Assignment for

Even Semester of

PGDCA/M.Sc. Computer Science

(Through Distance Education)

For session 2015-2016

Directorate of Distance Education

Guru Jambeshwar University of

Science & Technology, Hissar

Prepared By:

Mr. Vinod
Assistant Professor
(Computer Science), DDE, GJUS&T

Important Instructions

Assignments are integral parts of course work of any programme of study in Distance Education of this university. The purpose of preparing and evaluating the assignments is to get the students acquainted with the theoretical and practical dimensions of the topics or area of study or the course work. The questions for the assignments are designed in a way to enhance the analytical skills of the students. The following are some important points to consider while preparing and evaluating the assignments.

1. All assignments should be legible and written in candidate's own handwriting on A4 size paper.
2. Answers should be appropriate, focused, legible and clean.
3. All questions are compulsory & carry equal marks.
4. Study centers are required to evaluated the assigements by the university approved subject evaluators only.
5. Study centers are also required to maintain a complete and proper record of assignments and will keep the assignments in physical form till the result declaration of the student concerned.
6. The University has the right to monitor, inspect or check this record any time.
7. The study centers are also required to submit evaluation/award sheets in sealed cover /online in proper format and keep one copy of the same for record as per the schedule already notified.

Programme: PDGDCA **SEM: 2nd**

Course: Data structure and algorithms **Code: MS-06**

Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. **How do you push and pop elements in a linked list?**
2. **What is recursion? Which data structure is being used for the implementation of recursion? Find the factorial of a number with an help of example?**
3. **Write an algorithm for binary search? Explain the same with the help of example and its complexity?**
4. **What do you mean by sorting? Mention different types of sorting techniques in array in detail?**
5. **Define ADT? Design an ADT for rational numbers?**

ASSIGNMENT (PART-II)

Max Marks: 3*5=15

1. **Explain the quick sort algorithm? Write any two applications of stack?**
2. **Write a program in 'C' to calculate the total 5 number of words and vowels in a string given as input by the user.**
3. **Give an algorithm or C program to reverse a singly linked circular list?**
4. **Convert the following infix expressions into postfix notation**
   ((A+B) + (C/D))-2
5. **What is difference between Binary tree and Binary search tree?**
   Insert following items in Binary tree and Binary search tree:
   C, O, R, N, F, L, A, K, E, S

Programme: PDGDCA **SEM: 2nd**

Course: Computer Organization and Architecture **Code: MS-07**

Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. **Differentiate between computer architecture and computer organization?**
2. **What do you mean by interrupts? Explain how interrupts are handled when they occur while an instruction is being executed?**
3. **Write a short note on following:**
   a) **ALU**
   b) **Arithmetic**
   c) **Logical**
   d) **Shift**
4. **Differentiate between Synchronous and Asynchronous Data Transfer? Explain the concept of programmed, interrupt and DMA methods of data transfer techniques?**
5. **What do you understand by fetch cycle, instruction cycle and machine cycle?**

ASSIGNMENT (PART-II)

Max Marks: 3*5=15

1. **Explain main memory and cache memory? Explain the concept of stack organization?**
2. **How many memory chips of 128*8 are needed to provide memory capacity of 4096*16?**
3. **Explain the concept of DMA? Write a short note about DMA transfer? Also Explain block diagram of DMA controller?**
4. **Write short note on:**
   a) **Interrupt Cycle**
   b) **Interrupt acknowledgment**
5. **Explain different addressing modes with the help of example?**

Programme: PDGDCA **SEM: 2nd**

Course: Operating System **Code: MS-08**

Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. **What is operating system? Give the view of operating system as resource manager? What are the characteristics of modern operating system?**
2. **What are time sharing systems? Explain the features of time sharing systems?**
3. **What is system calls? Explain their types? What is System Boot Process?**
4. **Five batch jobs A to E arrive at same time they have estimated running times 10, 06,02, 04 and 08 mins their priorities are 3, 5, 2 ,1 and 4 respectively with 5 being highest priority .For each of the following algorithms determine mean process turnaround time , ignore process swapping overhead?**
5. **Explain Round Robin, Shortest Job and Priority scheduling algorithm with illustration?**

ASSIGNMENT (PART-II)

Max Marks: 3*5=15

1. **How to avoid deadlock in a resource – allocation system with one instance of each resources, show using resource allocation graph?**
2. **Define mutual exclusion with help of an example? By avoiding mutual exclusion can a deadlock be avoided? Justify your answer?**
3. **What do you mean by memory management and explain various memory management techniques? Explain swapping in memory management?**
4. **Write a short note on:**
   a) **Waiting time**
   b) **Response Time**
   c) **Turnaround Time**
5. **What do you mean by process? Explain various states of process? What is the use of PCB? Why threads are called as light weight process?**

