PAPER-6: Fundamental of Information Technology Page no: 81-103

December 2006/FIT (Foundation)

Question no 1 is compulsory. Answer any NINE questions from the rest

1. a) Fill in the blanks with appropriate words or phrase. (0.5×5=2.5)

i. ……..is a programming machine.

ii. A millionth second is called……..

iii. The register bank contains a set memory cells……. to the processor.

iv. ALU stands for……..

v. EPROM stands for……

b) Answer the following multiple choice question. (0.5×5=2.5)

i. The two types of auxiliary storage device are

- Random and sequential access
- MDIA and MIDI
- VGA and SVGA
- None of the above

ii. The storage device that combine the magnetic disk technology with CSD- ROM technology is:

- CD-R<
- CD-RO
- MO Drive
- None of the above

iii. Which of the following is an example of system software?

- Word processor
- Spread Sheet
- Games
- None of the above

iv. Which of the following gives high fidelity reception?

- Amplitude modulation
- Altitude modulation
- Phase modulation
- Digital modulation

c) Convert the following from one number to another number system. (1×5=5)

i. $(572)_2 = (\ldots\ldots\ldots)_8$

ii. $(786.5)_{10} = (\ldots\ldots\ldots)_8$

iii. $(ABCD)_{16} = (\ldots\ldots)_{10}$

iv. $(10110.10)_2 = (\ldots\ldots\ldots\ldots)_{10}$

v. $(1234)_8 = (\ldots\ldots\ldots)_{16}$

2. Explain about the organization of different of a computer based system. Compare primary memory with secondary memory. (5+5=10)

3. You are appointed as the system administrator for the design of the net working system to the Everest Bank Limited which has three floors building having 5 rooms in each. Each room should be equipped with 10 computers. Design the physical layer connection by using the 16 port hub. 10

4. Write down the output for the following C program. 10

```
# include< stdio.h>
Void main(void)
{float weight, price=.2 ;
 Printf("enter weight if apple:");
 Scanf("%f', & weight);
PrintfEve's");
If ( weight> 10)
(printf( ' Premiuum");
Price=price+1'
}
Else
{ print f("juicy");
}
Print (Apple.S%4.2f.\n", price);
}
```

5. Why do you think that looping is essential in computer programming? Explain different types of loops used in C programming. 10

6. Explain system software application software and utility software. Give examples. 10

7. Describe how data base application software and utility software. Give examples. 10

8. Describe the significance of word processor in day to day office activity. Discuss the functions of word processors. (5+5=10)

9. Explain with example the real time data processing system. Write down any two method of source coding (5+5=10)

10. Distinguish between the following: (5×2=10)

    i. Batch processing and Online processing

    ii. RAM and ROM

11. Distinguish between the following: (5×2=10)

    i. Internet and internet

    ii. Conventional file system and DBMS

Note:

June 2007/FIT (Foundation)

Questions No 1 is compulsory. Answer any NINE questions from the rest.

1. a) Fill in the blanks with appropriate words (s) or phrase(s). (0.5×5=2.5)

i. VLSI stands for……

ii. …….. is called the brain of computer.

iii. ASCII stands for……

iv. …….. Slots are used for connecting peripheral devices like internal modem. SCSI cards and sounds cards.

b) Answer the following multiple choice questions. (0.5×5=2.5)

i. Which of the following is the milestone to the development of computer?

- Vacuum tune
- Diode
- Register and capacitor
- Transistor

ii. Select the odd one of following

- RAM
- ROM
- Cache memory
- Tape

iii. Choose the most reliable network out of following

- Bus network
- Ring network
- Star network
- Mesh network

iv. An accounting package is of following types program

- Application program
- System program
- Utility program
- Micro program

v. C programming language is

- Low level language
- High level language
- Middle level language
- All of above

c. Convert the following from one number system to another number. (1×5=5)

i. $(127)_{10}=(\ldots\ldots\ldots)_2$

ii. $(127)_8=(\ldots\ldots\ldots)_{10}$

iii. $(BAB)_{16}=m(\ldots\ldots\ldots\ldots)_{10}$

iv. $(100001)_2=(\ldots\ldots\ldots)_{16}$

v. $(765)_8=(.....)_{16}$

2. a) Describe the feature that characterized central processing unit. 5

b) Explain how the information Technology helps a Chartered Accountant carry out his her/her professional activities. 5

3. Describe a LAN system using minimum number of B port hubs and 16-ports switches to connect 76 computers (1 server and 75 workstations) spanned over 6 rooms. 10

