MASTER OF COMPUTER APPLICATIONS (CBCS 2018 COURSE)M.C.A. Sem-I:
WINTER- 2019
SUBJECT: C PROGRAMMING (UE)

Wednesday 13-11-2019 W-18883-2019
02:00 PM-05:00 PM Max. Marks: 60

N.B.:

1) Q 4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q 5, 6, 7 in Section II.
4) All questions CARRY EQUAL marks.
5) Answer to both the section should be written in **SAME** answer book.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)

a) Explain the importance of operating system and how operating system executes the 'C' program.
b) Explain about the different data types in c language with example.

Q.2) Answer the following: (6 Marks X 2 = 12)

a) Give the difference between 'for loop' and while loop with example.
b) How the elements of an array stored in a memory? Why array index starts with 0 in C.

Q.3) Explain the following: (6 Marks X 2 = 12)

a) How to call C functions in a program?
    1. Call by value
    2. Call by reference

b) Explain how pointers are passed as input parameters to functions and return values from functions

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)

a) What is loader? How it works?
b) Importance of decision statement
c) Features of linear search
d) String comparison functions
e) realloc() and calloc() functions

SECTION - II

Q.5) Answer the following: (6 Marks X 2 = 12)

a) Write a program to multiply two floating point numbers.
b) Write a program to display sum of series 1+1/2+1/3+1/4+.....+1/n.

Q.6) Answer the following: (6 Marks X 2 = 12)

a) Write a program to show sum of 10 elements of an array and print the average.
b) Write a program to swap numbers using functions.

Q.7) Explain the following: (6 Marks X 2 = 12)

a) Write a program to calculate the power of a number using recursion.
b) Explain bit wise operators in C.

*****

MASTER OF COMPUTER APPLICATIONS (CBCS 2018 COURSE) M.C.A. Sem-I: WINTER- 2019

SUBJECT: COMPUTER ORGANIZATION & ARCHITECTURE (UE)

(Common for SDE MCA Sem I 2019 Course)

Friday 15-11-2019 W-21501/ W-18884-2019

02:00 PM-05:00 PM Max. Marks: 60

N.B.:

1) Q. 4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q. 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q. 5, 6, 7, in Section II.
4) All questions CARRY EQUAL marks.
5) Answers to Both the sections to be written in SAME answer book.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)

a) Explain types of computer with their merits and demerits.

b) What is combinational Circuit? Draw the full adder circuit and explain its operation.

Q.2) Answer the following: (6 Marks X 2 = 12)

a) Design a 4-bit binary counter circuit and explain its operation.

b) Briefly describe the design of control unit of basic computer.

Q.3) Explain the following: (6 Marks X 2 = 12)

a) Analyze the memory hierarchy in terms of speed, size and Cost.

b) Explain the working of Interrupt cycle with help of flow chart.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)

a) Firewall

b) Registers

c) Assembler

d) Data transfer instructions

e) Serial communication

SECTION - II

Q.5) Answer the following: (12 Marks X 1= 12)

The sequential circuit has three D flip flops A, B and C, one inputs x and one output y. The flip flop input equations and circuit output is as follows.

$D_A = x'C + A'B$

$D_B = x' + xC'$

$Dc = AB + xB'$

$y = xA + x'B$

a) Draw logic diagram.

b) Tabulate state table.

Q.6) Answer the following: (6 Marks X 2 = 12)

a) Convert the following numerical arithmetic expression into reverse polish notations and show the stack operation for evaluating the numerical result.

i.) (3+4) [19*(2+6)+8]

ii.) (5+6+7) [(3+4) * (7+3)]

b) Simplify by using Boolean algebra.

i. A'B + ABC' + ABC

ii. (BC' + A'D) (AB + CD')

Q.7) Explain the following: (12 Marks X 1 = 12)

Explain the functioning of 4 bit bidirectional shift register with parallel load with help of block diagram.

*****

MASTER OF COMPUTER APPLICATIONS (CBCS 2018 COURSE) M.C.A. Sem-I

M.C.A (2019 Course) SDE : WINTER- 2019

SUBJECT: DATABASE MANAGEMENT SYSTEMS (UE)

(Common for M.C.A (2018 & M.C.A (2019) SDE)

Monday 18-11-2019 21502 / W-18885-2019

02:00 PM-05:00 PM Max. Marks: 60

N.B.:

1) Q.4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q 5, 6, 7 in Section II.
4) All questions CARRY EQUAL marks.
5) Answers to Both the sections should be written in SAME answer book.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)

a) What are the different types of database users? Discuss the main activities of each.

b) What is normalization? Explain 1NF, 2NF and 3NF in detail.

Q.2) Answer the following: (6 Marks X 2 = 12)

a) Explain CODD's rules of RDBMS.

b) What are the main goals of the RAID technology?

Q.3) Explain the following: (6 Marks X 2 = 12)

a) List and explain various issues that arise when transactions are running concurrently in an uncontrolled manner.

b) What are the critical challenges in data quality management?

