Discuss : 8
 (i) Objectives of cost accounting.
 (ii) Different types of cost.

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6. (a) Write short note on any one : 8
 (i) Preparation of flexible Budget. 12
 (ii) Any three functional budgets.
 (b) Record the following transactions in cash book with cash and bank column of Shri Raju.

| Date | Particulars |
|------|--|
| 01 | Cash balance Rs. 12,000/- and bank balance Rs. 5,000/-. |
| 02 | Bank charged Rs. 10/- as cheque book charges. |
| 04 | Cash Sales Rs. 2,000/-. |
| 06 | Deposited Rs. 1,000/- into bank. |
| 08 | Proprietor Mr. Raju withdrew Rs. 100/- by cheque for personal use. |
| 16 | Cashier gave sufficient cash to petty cashier to restore interest amount of Rs. 200/- after checking petty cash expenses for the period which amounted to Rs. 180/-. |
| 22 | Paid electricity bill Rs. 150/- by cheque. |
| 24 | Cash purchases Rs. 1,800/-. |
| 29 | Banked Rs. 100/- being cash sales of the day. |

7. (a) M/s. Vishal Traders have a current account with Dena Bank. On 30-06-2005, the pass book disclosed a balance of Rs. 31,480/-. Prepare bank reconciliation statement as on 30-06-2005 and ascertain balance as per cash book : 12
- (i) Cheques received from customers amounting to Rs. 8,000/- were deposited into bank on 28-06-2004. These cheques were collected by bank on 04-07-2004.
 - (ii) Bank had collected a dividend of Rs. 150/- on 29-06-2004. It has remained to be recorded in cash book.
 - (iii) Cheque issued to Ramesh of Rs. 1,500/- has been entered twice in the cash book.
 - (iv) Cheques of Rs. 10,000/- issued to creditors on 20-06-2004 were not presented for payment upto 30-06-2004.
 - (v) Bank has debited charges of Rs. 40/- on 30-06-2004. These have not been recorded in cash book.
 - (vi) Cheque of Rs. 2,000/- issued to Sunil was recorded in cash column of cash book. 8
- (b) Write notes on any two of the following :
- (i) Cost accounting and its advantages.
 - (ii) Cost center and cost unit.
 - (iii) Contra entry.