4. Describe any two of the features of Window 2000 Operating System, (5×2=10)

a. Ease of use

b. Storage improvements

c. Internal access

d. Security

5. a) Differentiate between structure and union in the context of programming. 4

b) Write program using C language to read records of 100 students and display records of students having even roll number. Attributes of the records are given in following table. 6

Roll No	Name	Marks

6. a) What do you understand by database? Discuss its advantages over the file system. 5

b) Draw the E-R diagram to reflect the relation between students, subject and teacher. 5

7. Define decision table. Write the uses of decision table. (3+7=10)

8. Explain the following data related security concerns. (2×5=10)

i. Hacking

ii. Piggy backing

iii. Salami technique

iv. Spamming

v. Worms

9. a) Differentiate between function proto type and function definition. 5

b) Write a program using C language to calculate and display factors of number input by user. 5

10.a) Describe how encryption works using simple model. 5

b) What does application layer of OSI model do? Give some examples of software tools work in application layer. 5

11. Write short notes on: (5×2=10)

i. Types of data storage devices

ii. Subroutine

December 07/FIT (Foundation)

Question No 1 is compulsory. Answer any NINE questions from the rest.

1.a) Fill in the blanks with appropriate words (s) or phrase (s). (5×0.5=2.5)

i. ……improves the reliability and protection of data in enterprise storage system.

ii. OCR stands for ……..input technology.

iii…….. simulates more main memory than actually exists in the computer system.

iv. The set of rules and procedures governing transaction across a network called……

v. In output technology, COM stands for……..

b) Answer the following multiple choice questions: (5×0.5=2.5)

i. Which of the following is an example of system software?

- Office Automation Tool
- Accounting Package
- All of the above

Ii. Select the odd one of following:

- ASCII
- BCD
- Hexadecimal
- EBCDIC

iii. Computerized Nepalese Stock Exchange Is an example of

- Batch processing system
- Online processing system
- Interactive processing system
- Real time processing system

iv. Which of the following is true the characteristics of database system?

- Data sharing
- Data independence
- All of the above

v. A modern performs which of the following functions?

- It converts digital data to analog signals.
- It connects a computer to digital communication network
- It connects a computer to local area network
- It connects a computer to it's serial port
- It prevents electrical spikes from affecting transmission.

c) Write the full form of the following abbreviation. (5×1=5)

- RISC
- MAR
- EPIC
- PROM
- SNOBAL

2. a) Write the EBCDIC coding for the word ZONE (Use hexadecimal notation). How many Bytes will be required for this representation? 5

b) Fill in the blanks with appropriate words (s) or Phrase (s). (5×1=5)

i…….. is considered the father of modern digital computers.

ii. UNIVAC stands for……

iii. An accounting package is……program.

iv. Input/output (l/O) register communicates with the……

v. …… is software substituted for hardware and stored in read only memory.

3. A building has six floors and each floor requires three data terminals. Design a LAN system using minimum number of 4 port switches and 12 port switches to connect 18 computers. 10

4. Briefly define the following terms: (5×2=10)

i. Assembler

ii. Computers

iii. Linker

iv. Interpreter

v. Object Oriented Programming (OOP)

5. Write note on mini-computer? What is the difference between a super computer and micro computer? (5+5=10)

6. a) Define operating system. Differentiate between multiprogramming and multitasking. 5

b) What do you understand by GUI? Describe how it helps user interact with computer system. 5

7. What is a digitizer? What are its main components? What are their main areas of application? 10

8. a) What is batch processing? How it is different from online processing. 5

b) What do you understand by network topology? Describe different types of topologies. 5

9. Why is system evaluation needed? What are the main parameters normally used to evaluate a new system? 10

10.a) Describe different types of defence strategies for information system. 5

b) Where does an application layer lie in OSI model? Give some examples of software tools that work in application layer. 5

11. List out the typical file operation provided by an operating system and mention what each operation is used for. 10

June 08/FIT (Foundation)

Question No 1 is compulsory. Answer any NINE questions from the rest.