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)

a) Types of Database Languages
b) Mapping Cardinalities
c) Algorithm for Lossless Join
d) Fixed Length record vs. Variable Length record
e) States of Transactions
f) Audit trail.
g) Structure of Distributed Database

SECTION - II

Q.5) Answer the following: (12 Marks X 1 = 12)

Construct an ER Diagram for a hospital with a set of patients and set of medical doctors. A patient may be admitted to the hospital after a check up in OPD. Various tests may be conducted on patients. Rooms/Beds may be allocated to the patients on availability by the office. The patient may be released only after clearing all bills.

Q.6) Answer the following: (6 Marks X 2 = 12)

a) Explain all the operations on B+ tree by taking sample example.

b) What is shadow page recovery scheme? How does it compare with the log-based recovery techniques in terms of ease of implementation and overhead costs?

Q.7) Explain the following: (6 Marks X 2 = 12)

a) Discuss the key control measures that are used to provide security to data in databases.

b) What is data warehouse? Explain its architecture in detail.

*****

MASTER OF COMPUTER APPLICATIONS (CBCS 2018 COURSE) M.C.A. Sem-I:
WINTER- 2019

SUBJECT: DISCRETE STRUCTURES (UE)
Common for SDE 2019 Course Sem-I)

Wednesday 20-11-2019
02:00 PM-05:00 PM

21503/ W-18886-2019
Max. Marks: 60

N.B.:

1) Q 4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q 5, 6, 7 in Section II.
4) All questions CARRY EQUAL marks.
5) Answer to both the section should be written in **SAME** answer book.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)

a) How can this English sentence be translated into a
Logical expression "you can access the Internet from campus only if you are a computer science major or you are not a freshman".

b) Show that "divide" relation on the set of positive integers in not an equivalence relation.

Q.2) Answer the following: (6 Marks X 2 = 12)

a) Let f: Z⟶ Z be such that f(x) = x+1. Is f invertible? What is its inverse?

b) Describe an algorithm for finding the maximum value in a finite sequence of integers.

Q.3) Explain the following: (6 Marks X 2 = 12)

a) Explain all Logic Gate with suitable example.

b) Using mathematical induction to show that $\frac{1}{1.2}+\frac{1}{2.3}+\frac{1}{3.4}+-----+\frac{1}{n(n+1)}=\frac{n}{n+1}$ $\forall$ n $\geq$1

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)

a) Modus poens and modus tollens
b) Set and their types
c) Composition of Function
d) Boolean operation
e) Mathematical Induction

SECTION - II

Q.5) Answer the following: (6 Marks X 2 = 12)

a) Define Equivalence Relation.
Let R be a relation defined on a set of positive integers such that for all x, y $\in Z^+$ x Ry if and only if x–y is divisible by 3. Prove that R is an equivalence relation.

b) Define Cryptography. What is the secret massage produced from the massage "NO ENTRY "using the Caesar cipher.

Q.6) Answer the following: (6 Marks X 2 = 12)

a) Prove that the product of any three consecutive integer is divisible by 6.

b) Draw the Hasse diagram for the" greater than or equal to" relation on {0,1,2,3,4,5}.

Q.7) Explain the following: (6 Marks X 2 = 12)

a) In how many different ways can eight identical cookies be distributed among three distinct children if each children receives at least two cookies and no more than four cookies?

b) Design Mealy machine to find 2's complement of a given binary number.

*****

MASTER OF COMPUTER APPLICATIONS (CBCS 2018 COURSE) M.C.A. Sem-I: WINTER- 2019

SUBJECT: MANAGEMENT FUNCTIONS (UE)

common for M.C.A Sem.I (2019 Course) For SDE)

W- 21504/

Friday 22-11-2019 W-18887-2019

02:00 PM-05:00 PM Max. Marks: 60

Reg-2018+SDE(2019)

N.B.:

1) Q 4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q 5, 6, 7 in Section II.
4) All questions CARRY EQUAL marks.
5) Answers to Both the sections to be written in SAME answer books.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)

a) Explain Henry Fayol's management theory. What are the major functions of management? Discuss.

b) Explain the process of Management by Objectives. Also bring out the relative merits and demerits of MBO.

Q.2) Answer the following: (6 Marks X 2 = 12)

a) Discuss the merits and demerits of centralization and decentralization in brief.

b) What are the basic elements of effective coordination?

Q.3) Explain the following: (6 Marks X 2 = 12)

a) Discuss in detail man power planning

b) Citing the example of any one business of your choice, explain the importance of team work in achieving organizational objectives.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)

a) Need of Management Study
b) Steps in planning
c) Steps in decision making process
d) Coordination – a continuous process
e) Compensation and Incentives
f) Communication barriers
g) Characteristics of Professional Management

SECTION - II

Q.5) Answer the following: (6 Marks X 2 = 12)

a) Take any two Indian companies of your choice and discuss how they have succeeded or failed due to poor planning.

b) Discuss the various types of control techniques.

Q.6) Answer the following: (6 Marks X 2 = 12)

a) "Coordinating function involves synchronization of different efforts of the various departments so that the planned objectives are achieved with minimum conflict". Prove the statement with suitable example

b) Inefficient performance appraisal system de-motivates the employees. Justify with suitable example.

Q.7) Explain the following: (6 Marks X 2 = 12)

a) You are a manager who is trying to get support from your colleagues for a new idea. Describe the three principles of communication as well as three influencing tactics you might use.

b) Present your views for and against the social responsibility of business.

*****