

En. No.....



SAGE UNIVERSITY, INDORE

End Semester Examination (ESE), Semester-I

JAN: 2023

Program: MCA

Subject: Data Base Management System

Subject Code: CAPDCDBM018T

Time: 03:00 Hrs.

Max. Marks: 60

- Instructions: -
1. All questions must be answered in English only.
 2. Attempt all questions strictly in serial order only.
 3. Draw well labeled & colored diagrams wherever necessary.

Section - A

Q.1 -Multiple Choices Questions/True False / Fill in the Blanks

10X1=10

- A. Data about data is normally termed as
- a) Directory
 - ☒ c) Meta-Data
 - b) Data Bank
 - d) None of above
- B. What is a database?
- a) Organized collection of information that cannot be accessed, updated, and managed
 - b) Collection of data or information without organizing
 - ☒ c) Organized collection of data or information that can be accessed, updated, and managed
 - d) Organized collection of data that cannot be updated
- C. Which is a join condition containing an equality operator:
- ☒ a) Equijoins
 - b) Cartesian
 - c) Natural
 - d) Left
- D. _____ is a set of one or more attributes taken collectively to uniquely identify a record.
- a) Primary Key
 - b) Foreign key
 - ☒ c) Super key
 - d) Candidate key
- E. `SELECT * FROM Emp WHERE salary > 10000 AND dept_id = 101;`
- a) SalaryDept_id
 - b) Employee
 - c) Salary
 - d) All the field of Emp table
- F. What do you mean by one-to-many relationships?
- a) One class may have many teachers
 - ☒ b) One teacher can have many classes
 - c) Many classes may have many teachers
 - d) Many teachers may have many classes
- G. In the relation model, the relation is generally termed as _____
- a) Tuples
 - b) Attributes
 - c) Rows
 - ☒ d) Tables
- H. Which normal form deals with multivalued dependency?
- a) 1 NF
 - b) 2 NF
 - c) 3 NF
 - ☒ d) 4 NF
- I. A transaction completes its execution is said to be
- a) Saved
 - b) Loaded
 - ☒ c) Committed
 - d) Rolled

P.T.O.

J. Data security threats include

- a) Hardware Failure
- b) Privacy invasion
- c) Fraudulent Manipulation of Data
- d) All of the above

Section – B

Q. - Short Answer Type Questions - (Attempt any 10 Questions) 10X4=40

- 1) What is Database? Also write advantages of Database Management System.
- 2) Explain components of DBMS.
- 3) Give the details database constraints. Explain any three constraints.
- 4) What is information system? Explain.
- 5) Define Selection, Projection and cartesian product.
- 6) Explain about data independence?
- 7) How 3 NF is different than 4 NF?
- 8) Explain functional dependency?
- 9) What do you mean by transaction? Write types of transactions.
- 10) Write short note on Concurrency control.
- 11) What is the difference between centralised Database and Distributed Database?
- 12) Write all the arithmetic operations performed in Relational Algebra?
- 13) Explain concepts of hashing?
- 14) Write about Inner Join and Outer Join?
- 15) Write short note on security of Data Base Management System?

Section-C

Q.- Long Answer Type Questions -(Attempt any 1 Question) 1X10=10

- 17) Explain following: (Any 4)
 - i) Data Models
 - ii) Key Constraint
 - iii) Candidate Key
 - iv) Super Key
 - v) Referential Integrity
- 18) Explain process of Normalization? Explain any 4 normal forms with the help of examples.
- 19) Explain RAID? Also write about its levels?

Subject: Modern Operating System
Time: 03:00 Hrs.

Subject Code: CAPDCMOS004T
Max. Marks: 60

- Instructions: -
1. All questions must be answered in English only.
 2. Attempt all questions strictly in serial order only.
 3. Draw well labeled & colored diagrams wherever necessary.