1. a) Convert the following numbers from one number system to another system. (5×1=5)

- 2057_8=(……)$_{10}$
- IAC_{16}=(……)$_{10}$
- 42_{10}=(……)$_2$
- $11010011_{2=}$(……)$_{16}$
- $2B.C4_{16}$=(……)$_{10}$

b) Fill in the blanks with appropriate words(s)or phrases(s). (5×1=5)

i……..is a type of high speed memory that a processor can access more rapidly that the main memory.

ii. Computer based integration of text, sound, still images, animation and digitized motion video is called……. technology.

iii…….. allows users to have direct control of objects and actions that replace complex command syntax.

iv. The process of analyzing and reducing a relational database to its most streamlined form for minimum redundancy, maximum data integrity and best processing performance is called…….

v. The programming languages, self calling functions are called……..

2. Write in brief the characteristics of a good programming language. 10

3. What is input device? Explain the categories of input device. 10

4. What do you understand by the spreadsheet application? What are the main features of such application? How are they important in accounting purposes? (2+5+3=10)

5. Write a C program to calculate the sum of all integers form 1 to the number provided by the user. The number provided should be greater than 20 and less than 30. Make use of loop to calculate the sum, do not use formula. 10

6. Write in brief about computer network. What are the three main network topologies? Write in brief about IP addresses. (3+4+3=10)

7. What is an operating system? What are the main function of operating system? Write in brief about graphical user interface. (3+4+3=10)

8. Explain the types of data model with examples. 10

10.a) Describe how the three most common data models organize data. Explain the advantages and disadvantages of each model. 5

b) What is normalization process? Describe the different forms of normalization 5

11.a) Specify whether the following statements are true or false. 5

i. JAVA is an object oriented programming languages.

ii. Parity bits are parts of message being transmitted

iii. Different technique of processing are classifies based on the sequence of input processing, and output of transactions.

iv. Simultaneous processing of more than one program by assigning it to run on different processors (CPU_s) is termed as multiprogramming.

v. Clients/ Server network architecture is appropriate for large number of users.

b) How does application layer of OSI model do? Give some examples of tools work in application layer. 5

December 2008/FIT (Foundation)

Question No 1 is compulsory. Answer any NINE questions from the rest.

1.a) Fill in the blanks with appropriate words(s) or phrase(s). (5×1-5)

i. …….. Interface the users and hardware in any computer system.

ii. Structure and Union are different to each other in……..

iii. …is an electronic device that is used to store identification of a computer in a network.

iv…….. slots are used for connecting peripheral devices like internal moderm. SCSI cards and sounds cards.

v……. allows user to have direct control of visible objects and actions that replace complex command syntax.

b) Convert the following numbers from one number to another.

i. $(488)_{16}$ =(……..)$_{10}$

ii. $(1101001101)_2$ =(……..)$_8$

iii.$(10111011)_2$ =(……..)$_8$

iv.$(5B.3A)_{16}$=(……..)$_8$

v.$(46.57)_8$ =(……..)$_{16}$

2. a) List out various storage and retrieval methods and briefly explain them. (1+4=5)

b)What are registers? Briefly explain the role of Program Counter (PC), Instruction Register (IR), Memory Address Register (MAR) and Memory Buffer Register (MBR).

3. a) What is called system memory? Describe briefly different types of system memories. 5

b) Briefly describe how a microprocessor functions. 5

4. a) Explain briefly about Central Processing Units. 5

b) Subjects $(1001)_2$ from $(1100)_2$ using 2's Complement. 5

5. a) What are the advantages of a database management approach to the file processing approach?

b) What are the benefits and limitation of the relational database model for business application today? 5

6.a) What is secure communication? Briefly explain , how public key encryption works? (2+3=5)

b)What is RAID? Where it is used? Mention the advantages of it. (1+2+2=5)

7. What is operating system? Write down briefly about thread concept. (2=3=5)

8.a) Write a program in C to read any integer numbers n 1 and n2. Display only such integer number which lies within the range from n1 to fill n 2 ad that number is exactly divisible by 3 and 5 respectively. 5

b) define an array. Explain advantages of using an array. Write a program to read elements in an array and print the smallest element in an array. (1+2+2=5)

9. a) what s normalization? Why it is necessary? Define first and second normal form. 5

b) Briefly explain the function of simple electric lain system. 5

10.a) What are basic functions of operating system? Explain 5

b) How is application software different from system software? Explain 5

11.a) explain the importance of real time system in data processing with suitable examples. 5

b) Describe data communication system using suitable model. 5

Note:

June 2009, FIT/ Foundation

Question No 1. is compulsory. Answer any NINE questions from the rest.