Programme: PDGDCA **SEM: 2nd**

Course: Business Data Processing **Code: MS-09**

Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. **Explain Data processing with any example?**
2. **How records and files are managed explain with example?**
3. **Explain business files and its types?**
4. **Explain the terms:**
    a) **File generation**
    b) **Back up**
5. **Explain different file recovery procedures?**

ASSIGNMENT (PART-II)

Max Marks: 3*5=15

1. **What do you mean by reserved words in COBOL ? Give examples?**
2. **Explain EXIT statement with example?**
3. **Explain LABEL clause and LINAGE clause?**
4. **Explain following statements with examples :**
    a) **MOVE**
    b) **MULTIPLY**
5. **Give example of GO TO and IF satements?**

Programme: M.Sc. (Computer Science) **SEM: 4th**

Course: Computer Network **Code: MS-16**

Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. **Differentiate between Switches and Hubs.**
2. **How is the data fragmented and again reassembled in TCP/IP ?**
3. **Give two example of computer applications for which connection oriented service is appropriate? And give two examples for which connectionless service is best?**
4. **Discuss the advantages and disadvantages of credit versus sliding window protocol?**
5. **Explain selective repeat protocol with a suitable diagram. ?**

ASSIGNMENT (PART-II)

Max Marks: 3*5=15

1. **Compare and contrast between simplex, half duplex, and full duplex communication, along with an example for each?**
2. **What is Congestion ? How is congestion controlled by TCP ?**
3. **Write the differences between datagram subnet and virtual circuit ?**
4. **In twisted pair cable why wires are twisted? Briefly explain two categories of twisted pair cables, with their advantages ?**
5. **Compare and contrast between simplex, half duplex, and full duplex communication, along with an example for each?**

Programme: M.Sc. (Computer Science) **SEM: 4th**
Course: C++(OOPS) **Code: MS-17**
Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. **Differentiate the concept between object oriented approach and procedural oriented approach in programming?**
2. **Write down a program to explain the concept of classes and object? How do objects interact with each other and with the external interfaces? Describe with the help of a diagram.**
3. **Is it necessary to pass argument in a friend function? Justify your answer with example?**
4. **What is Dynamism? Describe dynamic binding for object-oriented design with the help of an example.**
5. **Write a program to overload the + operator to concatenate two strings.**

ASSIGNMENT (PART-II)

Max Marks: 3*5=15

1. **Write short note on:**
   a) **Fstream objects**
   b) **Size of operator**
   c) **Bitwise operators**
2. **What are templates? Create a function template for a stack.**
3. **Why abstract classes needed? Explain with the help of example?**
4. **What are Macros and why are they needed? Design a macro to find the cube of a variable.**
5. **What is Inheritance? What are the different visibility modes observed while deriving a class from a base class?**

Programme: M.Sc. (Computer Science) **SEM: 4th**

Course: Internet and Web Programming **Code: MS-18**

Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. **Explain the advantages of Blogging. What is web-browser ?**
2. **Explain the features of Java-enabled web-browsers. ?**
3. **What is hypertext ? Explain any two applications of hypertext?**
4. **Write the procedure for publishing a website? Explain the basic components of personal web pages?**
5. **What is a Form ? Explain any four field types in a Form.?**

ASSIGNMENT (PART-II)

Max Marks: 3*5=15

1. **Write short notes on the following :**
   a) **Document Object Model**
   b) **Authoring Tools**
   c) **IP Address**
2. **Deference between Client side script and server side script?**
3. **What is the meaning of home page of a website ? Explain any two features of a home page?**
4. **Explain virtual machine in JAVA? Give examples of JAVATokens?**
5. **Java is object oriented language ? explain this statement with it's features?**

Programme: M.Sc. (Computer Science) **SEM: 4th**
Course: Computer Based Optimization Methods **Code: MS-19**
Max Marks: 5*515

ASSIGNMENT (PART-I)

1. **Distinguish between pure and mixed integer programming problems.**
2. **Using simplex method: Maximize $Z = 5x1 + 3x2$, subject to:**
   $x1 + x2 \leq 2$, $5x1 + 2x2 \leq 10$, $3x1 + 8x2 \leq 12$, $x1$, $x2 \geq 0$.
3. **Explain Decision-tree analysis. What is node in a decision tree?**

ASSIGNMENT (PART-II)

Max Marks: 5*3=15

1. **Illustrate graphically the unbounded problem of linear programming problem?**
2. **Write down various phases in solving an OR problem.**
3. **Explain Minimum matrix method for finding an initial basic feasible solution for a transportation problem?**