Q.1 - Multiple Choices Questions/True False / Fill in the Blanks

Section - A

10X1=10

- To access the services of operating system, the interface is provided by the:
 - i) System Calls
 - ii) API
 - iii) Library
 - iv) Assembly Instructions.
- CPU fetches the instruction from memory according to the value of:
 - i) Program counter
 - ii) Status register
 - iii) Instruction register
 - iv) Program status word
- Run time mapping from virtual to physical address is done by:
 - i) Memory Management Unit
 - ii) CPU
 - iii) PCI
 - iv) None of the above
- Program always deals with:
 - i) logical address
 - ii) Physical Address
 - iii) Absolute Address
 - iv) Relatives Address
- Which module gives control of the CPU to the process selected by the short-term scheduler?
 - i) Dispatcher
 - ii) Scheduler
 - iii) Interrupts
 - iv) Handler
- Which scheduling algorithm allocates the CPU first to the process that requests the CPU first?
 - i) FCFS Scheduling
 - ii) Priority Scheduling
 - iii) SJF Scheduling
 - iv) Preemptive Scheduling
- The strategy of making processes that are logically runnable to be temporarily suspended is called:
 - i) Non preemptive scheduling
 - ii) Preemptive scheduling
 - iii) Shortest job first
 - iv) First come First served
- Which one of the following is the deadlock-avoidance algorithm?
 - i) Banker's algorithm
 - ii) Round-robin algorithm
 - iii) Elevator algorithm
 - iv) Karn's algorithm
- Semaphore is a/an _____ to solve the critical section problem.
 - i) Hardware for a system
 - ii) Special program for a system
 - iii) Integer variable
 - iv) None of these.
- Which of the following is least secure method of authentication?
 - i) Key card
 - ii) Fingerprint
 - iii) Retina pattern
 - iv) Password

Section - B

Short Answer Type Questions - (Attempt any 10 Questions)

10X4 = 40

- 2) Define Operating system. Explain layered architecture of operating system.
- 3) What are the various services provided by the operating system?
- 4) Explain Multiprogramming operating system with example.
- 5) Describe Parallel and distributed operating system.
- 6) Define process. What are the different process states? Also explain the process control block
- 7) Explain preemptive and non-preemptive scheduling with suitable example.
- 8) What is the necessary condition to avoid deadlock in system?
- 9) Explain Contiguous and Noncontiguous memory allocation schemes.
- 10) Explain logical and physical addresses with suitable example.
- 11) What is the cause of thrashing? How does the system detect thrashing? Once it detects thrashing. What can the system do to eliminate this problem?
- 12) Explain demand paging also explain what is the requirement of page replacement
- 13) What is Inter Process Communication? Also explain Basic Concepts of concurrency.
- 14) Define confidentiality, integrity, availability in security system.
- 15) Explain Resource allocation graph algorithm for deadlock avoidance.
- 16) Explain the following terms -
 - i) Long-term scheduler
 - ii) Short-term scheduler
 - iii) Medium-term scheduler

Section-C

1X10 = 10

Q.- Long Answer Type Questions -(Attempt any 1 Question)

17) What is Average Waiting Time and Average Turnaround Time of all the process for FCFS, SRTF and Round Robin Scheduling (Time quantum = 1 ms.).

Process Id	Burst Time	Arrival Time
P1	1	3
P2	4	1
P3	2	4
P4	6	0
P5	3	2

18) Consider the following reference string. Calculate the page fault rates for optimal Algorithm-1,2,3,4,5,3,4,1,6,7,8,7,8,9,7,8,9,5,4,5,4,2
(Assume that the memory size is 4 frames.)

19) Explain Deadlock avoidance? Explain Banker algorithms in Details with example.

End Semester Examination (ESE), Semester-I
JAN: 2023

Program: MCA

Subject: IT Fundamental

Time: 03:00 Hrs.

Subject Code: CAPGEITF001T

Max. Marks: 60

Instructions: - 1. *All questions must be answered in English only.*
2. Attempt all questions strictly in serial order only.
3. Draw well labeled & colored diagrams wherever necessary.

Section - A

Q.1 -Multiple Choices Questions/True False / Fill in the Blanks

$$10 \times 1 = 10$$

- 10X1=10
- A. Which network topology requires a central controller or hub?
a) Star
b) Mesh
c) Ring
d) Bus
- B. Data communication system within a building or campus is _____
a) LAN
b) WAN
c) MAN
d) PAN
- C. Which one is not an application software?
a) MS word
b) MS Excel
c) Windows
d) Facebook
- D. A process is a _____.
a) Single thread of execution.
b) Program in the execution
c) Program in the memory
d) Task
- E. Which one is an example of Internet?
a) LAN.
b) MAN.
c) WAN.
d) PAN.
- F. What is smallest unit of the information?
a) Bit
b) Byte
c) Block
d) Nibble
- G. OSI model has how many layers?
a) 4
b) 5
c) 6
d) 7
- H. Which is not a part of E-mail.
a) Compose.
b) Inbox.
c) Seen box.
d) Draft.
- I. What is the term for a temporary storage area that compensates for differences in data rate and data flow between devices?
a) Buffer
b) Bus
c) Channel
d) Modem
- J. BIOS is used?
a) By Operating system
b) By Compiler
c) By Interpreter
d) By Application software

P.T.O.

Section-B

Q.-Short Answer Type Questions - (Attempt Any 10 Questions) 10X4=40

- 2) What is Mail Merge and Macros?
- 3) Explain Characteristics of computer?
- 4) What is electronic conferencing?
- 5) Explain booting process?
- 6) What is Inserting Recorded Sound Effect in MS power-point? Explain step by step?
- 7) What is Operating system? Explain Objective and evolution of operating system?
- 8) Explain find and replace button in MS word.
- 9) Write Short Note: -
 - b) Compiler
 - b) Interpreter
 - c) Assembler
- 10) Explain formatting operations in MS excel.
- 11) What is network communication?
- 12) Explain is TCP/IP model?
- 13) Explain Pivot table and pivot chart?
- 14) Explain latest IT trends?
- 15) Short notes on the Following points:
 - a) E-mail
 - b) FTP
- 16) Explain Benefits and limitations of internet.

Section-C

Q. - Long Answer Type Questions - (Attempt Any 1 Question) 1X10=10

- 17) Explain LAN, MAN and WAN.
- 18) What is OSI model? Explain in Detail.
- 19) What is generation? Explain all generation in detail.

En. No. 22CO44116A0292
SAGE UNIVERSITY, INDORE

End Semester Examination (ESE), Semester-I
JAN: 2023

Program: MCA

Subject: Computer Architecture and Organization Subject Code: CAPDCCAO001T
Time: 03:00 Hrs.

Max. Marks: 60

- Instructions: -
1. All questions must be answered in English only.
 2. Attempt all questions strictly in serial order only.
 3. Draw well labeled & colored diagrams wherever necessary.

Section - A

Q.1 - Multiple Choices Questions/True False / Fill in the Blanks

10X1=10

- A. Floating point representation is used to store
- a) Boolean values
 - b) Whole numbers
 - c) Real integer
 - d) Integers
- B. In Computers, subtraction is generally carried out by
- a) 9's complement
 - b) 10's complement
 - c) 1's complement
 - d) 2's complement
- C. Which of the following is lowest in memory hierarchy?
- a) Cache memory
 - b) Secondary memory
 - c) Registers
 - d) RAM
- D. Von Neumann architecture is
- a) SISD
 - b) SIMD
 - c) MIMD
 - d) MISD
- E. Cache memory acts between
- a) CPU and RAM
 - b) RAM and ROM
 - c) CPU and Hard disk
 - d) None of these
- F. Which of the following is a type of computer architecture?
- a) Microarchitecture
 - b) Harvard Architecture
 - c) Von-Neumann Architecture
 - d) All of the mentioned
- G. Which of the architecture is power efficient?
- a) RISC
 - b) ISA
 - c) IANA
 - d) CISC
- H. Which of the following is the full form of CISC?
- a) Complex Instruction Sequential Compilation
 - b) Complete Instruction Sequential Compilation
 - c) Computer Integrated Sequential Compiler
 - d) Complex Instruction Set Computer
- I. The data is transferred over the RAMBUS as _____
- a) Blocks
 - b) Swing voltages
 - c) Bits
 - d) Packets
- J. Both the CISC and RISC architectures have been developed to reduce the _____
- a) Time delay
 - b) Semantic gap
 - c) Cost
 - d) All of the mentioned

Section – B

Q. - Short Answer Type Questions - (Attempt any 10 Questions)

10X4=40

- 2) Brief Explain Types of RAM and ROM?
- 3) What do you mean by Computer? Write down the functional components of computer system.
- 4) Explain Register Organization?
- 5) Explain peripheral devices, scanner, plotter, joysticks, touch pad?
- 6) Explain Memory and Memory parameters?
- 7) Difference between Soft wired (Micro-programmed) and Hardwired control unit?
- 8) What are the Drawbacks of Main Memory?
- 9) What are Page replacement policies?
- 10) What do you mean by floating point number representation?
- 11) Brief Explain Micro Operations?
- 12) What is Cache architecture (L1, L2, L3), mapping?
- 13) Difference between Cache memory and Virtual Memory?
- 14) Explain Parallel Processing Systems in Brief?
- 15) Short notes on the Following points:
 - a. Instruction format
 - b. CPU Architecture
- 16) Brief Explain Instruction Cycle?

Section-C

Q.- Long Answer Type Questions -(Attempt any 1 Question)

1X10=10

- 17) Explain concepts Flynn's classifications?
- 18) Detail Explain Cache Memory Mapping Techniques? Show it with Diagram.
- 19) What is Restoring Division Algorithm? Show it with Diagram and Example.

Enroll. No.....

SAGE UNIVERSITY, INDORE
End Semester Examination (ESE), Semester-I
JAN: 2023

Program: MCA

Subject: Web Design and Technology

Subject Code: CAPDCCAO001T

Time: 03:00 Hrs.

Max. Marks: 60

- Instructions: -**
1. *All questions must be answered in English only.*
 2. *Attempt all questions strictly in serial order only.*
 3. *Draw well labeled & colored diagrams wherever necessary.*

Section – A

Q.1 -Multiple Choices Questions/True False / Fill in the Blanks **10X1=10**

- A.** Which program is used by web clients to view the web pages?
☒ i) Web browser ☐ ii) Protocol
☐ iii) Web server ☐ iv) Search Engine
- B.** HTML stands for _____
☒ a) HyperText Markup Language ☐ b) HyperText Machine Language
☐ c) HyperText Marking Language ☐ d) HighText Marking Language
- C.** Which of the following is used to read an HTML page and render it?
☐ a) Web server ☐ b) Web network
☒ c) Web browser ☐ d) Web matrix
- D.** The property in CSS used to change the background color of an element is -
☐ a) Bgcolor ☐ b) Color
☒ c) Background-color ☐ d) All of the above
- E.** The CSS property used to control the element's font-size is -
☐ a) text-style ☐ b) text-size
☒ c) font-size ☐ d) None of the above
- F.** The CSS property used to draw a line around the elements outside the border?
☐ a) Border ☐ b) Outline
☐ c) Padding ☐ d) Line
- G.** PHP stands for -
☒ a) Hypertext Preprocessor ☐ b) Pretext Hypertext Preprocessor
☐ c) Personal Home Processor ☐ d) None of the above
- H.** Which of the following is correct to add a comment in php?
☐ a) & & ☐ b) //
☐ c) /* */ ☒ d) Both (b) and (c)
- I.** Which of the following is correct about JavaScript?
☒ a) JavaScript is an Object-Based language
☐ b) JavaScript is Assembly-language
☐ c) JavaScript is an Object-Oriented language
☐ d) JavaScript is a High-level language

P.T.O

J. Which attribute specifies a unique alphanumeric identifier to be associated with an element?

- a. class b. id c. article d. html

Section-B

Q.-Short Answer Type Questions - (Attempt Any 10 Questions)

10X4=40

- 2) What is Web designing?
- 3) Explain 5 golden rules of website designing.
- 4) Write short notes on Internet and www.
- 5) Explain list and its types.
- 6) Explain CSS and types of CSS.
- 7) What is jquery? Explain in detail?
- 8) Explain all the events of Javascript?
- 9) Explain function and variables.
- 10) Explain server side and client side scripting language.
- 11) Explain cookies and session?
- 12) What is SQL?
- 13) Create a web page and display 6 headings and paragraph on it.
- 14) What are server and browser?
- 15) What is database Explain types of database?
- 16) What is Css Box Model Explain with example

Section-C

Q. - Long Answer Type Questions - (Attempt Any 1 Question)

1X10=10

- 17) Create a qualification table in which display class, board, university, percentage and grade?
- 18) What is Xml Explain in detail.
- 19) Create a registration form for industrial training.