Question No.1

a) Fill in the blanks with appropriate words (s) or phrase(s). 5×1=5

i……. is a high speed memory that a processor can access more rapidly than the main memory.

ii…….. improves the reliability and protection of data in enterprise storage system.

iii. The set of rules and procedures governing transmission across a network is called……

iv……..is the process of removing redundant data from the database table.

v…….. carries out modulation and demand of carrier signal.

b) Convert the following from one number system to another number. 5×1=5

i. $(423.25)_{10}=(\ldots\ldots\ldots\ldots)_2$

ii. $(786.5)_{10}=(\ldots\ldots\ldots)_8$

iii. $(ABCD)_{16}=(\ldots\ldots\ldots\ldots)_{10}$

iv. $(10110.101)_2=(\ldots\ldots\ldots\ldots)_{10}$

v. $(1234)_8=(\ldots\ldots\ldots\ldots)_{16}$

Question No.2

a) Mention the different types of inputs devices. Explain any two of them. 2+4=6

b) Identify the major component of central processing unit and explain their functions. 4

Question No.3

a) Differentiate between function declaration and function definition. 5

b) Write a program using C language to calculate and display factorial of number input by user. 5

Question No.4

Mention the major categories of system software and application software. Explain one/one category of system and application software. 2+8=10

Question No.5

A shop owner allows credit facility to his customers if they satisfy any one of the following conditions:

a) Holding the present job for more than 3 years and residing in the same place for more than 5 years.

b) Monthly salary exceeds Rs 1,500 and holding the present job for more than 3 years.

c) Residing in the same place for more than 5 years and monthly salary exceeds Rs 1,500.

The facility is rejected for all other customers.

Prepare a decision table for the above problem. 10

Question NO.6

a) What do you mean by data types? List out at least three data types with its memory and range. 2+3=5

b)Explain briefly about keyword. Justify "All data types are keywords but all keywords are not data type" 3+2=5

Question No 7'a'

Discuss the traditional data file organization and its problem 4

Question No. 7'b'

Describe how the three most common data models organize data, and the advantages and disadvantages of each model. 6

Question No 8'a'

What do you mean by network architecture? Explain about Peer-to-Peer and client Server architecture in brief. 1+4=5

Question No 8'b'

Write down the advantages and disadvantages of bus topology. 5

Question No.9'a'

Describe how encryption and decryption works using simple model. 5

Question No 9'b'

Answer the following multiple choice questions: 5×1=5

i) Which of the following is true for the characteristics of database system?

A. Data sharing

B. Data integrity

C. Data independence

D. All of the above

ii) Select the odd one of following:

A.RAM

B.ROM

C. Cache memory

D. Virtual Memory

iii) Choose the most reliable network out of following:

A. Bus network]

B. Ring network

C. Stare network

D. Mesh network

iv) A moderm perform which of the following function:

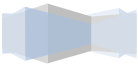
A. It converts digital data to analog signals.

B. It connects a computer to digital communication network

C. It connects a computer to local area network.

D. It connects a computer to its serial port.

E . It prevents electrical spikes from affecting transmission.



v) C programming language is

A. Low level language

B. High level language

C.Middle level language

D. All of above

Question No 10.

Define and mention the features of word processing spread sheets, presentation package and personal information manager. 10

December 2009,FIT/Foundation

1. a) Answer the following multiple type questions: 5×1=5

i) Different component on the motherboard of a PC processor unit are linked together by set of parallel electrical conducting lines. What are these lines called?

(i) Conductors

(ii) Buses

(iii) Connectors

(iv) Connectivity

ii) The process of converting analog signals in to digital signals so they can be processed by a receiving computer is referred as

(i) Modulation

(ii) Demodulation

(iii) Synchronization

(iv) Asynchronization

iii) Which of the following is true for network database structure?

(i) It is a physical representation of data

(ii) It allows many to many relationship

(iii) It is conceptually simple

(iv) it will be the dominant database of the future

iv)A translator which rends an entire program written in high level language and convert into machine language codes is

(i) Assembler

(ii) Translator

(iii) Compiler

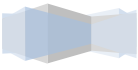
(iv) System Software

v) Which of the following are loaded into main memory when the computer is booted?

(i) External command instructions

(ii) Internal command instructions

(iii) Utility program



(iv) Word processing instruction

b) Convert the following number from one number system to another. 5×1=5

i) $(127)_{10}$= (……)$_2$

ii) $(76)_8$= (……)$_{10}$

iii) $(0.875)_{10}$= (……)$_2$

iv) $(47)_8$= (……)$_{16}$

v) $(189)_{16}$= (……)$_{16}$

2) Explain the various characteristics of a monitor. 10

3) Differentiate between data and information. Briefly explain batch, online and time share processing with example.

4) a) What are major trend that occurring in software? Why an operating system is necessary? Why an operating system is necessary? Why can't an end user just load an application program in a computer and start computing? Justify. 6

b) Explain the network components Switch, Router, Gateway and Modem. 4

5) a) Write down the difference between GUI and CUI. 5

b) Explain the process how data are retrieved from a CD-ROM. 5

6) a) Define operating system. Differentiate between multiprocessing and multitasking. 5

b) What is flow chart? Mention the purpose of flowchart and various types of flow chart. 5

7)a) Write a simple program in C, to find the average marks of N subjects and display average marks and message 'congratulation' if average marks is greater than or equal to 50 and 'Sorry' if it is less than 50.

b) What is function? Mention the advantages of function. 4

8) What do you mean by distributed database? Explain its advantages. 10

9)a) Describe data communication system using suitable model. 5

b) What is RAID? Where it is used? Mention the advantages of it. 5

10) Which application software packages are the most important for a business end user and explain how to use them? 10

11) a) Explain the importance of data security. 5

b) What is IP address? Explain about TCP/IP protocol. 5

June 2010, FIT/Foundation

Question No.1 is compulsory. Answer NINE questions from the rest.

1. a) Convert the following. 5×1=5

i) $(CA3)_{16}$=(……)$_2$

ii) $(248)_{10}$=(……)$_8$

iii) $(1000010111.101)_2$=(……)$_{10}$

iv) $(635.75)_{10}$=(……)$_{16}$

v) $(706)_8$=(……)$_2$

b) Answer the following multiple types questions: 5×1=5

i) The most common binary coded in use today is the 8 bit ASCII code. What do the letter ASCII stand for?

a) American Standard Code for International Interchange

b) American Standard Code for Information Interchange

c) American Standard Code for Intelligence Interchange

d) All of the above

ii) John Von Neuman is credited with

a) Inventing the first analytical engine

b) Designing the analytical engine

c) Developing the modern concept of stored program

d) None of the above

iii) The memory which is programmed at the time it is manufactured is

a) ROM

b) RAM

c) PROM

d) EPROM

iv)An entry in a telephone book can be compared to a

a) Database

b) File

c) Record

d) Field

v) The principle of locality of reference justify the use of

a) DMA

b) Polling

c) Cache Memory

d) Virtual Memory

2. a) Briefly describe the main components of computer system 5

b) What are the main types of printer? How do they work? 2+3=5

3. a) Differentiate between system memory and storage memory. 5

b) What is the machine cycle? Define each step of the cycle. 2+3=5

4. a) What is flowchart? Describe program flowchart symbols with its diagrammatic representation, function and its meaning. 1+4=5

b) Write short notes on monitor's 2×2.5=5

i) Resolution

ii) Interlaced

5. Briefly explain word processor, spread sheet, presentation package and persona; information managers. 10

6. Describe the phenomena of "Call by value" and "Call by reference" with suitable example in a C programming language. 5+5=10

7.a) Write a function in C language to swap the contents of integer variables. 5

b) What are secondary data types? Differentiate between structure and union. 5

8. a) What do you mean by Entity Relationship diagram? Explain its uses in database design. Draw the various symbols used in E-R model. 1+1+3=5

b) Define normalization. Explain about 1NF, 2NF and 3NF briefly. 2+3=5

9. Write short notes on following: 2×5=10

a) Database Normalization

b) Object Oriented DBMS

10. a) Explain various protection method of client Server Network 5

b) Write short notes on: 2×2.5=5

i) Virus

ii) Worms

11. Ina competitive examination there are three categories of candidates:

Open competition

Scheduled Cast

Scheduled tribe

From the marks obtained by the candidates in the entrance examination, they are selected for the final interview. An open competition candidates is selected if his/her mark is greater than or equal to 60. A scheduled cast candidate is selected if his/her mark is greater than or equal to 50 and all scheduled tribe candidates are selected.

Write a C program to read the names, community code and the marks and print whether candidate is selected or not. 10

December 2010, FIT/Foundation

Question No 1 is compulsory. Answer NINE questions from the rest.

1.a) Convert the following 5×1=5

i) $4BAC_{16}$= (……..)$_2$

ii) $5C7_{16}$= (……..)$_{10}$

iii) 367.528=(……..)$_2$

iv) 378.93_{10}= (……..)$_8$

v) 5497_{10}= (……..)$_2$

b) Answer the following multiple type questions: 5×1=5

I) A name or number used to identify a storage location is called

a) A byte

b) A records

c) An address

d) all of the above

II) Which of the following is a secondary memory device?

a) Keyboard

b) Disk

c) ALU

d) All of the above

III) A step by step procedure used to solve the problem is called

a) Operating system

b) Algorithm

b) Application program

d) All of the above

iv) Ethernet uses

a) Bus topology

b) Ring topology

c) Star topology

d) Tree topology

v) A file that includes an index directory to facilitate random access is

a) Sequential File

b) Indexed File

c) Random File

d) Serial File

2. Explain primary and secondary memory. 10

3. a) List out and briefly describe the physical media available on the computers you use routinely. 5

b) Explain the various parameters that are used to measure the performance of disk. 5

4. Write down the advantages and disadvantages of index sequential file organization and Random file organization. 10

5. a) A bank had the following policy on deposits: On deposits of Rs 6,000 and above and for three years or above the interest rate is 10%. On the same deposit for a period less than 3 years it is 8%. On the deposits below Rs 6,000 the interest rate is 6% regardless of the period of deposit. Write the above process using a decision table. 5

b) Explain the flowchart and its symbol. 5

6. a) Differentiate between array and pointer 5

b) Write a program using recursive function in C to compute. Fibonacci number following a sequence 0, 1,1,2,3,5,8,13,21…….. 5

7. a) Explain the client server architecture. 5

b) Explain the concept of firewall system. 5

8. a) Explain the encryption techniques with examples. 5

b) What do you mean by data communication? Explain. 5

9. a) What do you mean by system software and application software? Explain. 5

b) What do you mean by HTTP? Explain. 5

10. Define the following terms. 4×2.5=10

a) Operating System

b) Router

c) Batch Processing

d) Work Station

11. a) What do you mean by RAID? What are the two possible approaches uses of RAID? Explain. 5

b) Mention the advantages and disadvantages of Star Topology.

June 09. FIT/ CAP-I

Attempt all questions.

1. a) Fill in the blanks in the following:

i. Binary number system uses only two digits …….. And……..

ii. The communication line between the CPU memory and peripherals is called a……..

iii. RDBMS stands for……

iv. HTML stands for……..

v. The two main types of network are…….. And……..

b) Write the full form of the following abbreviates.

i. EBDIC

ii. EPROM

iii. ASCII

iv. ENIAC

v. OCR

2. What is a Database Management system? Why do you need Database Management system?

3. What is network topology and what are the different types of network topology?

4. a) What is the different Batch processing and On line processing?

b) What is the difference between System Software and Application Software?

5. Draw a basic digital computer block diagram and explain each block in brief?

6. What is the difference between se sequential and direct access file processing?

7. Write a short program to ask user for three numbers. Your program should sort the three numbers in descending order (i.c form biggest to smallest0 and print them out to the screen.

8. What is the importance of fiber optics in communication system?

9. What is flow chart? Write a program in C to determining whether a given integer is odd or even.

10. John Ship owns a large shipping business. He asks you to develop a program to track his ships

a) State one advantage of creating structures.

b) You would like to label each of John's ship with an identical code. Create a structure called Ship code type that stores the following information:

- Type : a 1-character category type that represents, for examples 'C' for cargo ships
- ID : a 3- digit integer number 2

c) John would like to store the following information for each of the ship:

- S code : of ship code Type above
- Desc : can store up to a maximum of 30 characters describing the ship
- Num passenger : integer showing the number of passenger the ship can accommodate
- Weight : float
- Height : float
- Length : float

Create a structure called ship Rec that stores the above information

d) Declare an array called ship Array that can store up to 1000 ship Rec records. 2

December 2009, FIT/CAP-I

Attempt all questions.

1. a) Convert given number as indicated showing the process as well:
   $2057_{(8)} = (\ldots\ldots\ldots\ldots\ldots\ldots)_{10}$ 2

b) When all the columns in a table describe and depend upon the primary key, the table is said to satisfy ……. 2

c) The number of bits in a nibble is …….. whereas the number of bits in a byte is …….. 2

d) Operating system is an example of ……..Software whereas spreadsheet is an example of …….. software. 2

e) Data or information security can be achieved by a process called …….. it reverse process is called …….. 2

2. What is ER diagram? Design a database using ER diagram for a car-insurance company whose customers own one or more cars each? Each car has associated with it zero to any number of recorded accidents. 10
3. What is network topology? Discuss different types of network topologies used in computer networks topology would you choose if you were requested to design a computer network in your organization? 10
4. Write a program using C language that will calculate the average of several different lists of numbers i.e. there are 'n' number of lists and each list may have 'r' members. 10
5. What do you know about looping statements? Discuss each of them using suitable examples. 10
6. Draw a generalized block diagram of a micro computer system, identity various components and explain their functions. 10
7. Write short notes on: (5*2=10)
   a) Floe Chart
   b) Client-server network
8. What do you mean by storage devices? How are they different from primary memories? List different types of data storage devices used in modern computer system with their characteristics features. 10
9. Show your familiarity with different types of application tools available with package such as MS Office with suitable examples. 10

10. a) What kind of data is represented using i) bit ii) nibble iii) byte iv) file? Illustrate with example. 4

b)What do you mean by data processing? Compare:

i) batch processing & online processing

ii) centralized and decentralized system. (2+2+2=6)

June 2010, FIT/CAP-I

Attempt all questions.

1. Answer the following multiple type questions: (10×1=10)

a) Array into marks [10] [5] defines an array of

I. 5 tables,10 rows
II. 10 columns, 5 rows
III. 10 rows, 15 tables
IV. 10 rows, 5 columns

b) The principle of locality of reference justifies the use of

i. Re enterable
ii. Non reusable
iii. Virtual memory
iv. Cache memory

c) The topology with highest reliability is

i. Bus topology
ii. Mesh topology
iii. Star topology
iv. Ring topology

d) HTTP means

i. Hypertext transfer protocol
ii. Hypertext transmission protocol
iii. Hypertension transfer protocol
iv. All of the above

e) A software program stored in ROM that can't be changed easily is known as

i. Hardwar
ii. Linker
iii. Firmware
iv. Editor

f) Data encryption technique are mainly useful for

i. Improving data integrity
ii. Protecting data in data communication system]
iii. Reducing storage space requirement
iv. All of the above

g) The decimal equivalent of octal number 56 is]

i. 46

ii. 66
iii. 53
iv. 49

h) A while loop is more appropriate than a for loop when

i) The body of the loop will be executed at least once

ii) The terminating condition occur unexpectedly

iii) The program will be executed at least once

iv) None of the above

i) Formatting disk involves

i) Copying the contents of one disk to another disk

ii) Protecting a user from copying the disk

iii) Erasing the disk and giving it an empty root director.

iv) None of the above

k) Layer one of OSI model is

i. Data link layer
ii. Physical layer
iii. Application layer
iv. Transport layer

2. What is database? What are its applications? Discuss object oriented database and distributed database in detail. (2+3+5=10)
3. Assume that you are hired as the Network designer for Shangrila Hotel Lazimpat, Kathmandu. The office building has 5 floors and each floor with 5 rooms and each room should be equipped with 18 computers. Using the 24 port or 32 hub make the physical connection for the LAN. 10
4. What is function? How do you define function? Write a function to calculate the factorial of a given positive integer N (Function accept positive integers N and return factorial of N). (2+2+6=10)
5. Create a structure called " rectangle" that has following information:
   - Length variable that stores rectangle's length
   - Breadth variable that stores rectangle's breadth

   Write two functions"Find area" and "Find perimeter" to find area and perimeter respectively. Write a C program using array of structures to find area and perimeter=2× (length + breadth). 10
6. Why is system software essential? Explain with its functions. 10
7. Draw block diagram of modern computer system and explain the functions of each block in detail. 10
8. List out the various storage devices and explain them briefly 10
9. Write short Notes on: (2×5=10)
   a. Normalization
   b. Open System of Interconnection
10. Write short notes on following (2×5=10)
    a. Batch and Online processing
    b. RAID

December 2010,FIT/CAP-I

Attempt all questions.

1. Fill in the blanks.
   a. For a bit number, the maximum positive number which can be presented in 2's complement form is…….and maximum negative number is…….
   b. $(6327.4051)_8$= (…….)$_{10}$
   c. $(23)_8$+ $(67)_8$= (…….)$_8$
   d. The gray code and excess 3 code of decimal number 5 in four bit system are….. and……. respectively.
   e. Layer 1 of OSI layer is …….. and layer 5 is……..
2. What do you mean by an ER diagram? Draw an ER diagram representing the data base design of information of workers working on a department. 10
3. What is Computer Network? Mention the advantages of computer network for modern organization. Suppose you are assigned to establish LAN in a small organization. The organization has three rooms and each rooms has two computers. Draw the simple block diagram for LAN with IP addresses. (2+3+=10)
4. Write a program using C language to add two matrices and store the result in third matrix. 10
5. Draw a flowchart to evaluate the roots of polynomial equation: $ax^2+bx+c=0$ 10
6. List out and briefly explain the various physical storage devices available in computers you use routinely and compare them in terms of cost, speed and packing density. 10
7. Why do you think that security of data is important? Explain about encryption and decryption. 10
8. What is software? List out various categories of software and explain application software in detail. (2+2+6=10)
9. What do you mean by data processing? What are the parameters that determine which type of processing system to be used? 10
10. a) Explain about the protocol and its needs. 5

    b) Write short notes on: (2×2.5=5)

    i. Gateway ii. NIC

June 2011, FIT/CAP-I

Attempt all questions.

1. a) Convert the following from one number system to another as indicated: (2+1+2=5)

   i) $(F8E6.39)_{16}$= ( )$_{10}$

   ii) $(1110\quad 1001\quad 0111\quad 0100)_2$= ( )$_{16}$

   iii) $(21.5)_{10}$= ( )$_2$

   b) Fill in the blanks with relevant phrase. (5×1=5)

   i) Network……. is the geography of the physical connection of computers.

   ii)…….. is a program that serves as an interference between application program and asset of coordinated and integrated physical files.

   iii) The symbol used in C programming for address operator is…….

iv)…….. establishes the coordination among various units and parts.

v) A RAM which capacity is 4 kilobyte can store…….. bytes of data.

2) What do you understand by branching statement in programming language? Explain different types of branching statements used in language with examples. (2+4+=10)

3) Draw an ER diagram to represent simple operation of a library having following entities: book, publisher, supplier and library member. 10

4) What is function? Write a program in C to find maximum of given N numbers. (2+9=10)

5) What do you mean by microprocessor? How does each unit of microprocessor operate to execute any instruction? (3+7=10)

6) Design a LAN to connect 250 computers in 5 storey building having 5 rooms in each floor with 10 computers in each room. 10

7. a) Define system software. Mention the major functions of operating system. (1+5=6)

b) Briefly explain the feature of word processing and spread sheet. (2+2=4)

8. Draw a decision table on the case described below: 10

City centre gives the gift voucher to the customer who purchases the goods equal to or greater than Rs 5,000 and pays the bill through the credit card. The female who uses credit card of Nabil Bank and purchases Rs 3,000 to Rs 5000 also gets the gift voucher. Assume that it accepts only credit card.

9. a) Write functions of DBA. 5

b) Write major advantages of computer Network. 5

10. Write short notes on (2×5=10)

a) OSI model

b) Centralized Database system

Dec 2011, FIT/ CAP-I

Attempt all questions

1. Fill in the blanks: 5×2=10

a. Binary 1111 when added to binary 1111, the result in binary is……

b. Decimal 10.75 is represented in binary system by……..

c. If a microprocessor has a 64 K memory, the hexadecimal notation for last memory location is……..

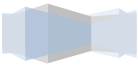
d. OSI reference model consists of…….. layers and TCP/IP reference model consist…….. layers.

e. Network topology in which each terminal is connected to central device is……..topology and network topology in which each terminal is connected to every other terminal is called…… topology.

2. What do you mean by weak entity set and strong entity set? Draw an E-R diagram representing the database

Design of information Student (Student ID, Student name, Student City, Student Street, Student phone)

Borrowing books (Book no, Book name, Book author) 10



3. Mention the advantages of computer network in modern organization and design a network to connect 24 Computers in a lab room of ABC College. Assign IP address for the computers also. 10

4. Write a program in C using loops to display the Pyramid like below: 10

55555

4444

333

22

1

5. What is the importance of looping statement in programming? Explain about different loops used in C programming with examples. 3+7=10

6. What do you mean by Program flowchart? Draw a flow chart to find the largest of three numbers x, y and z. 2+8

7. What is file organization? Explain sequential, direct and index file organization with their merit and demerits.(1+3×3=10

8. Why is it important to ensure data security in modern business? What are the methodologies of data security? 2+8=10

9. What are input/output devices? Briefly explain following input/output devices:

i) Digitizer ii) Light pens iii) Impact and Non impact printers iv) Image Scanners. 2+4×2=10

10. Write short notes on (Any Two): 2×5=10

a. Array in C programming

b. OSI layer

c. Normalization

Note: