



Seat No.	
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**F.Y. M.C.A. (Part – I) (Under Faculty of Engg.) (Old) Examination, 2016
PROGRAMMING IN C**

Day and Date : Wednesday, 27-4-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

1. MCQ : **20**

- 1) What is the default return-type of getchar() ?
a) char
b) int
c) char*
d) reading character doesn't require a return-type
- 2) The value of EOF is _____.
a) -1 b) 0 c) 1 d) 10
- 3) Which among the following is odd one out ?
a) printf b) fprintf c) putchar d) scanf
- 4) Which of the following uses structure ?
a) Array of structures b) Linked lists
c) Binary tree d) All of the mentioned
- 5) Which of the datatypes have size that is variable ?
a) int b) struct c) float d) double
- 6) What is the use of putchar() ?
a) The character written b) EOF is an error occurs
c) Nothing d) Both a and b
- 7) What are the properties of first argument of a printf functions ?
a) It is defined by user
b) It keeps the record of the types of arguments that will follow
c) There may no be first argument
d) None of the mentioned



- 8) Which of the following are themselves a collection of different data types ?
- a) string
 - b) structures
 - c) char
 - d) all of the mentioned
- 9) All keywords in C are in
- a) LowerCase letters
 - b) UpperCase letters
 - c) CamelCase letters
 - d) None
- 10) Which is correct with respect to size of the datatypes ?
- a) char > int > float
 - b) int > char > float
 - c) char < int < double
 - d) double > char > int
- 11) Which keyword is used to prevent any changes in the variable within a C program ?
- a) immutable
 - b) mutable
 - c) const
 - d) volatile
- 12) What is the size of an int data type ?
- a) 4 Bytes
 - b) 8 Bytes
 - c) Depends on the system/compiler
 - d) Cannot be determined
- 13) Which of the following is a User-defined data type ?
- a) typedef int Boolean;
 - b) typedef enum {Mon, Tue, Wed, Thu, Fri} Workdays;
 - c) struct {char name[10], int age};
 - d) all of the mentioned
- 14) The format identifier '%i' is also used for _____ data type.
- a) char
 - b) int
 - c) float
 - d) double
- 15) Which of the following cannot be static in C ?
- a) Variables
 - b) Functions
 - c) Structures
 - d) None of the mentioned



3. A) Explain branching statement with an example. **10**
- B) Write a C program to check Armstrong number. **10**
- OR
- B) What is array ? Explain String Manipulation Functions. **10**

SECTION – II

4. Solve **any four**. **(5×4=20)**
- 1) Block scope and file scope.
 - 2) Call by value.
 - 3) Recursion.
 - 4) Features of C Preprocessor.
 - 5) File Opening Modes.
5. A) Explain difference between Structure and Union in detail with an example. **10**
- B) What are command line arguments ? Explain file handling using command line arguments. **10**
- OR
- B) Write C program to store information (name, roll and marks) of a student using structure. **10**
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Seat No.	
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F.Y.M.C.A. (Part – I) (Faculty of Engg.) (Old) Examination, 2016
DIGITAL ELECTRONICS

Day and Date : Friday, 29-4-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

- Instructions :** 1) Figures to the **right** indicate **full** marks.
2) Q. 3 A) and Q. 5 A) are **compulsory**.
3) **Draw** diagram if necessary.

1. Choose the correct answer :

20

- 1) The binary code of $(21.125)_{10}$ is
 - a) 10101.001
 - b) 10100.001
 - c) 10101.010
 - d) 10100.100
- 2) The result of binary subtraction $(1101)_2 - (1011)_2$ is given by
 - a) 0011
 - b) 0100
 - c) 0010
 - d) 0101
- 3) ASCII code is a
 - a) 10-bit code
 - b) 7-bit code
 - c) 8-bit code
 - d) 5-bit code
- 4) The output of the following gate is 1 only if at least one of its inputs is 0
 - a) AND gate
 - b) OR gate
 - c) NAND gate
 - d) NOR gate
- 5) Which of the following Boolean algebra rules is correct ?
 - a) $A \cdot \bar{A} = 1$
 - b) $A + A \cdot B = A + B$
 - c) $A + \bar{A} \cdot B = A + B$
 - d) $A(A + B) = B$
- 6) A bubbled NAND gate is equivalent to a _____ gate.
 - a) OR
 - b) AND
 - c) X – OR
 - d) Inverter



- 14) Which logic device is called a distributor ?
 - a) a multiplexer
 - b) a demultiplexer
 - c) a encoder
 - d) a decoder
- 15) A combinational logic circuit
 - a) Must contain flip-flops
 - b) May contain flip-flops
 - c) Does not contain flip-flops
 - d) Contains latches
- 16) If a sequential circuit does not use clock pulses then it is
 - a) An asynchronous sequential circuit
 - b) A synchronous sequential circuit
 - c) A counter
 - d) A shift register
- 17) A flip-flop has two outputs which are
 - a) Always 0
 - b) Always 1
 - c) Always complementary
 - d) All of the above
- 18) A universal register
 - a) Accepts serial input
 - b) Accepts parallel input
 - c) Gives serial and parallel outputs
 - d) All of the above
- 19) Asynchronous counters are also called _____ counters.
 - a) Ripple
 - b) Parallel
 - c) Both
 - d) None
- 20) In sequential circuits, the present inputs depend on
 - a) Past inputs only
 - b) Present inputs only
 - c) Present as well as past inputs
 - d) Past outputs

SECTION – I

2. Write short answer on (any 4) :

20

- a) Conversion of BCD to gray code and vice versa
- b) De-Morgan's theorem
- c) CMOS
- d) Excess – 3 code
- e) $A [B + C (\overline{A \cdot B + A \cdot C})] = A \cdot B$ prove the above equation.



3. A) Explain TTL and CMOS logic family with their characteristics. **10**
B) Explain error detecting and correcting code with example. **10**

OR

- B) Reduce the expression, $f = \Pi M(0, 1, 2, 3, 4, 7)$ using mapping and implement it in AOI logic as well as in NOR logic. **10**

SECTION – II

4. Attempt **any four** : **20**
- a) Write a short note on half adder.
 - b) Explain 1-bit comparator.
 - c) Explain edge-triggered D flip-flop.
 - d) Write a note on buffer register.
 - e) Explain the difference between synchronous and asynchronous counter.

5. A) Design and explain BCD-to-7 segment decoder. **10**
B) Explain bi-directional shift register in detail using a neat diagram. **10**

OR

- B) Explain J-K flip-flop with clock, present and clear inputs. Draw characteristic table, characteristic equation and excitation table. **10**
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Seat No.	
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F.Y.M.C.A. (Under Faculty of Engg.) (Part – I) (Old) Examination, 2016
DISCRETE MATHEMATICAL STRUCTURE

Day and Date : Monday, 2-5-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instructions : 1) **Draw diagram wherever necessary.**
2) **Figures to the right indicate full marks.**

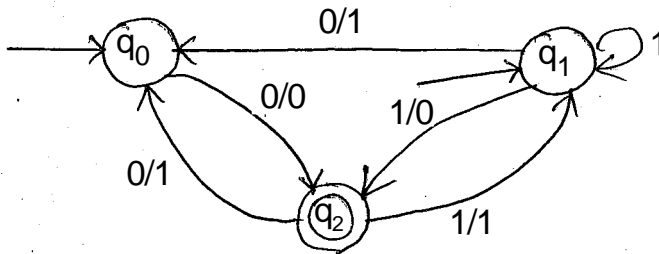
1. Choose the correct alternative : 20
- 1) The intersection of the sets $\{1, 2, 5\}$ and $\{1, 2, 6\}$ is _____
 - a) $\{1, 2\}$
 - b) $\{5, 6\}$
 - c) $\{\}$
 - d) none of these
 - 2) In preorder traversal the _____ processed first.
 - a) left subtree
 - b) right subtree
 - c) root
 - d) none of these
 - 3) In a directed graph _____
 - a) direction are fixed
 - b) underlying graph is fixed
 - c) both a) and b)
 - d) none of these
 - 4) The complete graph on n-vertices denoted by
 - a) K_n
 - b) KN
 - c) K^n
 - d) none of these
 - 5) An _____ in graph G is a simple circuit containing every edge of G.
 - a) undirected circuit
 - b) Euler circuit
 - c) path
 - d) none of these
 - 6) Let A and B are two sets difference of A and B denoted by
 - a) $A \times B$
 - b) $A + B$
 - c) $A - B$
 - d) none of these



- 7) A set may be viewed as an unordered collection of objects called as
- a) elements
 - b) member
 - c) both a) and b)
 - d) none of these
- 8) Union of two sets denoted by
- a) \cup
 - b) \cap
 - c) \times
 - d) none of these
- 9) A function is said to injection if it is _____
- a) one to one
 - b) one to many
 - c) many to many
 - d) none of these
- 10) A graph G is called _____ if G is connected and has no cycle.
- a) null graph
 - b) tree
 - c) both a) and b)
 - d) none of these
- 11) The iteration (or closure) of a regular expression R, written as R^* , is _____
- a) a regular grammar
 - b) also a regular expression
 - c) a regular set
 - d) none of these
- 12) To examine whether a certain FA accepts any words, it is required to seek the paths from _____ state.
- a) final to final
 - b) initial to final
 - c) initial to initial
 - d) final to initial
- 13) The tuple Σ in a finite automation is a finite nonempty set of _____
- a) inputs alphabet
 - b) maps
 - c) states
 - d) none of these
- 14) $A^*(a + b)^*$ is equivalent to
- a) $a^* + b^*$
 - b) $(ab)^*$
 - c) a^*b^*
 - d) none of the above
- 15) In a Mealy machine the λ tuple is the _____
- a) output function mapping $\Sigma \times Q$ into Δ
 - b) output function mapping Q into Δ
 - c) input alphabet
 - d) none of the above



- 16) Final state of an Automaton is also known as _____
 - a) accepting state
 - b) termination state
 - c) rejection state
 - d) all of the above
- 17) The set of all strings over {a, b} of even length is represented by the regular expression
 - a) $(ab + aa + bb + ba)^*$
 - b) $(a + b)^* (a^* + b^*)$
 - c) $(aa + bb)^*$
 - d) $(ab + ba)^*$
- 18) The initial states of the given transition system is/are _____



- a) q_0
 - b) q_1
 - c) q_0 and q_1
 - d) none of these
- 19) The F tuple in a N DFA is a subset of Q and is the set of _____
- a) final states
 - b) initial states
 - c) input alphabets
 - d) none of these
- 20) _____ of the certain sets can be shown using Pumping Lemma.
- a) not regular
 - b) regular expression
 - c) regular
 - d) none of these

SECTION – I

2. Write short note on (any 4) :

20

- A) Explain inverse function.
- B) Explain regular and bipartite graph.
- C) Explain bounded lattice.
- D) Explain rooted and spanning tree.
- E) Explain Euler and Hamilton graph.



3. A) Explain set with its four operations. **10**
 B) What is graph ? Explain adjacency and incidence matrix. **10**

OR

- B) What is relation ? Explain reflexive, irreflexive and transitive relation with an example.

SECTION – II

4. Write short note on (**any 4**) : **20**
 A) Write in brief about Regular Expression.
 B) Explain in detail the characteristics of Automaton.
 C) Draw a state table for a NDFSA given by the regular expression $(a + b)^* abb$.
 D) Write short note on Applications of Pumping Lemma for Regular Sets.
 E) Explain in detail Moore machine with a neat diagram.
5. A) Write long answer on Regular Sets and Regular Grammar with example. **10**
 B) Construct a Mealy machine which is equivalent to the Moore machine defined below :

Present State	Next State		Output
	a = 0	a = 1	
$\rightarrow q_0$	q_1	q_2	1
q_1	q_3	q_2	0
q_2	q_2	q_1	1
q_3	q_0	q_3	1

OR

- B) Explain the conversion of Nondeterministic Systems to Deterministic Systems. **10**
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**F.Y. M.C.A. (Under Faculty of Engg.) (Part – I) (Old) Examination, 2016
PRINCIPLES OF MANAGEMENT AND ORGANIZATIONAL BEHAVIOR**

Day and Date : Friday, 6-5-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

1. MCQ/Objective type question paper : **20**
- 1) Responsibility, Advancement etc. are example of
 - a) Motivators
 - b) Hygiene factors
 - c) Improvement factors
 - d) Advance factors
 - 2) Which of the following is not an example of Content Theory ?
 - a) Maslow Theory
 - b) Herzberg's Theory
 - c) Expectancy theory
 - d) Alderfer's ERG theory
 - 3) Stereotyping generally affects the
 - a) Organization structure
 - b) Behavior
 - c) Interpersonal relations
 - d) Communication
 - 4) Believes, attitudes, traditions and expectations which are shared by group members is called
 - a) Group norms
 - b) Group communication
 - c) Group cohesiveness
 - d) Group structure
 - 5) _____ advocated that humans are essentially motivated by levels of needs.
 - a) A. Maslow
 - b) Follet
 - c) Elton Mayo
 - d) Ivon Pavlov
 - 6) _____ refers to the basic changes in the content and responsibilities of job so as to satisfy higher motivational needs.
 - a) Job enrichment
 - b) Job enlargement
 - c) Work relocation
 - d) Process consultation
 - 7) The job satisfaction of an employee is depend on the
 - a) Behavior
 - b) Attitude
 - c) Personality
 - d) Employer
 - 8) _____ leader is self confident and can attract followers by his great influence.
 - a) Charismatic
 - b) Autocratic
 - c) Laissez-Faire
 - d) Bureaucratic
 - 9) Porter Lawler Model is an extension of
 - a) Maslow's theory
 - b) Mc Clelland's theory
 - c) Stacy Adams theory
 - d) Vroom's theory



- 10) _____ theory emphasis that, unsatisfied need can influence the behavior satisfied one will not act as a motivator.
- a) Alderfer's ERG theory b) Herzberg's theory
c) Expectancy theory d) Maslow theory
- 11) _____ refers to the basic changes in the content and responsibilities of job so as to satisfy higher motivational needs.
- a) Job enrichment b) Job enlargement
c) Work relocation d) Process consultation
- 12) Motivation includes
- a) Job enrichment b) Job rotation
c) Job enlargement d) All of the above
- 13) _____ is not correct for the organizational behavior.
- a) Organizational behavior is an integral part of management
b) Organizational behavior is a disciplinary approach
c) Organizational behavior helps in analysis of behavior
d) Organizational behavior is goal-oriented
- 14) Putting people in to a convenient group on basis of some characteristics and make an assumption to perceive is called as
- a) Stereotyping b) Perception
c) Perceiving d) Group perception
- 15) _____ is not a step in perceptual process.
- a) Object b) Selection
c) Perception d) Response
- 16) In _____ the needs are arranged in an order as per their importance.
- a) Maslow need theory b) Herzberg theory
c) Satisfaction theory d) Mayo theory
- 17) _____ is/are leadership theories.
- a) Trait theory b) Behavior theory
c) Contingency theory d) All of these
- 18) Expectancy theory is a theory comes under _____ theory.
- a) Process b) Content
c) Attribution d) Perception
- 19) _____ one is not a Need Based Theory of motivation.
- a) Maslow's theory b) F. Herzberg's theory
c) Alderfer's theory d) Vroom's theory
- 20) _____ is the key word in understanding organization structure.
- a) Control b) Change c) Process d) Delegation



SECTION – I

2. Write short note on (**any 4**) : **20**
- a) MBO
 - b) Committee Organization
 - c) PPC
 - d) MRP
 - e) Role of Manager.
3. Answer the following : **20**
- a) Define management. Explain various levels of management.
 - b) What is planning ? Explain its objectives.

OR

- b) Describe the systems approach to management.

SECTION – II

4. Write short note on (**any 4**) : **20**
- a) Techniques of motivation.
 - b) Job rotation
 - c) Levels of organization behavior
 - d) Personality
 - e) Types of leader.
5. Answer the following : **20**
- a) Explain comparison between Maslow and two factor theory in detail.
 - b) Define organizational behavior and explain factors affecting on individual behavior.

OR

- b) Define communication. Explain communication types in detail.
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Seat No.	
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**F.Y.M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
OPERATING SYSTEM (Old)**

Day and Date : Tuesday, 26-4-2016

Total Marks : 100

Time : 10.30 a.m. to 1.30 p.m.

1. MCQ

20

- 1) A collection of instructions that performs a single logical function is called
 - a) transaction
 - b) operation
 - c) function
 - d) all of these
- 2) A system is in a safe state only if there exists a
 - a) safe allocation
 - b) safe resource
 - c) safe sequence
 - d) all of these
- 3) All unsafe states are
 - a) deadlocks
 - b) not deadlocks
 - c) fatal
 - d) none of these
- 4) A deadlock avoidance algorithm dynamically examines the _____ , to ensure that a circular wait condition can never exist.
 - a) resource allocation state
 - b) system storage state
 - c) operating system
 - d) resources
- 5) For Mutual exclusion to prevail in the system
 - a) at least one resource must be held in a non sharable mode
 - b) the processor must be a uniprocessor rather than a multiprocessor
 - c) there must be at least one resource in a sharable mode
 - d) All of these
- 6) Multithreaded programs are
 - a) lesser prone to deadlocks
 - b) more prone to deadlocks
 - c) not at all prone to deadlocks
 - d) none of these



- 7) For effective operating system, when to check for deadlock ?
- a) every time a resource request is made
 - b) at fixed time intervals
 - c) both (a) and (b)
 - d) none of the mentioned
- 8) A single thread of control allows the process to perform
- a) only one task at a time
 - b) multiple tasks at a time
 - c) all of these
 - d) none of these
- 9) The Process Control Block is
- a) Process type variable
 - b) Data Structure
 - c) A secondary storage section
 - d) A Block in memory
- 10) A process can be terminated due to
- a) normal exit
 - b) fatal error
 - c) killed by another process
 - d) all of the mentioned
- 11) Which one of the following is the deadlock avoidance algorithm ?
- a) banker's algorithm
 - b) round-robin algorithm
 - c) elevator algorithm
 - d) karn's algorithm
- 12) Which of the following condition is required for deadlock to be possible ?
- a) mutual exclusion
 - b) a process may hold allocated resources while awaiting assignment of other resources
 - c) no resource can be forcibly removed from a process holding it
 - d) all of the mentioned
- 13) The signal operation of the semaphore basically works on the basic _____ system call.
- a) continue()
 - b) wakeup()
 - c) getup()
 - d) start()
- 14) The two atomic operations permissible on semaphores are (choose two) :
- a) wait
 - b) stop
 - c) both a and d
 - d) signal
- 15) Process are classified into different groups in
- a) shortest job scheduling algorithm
 - b) round robin scheduling algorithm
 - c) priority scheduling algorithm
 - d) multilevel queue scheduling algorithm



- 16) In priority scheduling algorithm, when a process arrives at the ready queue, its priority is compared with the priority of
- a) all process
 - b) currently running process
 - c) parent process
 - d) init process
- 17) In priority scheduling algorithm
- a) CPU is allocated to the process with highest priority
 - b) CPU is allocated to the process with lowest priority
 - c) equal priority processes can not be scheduled
 - d) none of the mentioned
- 18) The interval from the time of submission of a process to the time of completion is termed as
- a) waiting time
 - b) turnaround time
 - c) response time
 - d) throughput
- 19) Which module gives control of the CPU to the process selected by the short-term scheduler ?
- a) dispatcher
 - b) interrupt
 - c) scheduler
 - d) none of the mentioned
- 20) Which one of the following is not a real time operating system ?
- a) VxWorks
 - b) Windows CE
 - c) RTLinux
 - d) Palm OS

SECTION – I

2. Solve **any four**.

(5×4=20)

- 1) Storage structure
- 2) Process scheduling
- 3) Inter-process communication
- 4) User view of OS
- 5) Semaphores



3. A) Explain Inter-process communication in detail. **10**
B) What is CPU scheduling ? Explain Scheduling criteria. **10**
OR
B) Explain Critical Section problem and solution in detail. **10**

SECTION – II

4. Solve **any four**. **(5×4=20)**
1) Methods for handling deadlock
2) Swapping
3) Directory structure
4) Disk scheduling
5) Tertiary storage structure
5. A) Explain File Allocation methods in detail. **10**
B) Explain page replacement strategies in detail. **10**
OR
B) Explain File sharing and Protection in detail. **10**
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Seat No.	
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**F.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
OBJECT ORIENTED PROGRAMMING USING C++ (Old)**

Day and Date : Thursday, 28-4-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instructions : 1) Figures to the **right** indicate **full** marks.
2) Q.3A and Q.5A are **compulsory**.
3) Write a program **if necessary**.

1. Multiple choice questions :

20

- 1) Identify the operator that is NOT used with pointers
 - a) →
 - b) &
 - c) *
 - d) >>
- 2) Which of the following is not the characteristic of constructor ?
 - a) They should be declared in the public section
 - b) They do not have return type
 - c) They cannot be inherited
 - d) They can be virtual
- 3) You may override the class access specifiers
 - a) Public members
 - b) Public and protected members
 - c) Any specific class members you choose
 - d) No class members
- 4) A friend function to a class, C cannot access
 - a) Private data members and member functions
 - b) Public data members and member functions
 - c) Protected data members and member functions
 - d) The data members of the derived class of C
- 5) The members of a class by default are
 - a) Public
 - b) Protected
 - c) Private
 - d) Mandatory to specify

P.T.O.



- 6) The following can be declared as friend in a class
- a) An object
 - b) A class
 - c) A public data member
 - d) A private data member
- 7) A struct is the same as a class except that
- a) There are no member functions
 - b) All members are public
 - c) Cannot be used in inheritance hierarchy
 - d) It does have a this pointer
- 8) The mechanism that binds code and data together and keeps them secure from outside world is known as
- a) Abstraction
 - b) Inheritance
 - c) Encapsulation
 - d) Polymorphism
- 9) The keyword friend does not appear in
- a) The class allowing access to another class
 - b) The class desiring access to another class
 - c) The private section of a class
 - d) The public section of a class
- 10) A static data member is given a value
- a) Within the class definition
 - b) Outside the class definition
 - c) When the program is executed
 - d) Never
- 11) The process of operator overloading involves declaration of the _____ in the public part of the class.
- a) class
 - b) operator function
 - c) symbol
 - d) none of these
- 12) It is possible to declare as a friend _____
- a) A member function
 - b) A global function
 - c) A class
 - d) All of the above
- 13) An _____ function can be used to give a meaning for class objects.
- a) operator []
 - b) function
 - c) class
 - d) none of these
- 14) A derived class with several _____ is called multiple inheritance.
- a) derived class
 - b) abstract class
 - c) base classes
 - d) none of these



3. A) Explain constructor with example. **10**
B) Write a program to print Fibonacci series.

OR

- B) Write a program to find greatest among three numbers using class concept. **10**

SECTION – II

4. Write a short note on (**any 4**) : **20**
1) Basic to class type conversion
2) Hybrid inheritance
3) This pointer
4) getline() and write() function
5) Pure virtual function.

5. A) Explain virtual base class with example. **10**
B) Overloading of binary operator-to subtract complex number.

OR

- B) Write a program to find the largest and smallest element of an array using class concept. **10**
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Seat No.	
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**F.Y.M.C.A. (Under Faculty of Engg.) (Part – II) Examination, 2016
MICROPROCESSOR (Old)**

Day and Date : Saturday, 30-4-2016
Time : 10.30 a.m. to 1.30 p.m.

Max. Marks : 100

Instructions: 1) Figure to the right indicate **full** marks.
2) Q. 3. A and Q. 5. A are **compulsory**.

1. MCQ/Objective type questions : (20×1=20)

- 1) In 8085, address bus is of _____ bits.
a) 8 b) 16 c) 32 d) 64
- 2) The _____ register present in microprocessor is used to test for conditions.
a) Accumulator b) PC c) Flag d) SP
- 3) The clock frequency for 8085 is
a) 4 MHz b) 6 MHz c) 3 MHz d) 2 MHz
- 4) In a 2-byte instruction, the first byte specifies the
a) Data b) Operand
c) Opcode d) Byte
- 5) The _____ instruction loads the contents of a memory location into the accumulator.
a) LDA b) MOV c) LDI d) MVI
- 6) The _____ instruction is used to complement the contents of accumulator.
a) COM b) CMP c) CME d) CMA
- 7) The number of T-states required to access a peripheral is called a _____ cycle.
a) Instruction b) Machine
c) Opcode d) Operand
- 8) 8085 uses _____ cycle to store data in a memory location.
a) Memory read b) Memory write
c) I/O read d) I/O write
- 9) ALE will be high for _____ T-state during a machine cycle.
a) 1 b) 2 c) 3 d) 4
- 10) HLT is a _____ byte instruction.
a) 1 b) 2 c) 3 d) 4



- 11) _____ is a non-vectorized interrupt.
a) TRAP b) RST 5.5 c) RST 6.5 d) INTR
- 12) A _____ interrupt is an interrupt that cannot be ignored.
a) Maskable b) Non-maskable c) Vectored d) Non-vectorized
- 13) The _____ instruction is used to enable all maskable interrupts.
a) DI b) EI c) EA d) EN
- 14) SIM stands for
a) Set interrupt make b) Select interrupt mask
c) Sort interrupt make d) Set interrupt mask
- 15) In 8255, if _____ bit is 0 then the chip is used in BSR mode.
a) D1 b) D5 c) D7 d) D0
- 16) _____ is a hardware interrupt in 8085.
a) RST 0 b) RST 1
c) TRAP d) None of the above
- 17) I/O mapped I/O is also known as _____ I/O.
a) Memory b) Vectored c) Synchronous d) Isolated
- 18) The _____ data transfer methods does not contain error detection techniques.
a) Asynchronous b) Synchronous c) Serial d) Parallel
- 19) A memory chip containing 2048 memory locations will require _____ address lines.
a) 10 b) 11 c) 12 d) 13
- 20) In 8253, _____ counters are present.
a) 3 b) 2 c) 1 d) 4

SECTION – I

2. Write short answer on (**any 4**) :

20

- 1) Data transfer instruction.
- 2) Demultiplexing of address and data lines.
- 3) Instruction format.
- 4) Define following with one example :
 - a) 1 byte instruction
 - b) 2 bytes instruction
 - c) 3 bytes instruction.
- 5) 8085 system bus.



- 3. A) Explain machine cycle for any instruction from logical instruction group. **10**
- B) Explain stack and subroutine instructions in detail. **10**

OR

- B) Explain pin description of 8085. **10**

SECTION – II

- 4. Solve **any 4** : **20**
 - A) Explain in detail Hardware Interrupts in 8085 with a diagram.
 - B) Write a short note on BSR mode of 8255 with a neat diagram.
 - C) What are Synchronous and Asynchronous serial communications ?
 - D) Explain 4 * 4 matrix key pad interfacing using 8255.
 - E) List down the features of 8251 USART.

- 5. A) Explain Serial Communication using SID and SOD pin with a neat diagram. **10**
- B) Explain the Interrupt Acknowledge machine cycle with a timing diagram. **10**

OR

- B) Explain in brief the pin diagram of Programmable Peripheral Interfacing (8255) with a neat diagram. **10**
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Seat No.	
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**F.Y.M.C.A. (Part – II) (Under Faculty of Engg.) (Old) Examination, 2016
STATISTICAL AND NUMERICAL METHODS**

Day and Date : Tuesday, 3-5-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instructions: 1) **All questions are compulsory.**
2) **Use of scientific calculator is allowed.**

1. Choose the correct alternative. 20

- 1) The number of strips required in Simpson's $3/8^{\text{th}}$ rule is multiple of
a) 2 b) 3 c) 4 d) 6
- 2) The convergence in bisection method is
a) Linear b) Cubic c) Quadratic d) Parabolic
- 3) The process of computing the value of x given f(x) is called
a) Interpolation b) Extrapolation
c) Inverse Interpolation d) All of these
- 4) The error in Simpson's $1/3^{\text{rd}}$ rule over $[x_0, x_2]$ is
a) $\frac{h^2}{12} f''$ b) $\frac{-h^3}{12} f''$ c) $\frac{-h^5}{12} f^{IV}$ d) $\frac{h^3}{12} f^{IV}$
- 5) In Gauss elimination method we reduce the coefficient matrix to _____ matrix.
a) Unit b) Upper triangular
c) Lower triangular d) Diagonal
- 6) To find a value near the end of the table use
a) Newtons forward formula b) Newtons backward formula
c) Finite difference formula d) Infinite difference formula
- 7) If $e^0 = 1, e^1 = 2.72, e^2 = 7.39$ then the value of $\int_0^2 dx$ by trapezoidal rule is
a) 6.915 b) 5.555 c) 13.86 d) 11.11
- 8) To obtain Simpson's $1/3^{\text{rd}}$ rule from Newton's cotes general quadrature formula we put n = _____
a) 1 b) 2 c) 3 d) 4



- 9) The error in the trapezoidal rule is of the order
a) h^2 b) h^3 c) h d) h^4
- 10) Bolzano (Bisection) method is based on
a) Initial value b) Intermediate value
c) Final value d) None of these
- 11) If b_{yx} and b_{xy} both are negative then r is
a) Positive b) Negative c) Zero d) None of these
- 12) Coefficient of correlation depends upon
a) Change of origin b) Change of scale
c) Change of scale and origin d) Zero
- 13) In binomial distribution variance is
a) Equal to mean b) Less than mean
c) Greater than mean d) None of these
- 14) The significant value depends on
a) α b) H_1
c) Either α or H_1 d) Both α and H_1
- 15) The value of the sample statistic which separates the region of acceptance and rejection is called
a) Level of significance b) Degrees of freedom
c) Critical value d) a and b both
- 16) _____ is a discrete probability distribution.
a) Poisson b) Bernaulli c) Both a and b d) None
- 17) The standard deviation of sampling distribution is
a) Degree of freedom b) Standard error
c) Test of significance d) Hypothesis
- 18) For a Poisson distribution, Mean = 8 then Variance =
a) 7 b) 8 c) 64 d) 4
- 19) For 400 bolts, probability of defective bolts is $1/10$ then variance is
a) 40 b) 36 c) $400/9$ d) 4000
- 20) A large sample has size equal to or more than
a) 30 b) 20 c) 500 d) 1000



SECTION – I

2. Solve **any four** : **(6×4=24)**

1) Find a real root of the equation $x^3 - 2x - 5 = 0$ by using method of False position, correct to 3 decimal place.

2) Evaluate $\int_0^6 \frac{dx}{1+x^2}$ by using Simpson's 3/8th rule.

3) Solve using Gauss-Elimination method :

$$x + 2y + 3z = 14$$

$$3x + y + 2z = 11$$

$$2x + 3y + z = 11$$

4) Write a C program to implement Bisection method.

5) From the following table find $f(0.7)$ approximately.

x	:	0.1	0.2	0.3	0.4	0.5	0.6
f(x)	:	2.68	3.04	3.38	3.68	3.96	4.21

6) Using Cramer's rule solve.

$$3x + y + 2z = 3;$$

$$2x - 3y - z = -3;$$

$$x + 2y + z = 4;$$

3. Find the root of the equation $x^3 - 4x - 9 = 0$ using bisection method. **(8×1=8)**

4. Attempt **any one** : **(8×1=8)**

1) Evaluate using Trapezoidal rule $\int_4^{5.2} \log_e^x dx$.

2) Compute the value of $\int_0^{\frac{\pi}{2}} \sin x dx$ by using Simpson's 1/3rd rule.

SECTION – II

5. Solve **any four** : **(6×4=24)**

1) Explain the terms :

1) Critical Region

2) Level of significance.

3) One tailed and two tailed tests.



- 2) The blood pressure mean for a group of 81 adults was found to be a 79.2 mm, test the hypothesis that the blood pressure mean is 75 mm. Standard deviation is known to be a 9 mm.
- 3) Explain axiomatic probability with suitable example.
- 4) Twenty five books are placed at random in a shelf. Find the probability that a particular pair of books shall be :
 - i) Always together
 - ii) Never together.
- 5) Name the various methods of sampling and describe simple random sampling in brief.
- 6) Define independent events. Explain in detail with example.

6. Solve **any one** :

(8×1=8)

- 1) Fit a parabola of second degree to the following data :

x :	0	1	2	3	4
y :	1	1.8	1.3	2.5	6.3

- 2) Explain Baye's theorem in detail.

7. Solve the following :

(8×1=8)

Given	X-Series	Y-Series
Mean	18	100
S.D.	14	20

And $r = 0.8$. Find the equation of regression and most probable value of y when $x = 70$.



Seat No.	
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**F.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
SOFTWARE ENGINEERING (Old)**

Day and Date : Saturday, 7-5-2016
Time : 10.30 a.m. to 1.30 p.m.

Max. Marks : 100

1. MCQ :

20

- 1) Size and complexity are a part of
 - a) Product Metrics
 - b) Process Metrics
 - c) Project Metrics
 - d) None of the above
- 2) Reverse engineering is the process of deriving the system design and specification from its
 - a) GUI
 - b) Database
 - c) Source code
 - d) All of the mentioned
- 3) SDLC stands for
 - a) Software Development Life Cycle
 - b) System Development Life Cycle
 - c) Software Design Life Cycle
 - d) System Design Life Cycle
- 4) Which one of the following models is not suitable for accommodating any change ?
 - a) Build and Fix Model
 - b) Prototyping Model
 - c) RAD Model
 - d) Waterfall Model
- 5) Which of the following is not categorized under product operation of McCall's Software Quality Factors ?
 - a) Flexibility
 - b) Reliability
 - c) Usability
 - d) Integrity



- 6) Which of the following manuals is not a user documentation ?
- a) Beginner's Guide
 - b) Installation Guide
 - c) Reference Guide
 - d) SRS
- 7) Software Maintenance includes
- a) Error corrections
 - b) Enhancements of capabilities
 - c) Deletion of obsolete capabilities
 - d) All of the mentioned
- 8) Reverse engineering of data focuses on
- a) Internal data structures
 - b) Database structures
 - c) All of the mentioned
 - d) None of the mentioned
- 9) The first step in Software Development Life Cycle (SDLC) is
- a) Preliminary investigation and analysis
 - b) System Design
 - c) System testing
 - d) Coding
- 10) What type of software testing is generally used in Software Maintenance ?
- a) Regression Testing
 - b) System Testing
 - c) Integration Testing
 - d) Unit Testing
- 11) The rapid application development model is
- a) Another name for component based development
 - b) A useful approach when a customer cannot define requirements clearly
 - c) A high speed adaptation of the linear sequential model
 - d) All of the above
- 12) What is a software patch ?
- a) Required or critical fix
 - b) Emergency fix
 - c) Daily or routine fix
 - d) None of the mentioned



- 13) Which of the following manuals is a user documentation ?
- a) SRS-Software Requirement Specification
 - b) SDD-Software Design Document
 - c) System Overview
 - d) None of the above
- 14) Identify the types of testing for testing in small
- a) Unit testing
 - b) System testing
 - c) White box testing
 - d) All of above
- 15) Which one of the following is not a phase of prototyping model ?
- a) Quick design
 - b) Coding
 - c) Prototype refinement
 - d) Engineer product
- 16) Number of errors found per person hours expended is an example of a
- a) Measurement
 - b) Measure
 - c) Metric
 - d) None of the above
- 17) The entity relationship diagram
- a) Depicts relationships between data objects
 - b) Depicts functions that transform the data flow
 - c) Indicates how data are transformed by the system
 - d) Indicates system reactions to external events
- 18) Black-box testing attempts to find errors in which of the following categories ?
- a) Incorrect or missing functions
 - b) Interface errors
 - c) Performance errors
 - d) All of the above
- 19) Acceptance tests are normally conducted by the
- a) Developer
 - b) End users
 - c) Test team
 - d) systems engineers
- 20) Which of the following is not a measurable characteristic of an object-oriented design ?
- a) Completeness
 - b) Efficiency
 - c) Size
 - d) Volatility



SECTION – I

2. Solve **any four** : **(5×4=20)**
- 1) RAD
 - 2) Data design
 - 3) Functional decomposition diagram
 - 4) Decision tree
 - 5) Entity relationship diagram.
3. A) Explain communication techniques in Software Engineering. **10**
- B) Draw DFD for ticket reservation system. **10**
- OR
- B) Explain fact finding techniques in details. **10**

SECTION – II

4. Solve **any four** : **(5×4=20)**
- 1) Design issues
 - 2) Validation testing activity
 - 3) White box testing
 - 4) Quality factor
 - 5) SQA activity.
5. A) Explain maintenance characteristics and its side effects. **10**
- B) Explain objective of input design and data capture guidelines. **10**
- OR
- B) Explain equivalence partitioning and boundary value analysis. **10**
-



Seat No.	
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**S.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
DATA STRUCTURE**

Day and Date : Monday, 25-4-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

1. Multiple choice questions. **20**

- 1) The postfix expression for $* + ab - c d$ is
a) $ab + cd - *$ b) $ab cd + - *$ c) $ab + cd * -$ d) $ab + - cd *$
- 2) Which of the following is/are the levels of implementation of data structure ?
a) Abstract level b) Application level
c) Implementation level d) All of the above
- 3) Which of the following data structure can't store the non-homogeneous data elements ?
a) Arrays b) Records c) Pointers d) Stacks
- 4) Which of the following data structure is non-linear type ?
a) Strings b) Lists c) Stacks d) Graph
- 5) The Midsquare method gives good results because of
a) Uniform distribution of the keys over the hash table is concerned
b) Non-uniform distribution of the keys over the hash table is concerned
c) Both a) and b)
d) All of the above
- 6) Queues are important in
a) Simulation model b) Data model
c) Trees d) Electric circuits
- 7) In _____ sort the number of passes is equal to the number of maximum digits contained in an given array.
a) Radix sort b) Selection sort c) Insertion sort d) Merge sort
- 8) If the sequence of operations – push (1), push (2), pop, push (1), push (2), pop, pop, pop, push (2), pop are performed on a stack, the sequence of popped out values are
a) 2, 2, 1, 1, 2 b) 2, 2, 1, 2, 2 c) 2, 1, 2, 2, 1 d) 2, 1, 2, 2, 2
- 9) In the _____ traversal we process all of a vertex's descendants before we move to an adjacent vertex.
a) Depth first b) Breadth first c) Width first d) Depth limited



- 10) A _____ is a graph that has weights of costs associated with its edges.
- a) Network
 - b) Weighted graph
 - c) Both a) and b)
 - d) None a) and b)
- 11) Dynamic structures are ones
- a) Which expand or shrink as required during the program execution
 - b) Their associated memory location change
 - c) Both a) and b)
 - d) None of the above
- 12) The most recently arrived data object is the
- a) First one to depart from a stack
 - b) Last one to depart from stack
 - c) Second one to depart from a stack
 - d) Second last to depart from a stack
- 13) The average search time of hashing with linear probing will be less if the load factor
- a) is far less than one
 - b) equals one
 - c) is far greater than one
 - d) none of above
- 14) A set of trees is called a
- a) Graph
 - b) Forest
 - c) Nodes
 - d) Sub trees
- 15) A graph is a tree if it has properties
- a) it is connected
 - b) there are no cycles in the graph
 - c) a) and b)
 - d) none of these
- 16) Drawback of chaining method
- a) Maintaining linked list
 - b) Extra storage space for link fields
 - c) a) and b)
 - d) Neither a) nor b)
- 17) What will be the value of top if there is a size of stack STACK-SIZE is 5 ?
- a) 5
 - b) 6
 - c) 4
 - d) None of these
- 18) Which of the following data structures are indexed structures ?
- a) Linear arrays
 - b) Linked lists
 - c) Graphs
 - d) Trees
- 19) In adjacency list representation, we store graph as
- a) Cross linked structure
 - b) Linked structure
 - c) a) and b)
 - d) None
- 20) A graph traversal means
- a) Combining nodes of the graph
 - b) Visiting all the nodes of the graph
 - c) Joining nodes of the graph
 - d) All of the above



SECTION – I

2. Write short note on following (**any 4**) : **20**
- a) Array of pointer.
 - b) Recursion.
 - c) Application of queue.
 - d) Merge sort.
 - e) Deletion operation for linked list.

3. A) What is complexity of an algorithm ? Explain time and space complexity in detail. **10**
- B) Write an program for circular queue with its implementation. **10**

OR

- B) Explain insertion sort with its implementation. **10**

SECTION – II

4. Write short note on following (**any 4**) : **20**
- a) Threaded binary search.
 - b) Extended hashing.
 - c) Heap sort.
 - d) B-tree.
 - e) BFT for graph.

5. A) What is hash collision ? Explain collision resolving techniques in detail. **10**
- B) Write node deletion operation for binary search tree. **10**

OR

- B) Explain graph traversing methods with its implementation. **10**
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Seat No.	
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**S.Y.M.C.A. (Part-I) (Under Faculty of Engg.) Examination, 2016
SYSTEM PROGRAMMING**

Day and Date : Wednesday, 27-4-2016

Total Marks : 100

Time : 3.00 p.m. to 6.00 p.m.

1. MCQ :

20

- 1) UIMS stand for
 - a) User Interface Management System
 - b) User Input Management System
 - c) Both a and b
 - d) None of the above
- 2) _____ are basically document editors with additional feature.
 - a) Word processor
 - b) Word document
 - c) Word page
 - d) None of the above
- 3) _____ are used to reduce the main memory requirement of a program.
 - a) Program
 - b) Overlay
 - c) Function
 - d) None of the above
- 4) Use of _____ structure reduces the relocation requirement of a program.
 - a) segmented addressing
 - b) partitioned addressing
 - c) linking address
 - d) none of above
- 5) Address assigned by _____ is called load time address.
 - a) loader
 - b) linker
 - c) compiler
 - d) none of the above
- 6) _____ aims at improving the execution efficiency of a program.
 - a) Code optimization
 - b) Code generation
 - c) Code compilation
 - d) None of the above



SECTION – II

4. Write short note on (**any 4**). **(4×5=20)**
- 1) Editors.
 - 2) Program linking.
 - 3) Basic compiler functions.
 - 4) Block structured language.
 - 5) Absolute loader scheme.
5. Answer the following.
- 1) What is linking ? Explain dynamic linking in detail. **10**
 - 2) Explain aspects of compilation in detail. **10**
- OR
- 2) Explain basic loader functions and a simple bootstrap loader in detail. **10**
-



Seat No.	
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**S.Y.M.C.A. (Part – I) (Under Faculty of Engineering) Examination, 2016
COMPUTER ORGANIZATION AND ARCHITECTURE**

Day and Date : Friday, 29-4-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

1. MCQ :

20

1) Both the CISC and RISC architectures have been developed to reduce the _____

- a) Cost
- b) Time delay
- c) Semantic gap
- d) All of the above

2) Which of the architecture is power efficient ?

- a) CISC
- b) RISC
- c) ISA
- d) IANA

3) Every time a new instruction is loaded into IR the output of _____ is loaded into UPC.

- a) Starting address generator
- b) Loader
- c) Linker
- d) Clock

4) The read and write operations usually start at _____ of the sector.

- a) Center
- b) Middle
- c) From the last used point
- d) Boundaries

5) What does the end instruction do ?

- a) It ends the generation of a signal
- b) It ends the complete generation process
- c) It starts a new instruction fetch cycle and resets the counter
- d) It is used to shift the control to the processor

6) For the synchronization of the read head, we make use of a _____

- a) Framing bit
- b) Synchronization bit
- c) Clock
- d) Dirty bit



- 7) _____ translates logical address into physical address.
- a) MMU
 - b) Translator
 - c) Compiler
 - d) Linker
- 8) The techniques which move the program blocks to or from the physical memory is called as _____
- a) Paging
 - b) Virtual memory organisation
 - c) Overlays
 - d) Framing
- 9) The number failed attempts to access memory, stated in the form of fraction is called as _____
- a) Hit rate
 - b) Miss rate
 - c) Failure rate
 - d) Delay rate
- 10) The correspondence between the main memory blocks and those in the cache is given by _____
- a) Hash function
 - b) Mapping function
 - c) Locale function
 - d) Assign function
- 11) The last on the hierarchy scale of memory devices is _____
- a) Main memory
 - b) Secondary memory
 - c) TLB
 - d) Flash drives
- 12) The fastest data access is provided using _____
- a) Caches
 - b) DRAM's
 - c) SRAM's
 - d) Registers
- 13) The technique where the controller is given complete access to main memory is
- a) Cycle stealing
 - b) Memory stealing
 - c) Memory Con
 - d) Burst mode
- 14) The DMA transfers are performed by a control circuit called as
- a) Device interface
 - b) DMA controller
 - c) Data controller
 - d) Overlooker
- 15) In daisy chaining device 0 will pass the signal only if it has
- a) Interrupt request
 - b) No interrupt request
 - c) Both a) and b)
 - d) None of the above



- 16) An interrupt that can be temporarily ignored is
- a) Vectored interrupt
 - b) Non-maskable interrupt
 - c) Maskable interrupt
 - d) High priority interrupt
- 17) The process where in the processor constantly checks the status flags is called as
- a) Polling
 - b) Inspection
 - c) Reviewing
 - d) Echoing
- 18) The advantage of I/O mapped devices to memory mapped is
- a) The former offers faster transfer of data
 - b) The devices connected using I/O mapping have a bigger buffer space
 - c) The devices have to deal with fewer address lines
 - d) No advantage as such
- 19) The order in which the return addresses are generated and used is _____
- a) LIFO
 - b) FIFO
 - c) Random
 - d) Highest priority
- 20) _____ addressing mode is most suitable to change the normal sequence of execution of instructions.
- a) Relative
 - b) Indirect
 - c) Index with offset
 - d) Immediate

SECTION – I

2. Write short note on **any 4** :

(5×4=20)

- 1) Input/output configuration
- 2) Memory stack
- 3) Common bus system
- 4) Program interrupt
- 5) Instructions formats.



3. Answer the following :

A) Explain Conditional branching and mapping of instructions. **10**

B) What is addressing modes ? Explain different types of modes. **10**

OR

B) Explain conditional branching and subroutines in detail. **10**

SECTION – II

4. Write short note on **any 4** :

(5×4=20)

1) DMA controller

2) Asynchronous serial transfer

3) Auxiliary memory

4) Parallel processing

5) Arithmetic pipeline.

5. Answer the following :

A) Explain main memory, flash memory and associative memory in detail. **10**

B) Explain Addressing Modes in detail. **10**

OR

B) Explain address mapping using pages in detail. **10**



Seat No.	
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**S.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
COMPUTER NETWORKS**

Day and Date : Monday, 2-5-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

1. 1) Which one of the following is not a function of network layer ?
 - a) routing
 - b) inter-networking
 - c) congestion control
 - d) none of the mentioned
- 2) In virtual circuit network each packet contains
 - a) full source and destination address
 - b) a short VC number
 - c) both (a) and (b)
 - d) none of the mentioned
- 3) Which one of the following routing algorithm can be used for network layer design ?
 - a) shortest path algorithm
 - b) distance vector routing
 - c) link state routing
 - d) all of the mentioned
- 4) Wireless transmission can be done via
 - a) radio waves
 - b) microwaves
 - c) infrared
 - d) all of the mentioned
- 5) A subset of a network that includes all the routers but contains no loops is called
 - a) spanning tree
 - b) spider structure
 - c) spider tree
 - d) none of the mentioned
- 6) Which one of the following algorithm is not used for congestion control ?
 - a) traffic aware routing
 - b) admission control
 - c) load shedding
 - d) none of the mentioned
- 7) ICMP is primarily used for
 - a) error and diagnostic functions
 - b) addressing
 - c) forwarding
 - d) none of the mentioned
- 8) CRC stands for
 - a) Cyclic Redundancy Check
 - b) Code Repeat Check
 - c) Code Redundancy Check
 - d) Cyclic Repeat Check



- 9) In this topology there is a central controller or hub
 - a) Star
 - b) Mesh
 - c) Ring
 - d) Bus
- 10) This topology required multipoint connection
 - a) Star
 - b) Mesh
 - c) Ring
 - d) Bus
- 11) Data communication system within a building or campus is
 - a) LAN
 - b) WAN
 - c) MAN
 - d) None of the mentioned
- 12) Which one of the following is the multiple access protocol for channel access control ?
 - a) CSMA/CD
 - b) CSMA/CA
 - c) Both (a) and (b)
 - d) None of the mentioned
- 13) The entire hostname has maximum of
 - a) 255 characters
 - b) 127 characters
 - c) 63 characters
 - d) 31 characters
- 14) Servers handle requests for other domains
 - a) directly
 - b) by contacting remote DNS server
 - c) it is not possible
 - d) none of the mentioned
- 15) Which transmission media has the highest transmission speed in a network ?
 - a) coaxial cable
 - b) twisted pair cable
 - c) optical fiber
 - d) electrical cable
- 16) DNS database contains
 - a) name server records
 - b) hostname-to-address records
 - c) hostname aliases
 - d) all of the mentioned
- 17) Which one of the following is a transport layer protocol used in internet ?
 - a) TCP
 - b) UDP
 - c) Both (a) and (b)
 - d) None of the mentioned
- 18) Which layer is responsible for process to process delivery ?
 - a) network layer
 - b) transport layer
 - c) session layer
 - d) data link layer
- 19) User datagram protocol is called connectionless because
 - a) All UDP packets are treated independently by transport layer
 - b) It sends data as a stream of related packets
 - c) Both (a) and (b)
 - d) None of the mentioned
- 20) An endpoint of an inter-process communication flow across a computer network is called
 - a) Socket
 - b) Pipe
 - c) Port
 - d) None of the mentioned



SECTION – I

2. Write short note on (**any 4**) : **(4×5=20)**

- 1) PSTN
- 2) Wireless transmission
- 3) Hardware required for Internet working
- 4) Uses of computer network
- 5) Virtual LAN.

3. Answer the following :

- 1) Explain switching in detail. **10**
- 2) Explain channel allocation problem in detail. **10**

OR

- 2) Explain design issues of Data Link Layer. **10**

SECTION – II

4. Write short note on (**any 4**) : **(4×5=20)**

- 1) Internet Control Protocols
- 2) TCP
- 3) Cryptography
- 4) DNS
- 5) Domain name in internet.

5. Answer the following :

- 1) Explain Congestion Control Algorithms in detail. **10**
- 2) Explain Network Layer Design Issues in detail. **10**

OR

- 2) Explain Network Security in detail. **10**
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Seat No.	
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**S.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
COMPUTER GRAPHICS**

Day and Date : Friday, 6-5-2016
Time : 3.00 p.m. to 6.0 p.m.

Max. Marks : 100

1. Multiple choice questions.

20

- 1) Interlaced refresh procedure is allowed in _____
 - a) LCD
 - b) DVST
 - c) Raster scan display
 - d) Random scan display
- 2) The transformation in which an object is moved in a minimum distance path from one position to another is called _____
 - a) Rotation
 - b) Replacement
 - c) Translation
 - d) Scaling
- 3) The region against which an object is clipped is called a _____
 - a) Clip window
 - b) Boundary
 - c) Enclosing rectangle
 - d) Clip square
- 4) Coordinates of viewport are known as _____
 - a) World Coordinates
 - b) Polar Coordinates
 - c) Screen Coordinates
 - d) Cartesian Coordinates
- 5) The two-dimensional translation equation in the matrix form is _____
 - a) $P' = P + T$
 - b) $P' = P - T$
 - c) $P' = P * T$
 - d) $P' = p$
- 6) _____ is responsible for accessing the frame buffer to refresh the screen.
 - a) Graphics package
 - b) Video controller
 - c) CPU
 - d) Monitor



- 7) In general aliasing is related to _____
- a) scan conversion of line only
 - b) generation of characters only
 - c) conversion of any analog to digital signal
 - d) raster based graphics only
- 8) The process of extracting a portion of a database or a picture inside or outside a specified region are called _____
- a) Transformation
 - b) Projection
 - c) Clipping
 - d) Mapping
- 9) Sutherland Hodgeman algorithm works well for _____
- a) Concave polygon
 - b) Convex polygon
 - c) Smooth curves
 - d) Line segment
- 10) _____ function is used to set the basic fill style.
- a) setFillStyle (fs)
 - b) setFillStyleIndex (fs)
 - c) setInteriorStyle
 - d) FillType (ft)
- 11) In image acquisition, the image is captured by a _____
- a) camera
 - b) scanner
 - c) sensor
 - d) none of these
- 12) To convert the input data to a form suitable for computer processing is the function of _____.
- a) Image acquisition
 - b) Image description
 - c) Image recognition
 - d) Image representation
- 13) _____ is the amount of light received by the eye regardless of color.
- a) brightness
 - b) hue
 - c) saturation
 - d) none of these
- 14) _____ mass storage category is for relatively fast operations.
- a) Short-term storage
 - b) Archival storage
 - c) On-line storage
 - d) None of these
- 15) Histogram Equalisation is mainly used for _____
- a) Image enhancement
 - b) Blurring
 - c) Contrast adjustment
 - d) None of these



- 16) Digitization of the spatial coordinates (x,y) is called
a) image sampling b) amplitude c) pixel d) none of these
- 17) A _____ is an image operation where each pixel value $I(u;v)$ is changed by a function of the intensities of pixels in a neighborhood of (u,v).
a) quantization b) amplitude digitization
c) spatial filter d) sampling
- 18) With _____, you can curve the grayscale components either to brighten the intensity or darken the intensity.
a) Gamma Transformations b) Stretching Transformations
c) Contrast Transformations d) Logarithmic Transformations
- 19) Pick out the old one out
a) LED b) LCD
c) Gas Discharge tube d) Plasma Panel
- 20) Two consecutive scaling transformation s_1 and s_2 are
a) Additive b) Multiplicative c) Subtractive d) None of above

SECTION – I

2. Write short note on (**any 4**). **20**
- a) Raster scan display
 - b) Edge fill algorithm
 - c) 2 D scaling
 - d) 2 D viewing
 - e) Role of image processing.
3. A) Explain midpoint subdivision line clipping algorithm in detail. **10**
- B) Explain homogeneous transformation in detail. **10**
- OR
- B) Explain DDA line generation algorithm with its implementation. **10**



SECTION – II

4. Write short note on (**any 4**). **20**
- a) perspective projection
 - b) sampling and quantization
 - c) basics of spatial filtering
 - d) fundamental steps in digital image processing
 - e) 3D scaling.
5. A) Explain 3D transformation in detail with its matrix representation. **10**
- B) Explain components of an image processing system. **10**
- OR
- B) Explain linear transformations function in detail. **10**
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Seat No.	
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**S.Y.M.C.A. (Under Faculty of Engg.) (Part – II) Examination, 2016
RELATIONAL DATABASE MANAGEMENT SYSTEM**

Day and Date : Tuesday, 26-4-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions : 1) Figure to the **right** indicate **full** marks.
2) Q. 3. A) and Q. 5. A) are **compulsory**.

1. MCQ/Objective Type Questions : **20**

- 1) A _____ is a set of one or more attributes that taken collectively, allows us to identify uniquely a tuple in the relation.
 - a) Foreign key
 - b) Super key
 - c) Candidate key
 - d) Unique key
- 2) _____ functions take a collection of values and return a single value as a result.
 - a) Aggregate
 - b) Data conversion
 - c) Miscellaneous
 - d) None of these
- 3) The _____ clause corresponds to the Cartesian –product operation of the relational algebra.
 - a) where
 - b) select
 - c) from
 - d) having
- 4) A common use of the _____ clause is to ensure that attribute values satisfy specified conditions, in effect creating a powerful type system.
 - a) with
 - b) where
 - c) from
 - d) check
- 5) A _____ is a language in which a user requests information from the database.
 - a) Programming language
 - b) Low level
 - c) High level
 - d) Query language



- 6) ALTER TABLE query come under _____ command.
- a) DML
 - b) DCL
 - c) DDL
 - d) Both a) and c)
- 7) In SQL, the _____ operation is used for finding elements present in one set but not in the other.
- a) Union
 - b) Intersect
 - c) Minus
 - d) Average
- 8) _____ is a statement that is executed automatically by the system.
- a) Trigger
 - b) Assertion
 - c) Durability
 - d) Integrity constraint
- 9) Which of the following is not an Aggregate function ?
- a) Min
 - b) Max
 - c) Select
 - d) Avg
- 10) Views on which data manipulation can be done are called _____
- a) Read only
 - b) Data
 - c) Changeable
 - d) Updateable
- 11) Transaction-server system also called _____ system.
- a) Data-server
 - b) System-server
 - c) Query-server
 - d) Application-server
- 12) The _____ index structure is the most widely used of several index structures that maintain their efficiency.
- a) B+tree
 - b) B-tree
 - c) B+ -tree
 - d) None of these
- 13) _____ dependency disallows an attribute in a tuple to have a set of values.
- a) Transitive
 - b) Multi valued
 - c) Functional
 - d) None of these



- 14) The number of queries or updates that can be processed on average per unit of time is called _____
- a) Throughput
 - b) Response time
 - c) Average time
 - d) None of these
- 15) In _____ index an index record appears for only some of the search key values.
- a) Dense
 - b) Hash
 - c) Ordered
 - d) Sparse
- 16) Collection of operations that form a single logical unit of work are called _____
- a) Entity
 - b) Relation
 - c) Transactions
 - d) None of these
- 17) If every non-key attribute is fully functionally dependent on the primary key, the relation will be in
- a) First Normal Form
 - b) Second Normal Form
 - c) Third Normal Form
 - d) Fourth Normal Form
- 18) A _____ interfaces between computer system and the actual hardware of the disk drive.
- a) Disk controller
 - b) Disk system
 - c) Jukebox
 - d) None of these
- 19) In two-phase locking protocol, a transaction may release locks but may not obtain any new locks in _____ phase.
- a) growing
 - b) shrinking
 - c) locked
 - d) none of these
- 20) What is ACID properties of Transactions ?
- a) Atomicity, Consistency, Isolation, Database
 - b) Atomicity, Consistency, Isolation, Durability
 - c) Atomicity, Consistency, Inconsistent, Durability
 - d) Automatically, Concurrency, Isolation, Durability



SECTION – I

2. Write short note on **(any 4)** : **20**
- 1) Mapping cardinality.
 - 2) The Cartesian –product operation.
 - 3) Views with example.
 - 4) DQL commands.
 - 5) Stored procedures.
3. A) Write and explain relational-algebra operations in detail. **10**
- B) What is a trigger ? Write advantages of trigger and also write a program for illustrating insert, update and delete operations for trigger. **10**
- OR
- B) Explain using example, reduction of ER schema to tables. **10**

SECTION – II

4. Write short note on **(any 4)** : **20**
- 1) Functional dependencies.
 - 2) Sequential file organization.
 - 3) Serializability.
 - 4) Data servers.
 - 5) Parallel database architecture.
5. A) What is RAID ? Explain its levels in detail. **10**
- B) Explain two-phase locking protocol in detail. **10**
- OR
- B) What is normalization ? Explain using examples all types of normalization concepts. **10**
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**S.Y.M.C.A. (Part – II) (Faculty of Engg.) Examination, 2016
OPERATIONS RESEARCH**

Day and Date : Thursday, 28-4-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

1. MCQ : **(20×1=20)**

- 1) Which of the following statement is true with respect to the optimal solution of an LP problem ?
 - i) Every LP problem has an optimal solution
 - ii) Optimal solution of LP problem always occurs at an extreme point
 - iii) At optimal solution all resources are completely used
 - iv) If an optimal solution exists, there will always be atleast one at a corner
- 2) For maximization LP model, the simplex method is terminated when all values
 - i) $C_j - Z_j < = 0$
 - ii) $C_j - Z_j > = 0$
 - iii) $C_j - Z_j = 0$
 - iv) $Z_j < = 0$
- 3) The right-hand side constant of a constraint in a primal problem appears in the corresponding dual as
 - i) A coefficient in the objective function
 - ii) A right-hand side constant of a constraint
 - iii) An input-output coefficient
 - iv) None of the above
- 4) The solution to a transportation problem with m-rows (supplies) and n-columns (destinations) is feasible if number of positive allocations are
 - i) $m + n$
 - ii) $m \times n$
 - iii) $m + n - 1$
 - iv) $m + n + 1$
- 5) An optimal assignment requires that the maximum number of lines that can be drawn through squares with zero opportunity cost be equal to the number of
 - i) Rows or columns
 - ii) Rows and columns
 - iii) Rows + columns – 1
 - iv) None of the above



- 6) Game theory models are classified by the
 - i) Number of players
 - ii) Sum of all payoffs
 - iii) Number of strategies
 - iv) All of the above
- 7) If dual has an unbounded solution, primal has
 - i) No feasible solution
 - ii) Unbounded solution
 - iii) Feasible solution
 - iv) None of the above
- 8) Maximization problem is transformed into minimization problem by
 - i) Adding each entry in a column from the maximum value in that column
 - ii) Subtracting each entry in a column from the maximum value in that column
 - iii) Subtracting each entry in the table from the maximum value in that table
 - iv) All of the above
- 9) In a pure strategy game
 - i) Any strategy may be selected arbitrarily
 - ii) A particular strategy is selected by each player
 - iii) Both players select their optimal strategy
 - iv) None of the above
- 10) In mixed strategy game
 - i) No saddle point exist
 - ii) Each player selects the same strategy without considering other players choice
 - iii) Each player always selects same strategy
 - iv) All of the above
- 11) Game theory is the study of
 - i) Selecting optimal strategies
 - ii) Resolving conflict between players
 - iii) Both i) and ii)
 - iv) None of the above
- 12) Critical Path Method (CPM) was developed by
 - i) Johnny Lever
 - ii) Johnny Walker
 - iii) Walker
 - iv) E.I. Dupont
- 13) When more than one activity comes and joins an event, such event is known as
 - i) Merge event
 - ii) Burst event
 - iii) Merge and burst event
 - iv) None
- 14) Which of the following characteristics apply to queuing system ?
 - i) Customer population
 - ii) Arrival process
 - iii) Both i) and ii)
 - iv) None of the above
- 15) Priority queue discipline may be classified as
 - i) Finite or infinite
 - ii) Limited and unlimited
 - iii) Pre-emptive or non pre-emptive
 - iv) All of the above



- 16) The problem of replacement is felt when job performing units fail
 - i) Suddenly
 - ii) Gradually
 - iii) Both i) and ii)
 - iv) None of these
- 17) The sudden failure among item is seen as
 - i) Progressive
 - ii) Retrogressive
 - iii) Random
 - iv) All of the above
- 18) The size of payoff matrix of a game can be reduced by using the principle of
 - i) Game inversion
 - ii) Rotation, reduction
 - iii) Dominance
 - iv) Game transpose
- 19) PERT is a tool for planning and control of time, is
 - i) False
 - ii) True
 - iii) Can't say
 - iv) None
- 20) The objective of network analysis is to minimize total project cost, is
 - i) False
 - ii) True
 - iii) Can't say
 - iv) None

SECTION – I

2. Attempt **any four** :

(4×5=20)

1) Solve the LPP using simplex method

$$\text{Maximize } Z = 5X_1 + 3X_2$$

$$\text{Subject to } 6X_1 + 2X_2 \leq 36$$

$$5X_1 + 5X_2 \leq 40$$

$$2X_1 + 4X_2 \leq 28$$

$$X_1, X_2 \geq 0$$

2) Solve the following games

		Player B	
		I	II
Player A	I	8	-3
	II	-3	1

3) Write the dual of following LPP

$$\text{Minimize } Z = 4X_1 + 3X_2 + 6X_3$$

$$\text{Subject to } X_1 + X_2 \geq 2$$

$$X_1 + X_3 = 5$$

$$X_1, X_2, X_3 \geq 0$$



4) Solve $M \times 2$ game

		Player B	
		I	II
Player A	A	-6	7
	B	4	-5
	C	-1	-2
	D	-2	5
	E	7	6

5) Find minimum transportation using North West Corner Method

		Projects			
		A	B	C	a_i
Factory	W	8	16	16	152
	X	32	48	32	164
	Y	16	32	48	154
	b_j	144	204	82	

3. Attempt **any one** :

(1×10=10)

- 1) Minimize $Z = 20 X_1 + 30 X_2 + 16 X_3$
 Subject to $2.5 X_1 + 3X_2 + X_3 \geq 3$
 $X_1 + 3X_2 + 2X_3 \geq 4$
 $X_1, X_2, X_3 \geq 0$



- 2) Solve the warehouse and factory transportation problem by using
 - A) North-West Corner Method.
 - B) Least Cost Method.
 - C) VAM Method.

	I	II	III	IV	Supply
A	1	2	1	4	30
B	3	3	2	1	50
C	4	2	5	9	20
Demand	20	40	30	10	

- 4. Use Dominance principle to solve the following game

10

Player B

	1	2	3
Player A 1	7	6	3
2	-2	2	-3
3	5	9	1

SECTION – II

- 5. Attempt **any four** :

(4×5=20)

- 1) A repair shop, attended by a single mechanic, has an average of four customers an hour who bring small applications for repair. The mechanic inspects them for defects and for this he takes six minutes on an average. Arrivals are Poisson and service rate has an exponential distribution. You are required to
 - 1) Find the probability that there is no customer in the shop
 - 2) Find the average time spent by a customer in the shop including service
- 2) We have find 5 jobs, each of which must go through the machines A, B and C in the order ABC. Processing times (in hours) is as follows.

Job	1	2	3	4	5
Machine A	4	6	5	8	4
Machine B	1	2	3	4	2
Machine C	4	8	4	7	9

Determine the sequence for the jobs that will minimize the total elapsed time.



3) Using following table

Activity	Predecessors	Duration (days)
A	–	15
B	A	23
C	B	11
D	B	17
E	B	13
F	C	11
G	C	7
H	F,G	9
I	D,E,H	25
J	I	18

- 1) Draw an network diagram
- 2) Indicate the critical path
- 4) Find the sequence that minimizes the total elapsed time to complete the following jobs in the order M1 and M2 on machines and find total elapsed time.

Job No	1	2	3	4	5	6
Machine M1	6	5	7	2	4	9
Machine M2	3	4	9	5	7	1

- 5) The data collected in running a machine, the cost of which is Rs. 60,000 are given below.

Year	1	2	3	4	5
Resale Value	42000	30000	20400	14400	9650
Running Cost	18000	20270	22880	26700	31800

Determine the optimum period for replacement of the machine.



6. Attempt the following : 10

1) A manufacturer is offered 2 machines A and B. A is priced at Rs. 5,000 and running costs are estimated at Rs. 800 for each of the five year, increasing by Rs. 200 per year in the sixth and subsequence years. B which has the same capacity as A. Costs Rs. 2,500 but will have running costs of Rs. 1,200 per year for six years, increasing by Rs. 200 per year thereafter. If money worth 10% per year, which machine should purchase ?

2) Consider the project having the following activities and their time estimates : 10

Activity	Duration (Days)			Immediate Predecessor
	Optimistic	Most likely	Pessimistic	
A	4	8	7	–
B	5	2	14	–
C	2	3	4	B
D	6	4	3	C
E	3	4	5	A, D
F	1	5	4	E
G	9	4	12	A, D
H	3	4	7	E
I	5	6	9	G, H
J	2	3	5	I
K	3	4	7	I, F
L	3	4	2	J, K
M	1	2	2	L

- A) Draw network diagram.
- B) Compute the expected project completion time.
- C) Find total float for all non-critical activities.

OR



2) The following mortality rates have been observed for a certain type of fuse : **10**

Week	1	2	3	4	5
Percentage failing by the end of week	5	15	35	75	100

There are 1000 fuses in use and it costs Rs. 5 to replace an individual fuse. If all fuses were replaced simultaneously it would cost Rs. 1.25 per fuse. It is proposed to replace all fuses at fixed intervals of time. At what time intervals should the group replacement be made ?



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S.Y.M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Saturday, 30-4-2016

Total Marks : 100

Time : 3.00 p.m. to 6.00 p.m.

Instructions : 1) Figures to **right** indicate **full** marks.
2) Q. 3 A) and Q. 5 A) are **compulsory**.

1. Choose the correct alternative : 20
- 1) The number of distinct simple graphs with up to three nodes are
a) 15 b) 10 c) 7 d) 9
 - 2) A given connected graph G is a Euler graph, if and only if all vertices of G are of
a) Same degree b) Even degree
c) Odd degree d) Different degree
 - 3) Graphs are represented using
a) Adjacency tree b) Adjacency linked list
c) Adjacency graph d) Adjacency queue
 - 4) Number of edges of a complete binary tree with 16 leaf nodes are
a) 14 b) 30 c) 32 d) 28
 - 5) Leaves of which of the following trees are at the same level ?
a) Binary tree b) B-tree
c) AVL-tree d) Expression tree
 - 6) A graph in which all nodes are of equal degree is called
a) Multi graph b) Non regular graph
c) Regular graph d) Complete graph



- 7) The time complexity to build a heap of n elements is
- a) $O(1)$
 - b) $O(\lg n)$
 - c) $O(n)$
 - d) $O(n \lg n)$
- 8) The best average behaviour is shown by
- a) Quick Sort
 - b) Merge Sort
 - c) Insertion Sort
 - d) Heap Sort
- 9) If every node u in G is adjacent to every other node v in G , A graph is said to be
- a) Isolated
 - b) Complete
 - c) Finite
 - d) Strongly Connected
- 10) In worst case Quick Sort has order
- a) $O(n \log n)$
 - b) $O(n^2/2)$
 - c) $O(\log n)$
 - d) $O(n^2/4)$
- 11) Consider a linked list of n elements. What is the time taken to insert an element after an element pointed by some pointer ?
- a) $O(1)$
 - b) $O(n)$
 - c) $O(\log^2 n)$
 - d) $O(n \log^2 n)$
- 12) An algorithm is made up of two independent time complexities $f(n)$ and $g(n)$. Then the complexities of the algorithm is in the order of
- a) $f(n) \times g(n)$
 - b) $\text{Max}(f(n), g(n))$
 - c) $\text{Min}(f(n), g(n))$
 - d) $f(n) + g(n)$
- 13) Two main measures for the efficiency of an algorithm are
- a) Processor and memory
 - b) Complexity and capacity
 - c) Time and space
 - d) Data and space



- 14) The total number of comparisons in a bubble sort is
- a) $O(\log n)$
 - b) $O(n \log n)$
 - c) $O(n)$
 - d) None of the above
- 15) Time complexities of three algorithms are given. Which should execute the slowest for large values of N ?
- a) $(1/2) O N$
 - b) $O(N)$
 - c) $O(\log N)$
 - d) None of these
- 16) The worst case occur in linear search algorithm when
- a) Item is somewhere in the middle of the array
 - b) Item is not in the array at all
 - c) Item is the last element in the array
 - d) Item is the last element in the array or is not there at all
- 17) Which of the following case does not exist in complexity theory
- a) Best case
 - b) Worst case
 - c) Average case
 - d) Null case
- 18) The worst case running time to search for an element in a balanced binary search tree with n elements is
- a) $T(n \log n)$
 - b) $T(n^2)$
 - c) $T(n)$
 - d) $T(\log n)$
- 19) Which of the following sorting algorithm is of divide-and-conquer type ?
- a) Bubble sort
 - b) Insertion sort
 - c) Quick sort
 - d) All of above
- 20) The quick sort algorithm exploit _____ design technique.
- a) Greedy
 - b) Dynamic programming
 - c) Divide and conquer
 - d) Backtracking



SECTION – I

2. Write short note on **any four** : **(4×5=20)**
- a) Single Source Shortest Path
 - b) Multistage Graph
 - c) Convex Hull
 - d) Randomize Algorithm
 - e) Asymptotic Notation.
3. A) Explain KNAPSACK problem with example. **10**
- B) What is Algorithm ? Explain Algorithm Specification in detail. **10**
- OR
- B) Explain with an example traveling salesman problem. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
- a) Modular Arithmetic
 - b) Evaluation and Interpolation
 - c) Efficiency Consideration
 - d) Breadth First
 - e) FFT Modular Arithmetic.
5. A) What do you mean by Bi – Connected Component ? **10**
- B) Explain 8 Queen's Problem. **10**
- OR
- B) Explain Graph Coloring with example. **10**
-



Seat No.	
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**S.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
PROGRAMMING IN JAVA**

Day and Date : Tuesday, 3-5-2016
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 100

Instructions : 1) Figures to the *right* indicate **full** marks.
2) Q. **3A** and Q. **5A** are **compulsory**.
3) Write a program if **necessary**.

1. Multiple choice questions. 20

1) Object-oriented means organize software as combination of different types of objects that incorporate

- a) data
- b) behavior
- c) both a and b
- d) none of the above

2) Java is robust because

- a) uses strong memory management
- b) lack of pointers
- c) automatic garbage collection
- d) all of the above

3) We can create _____ applications in Java.

- a) distributed
- b) multithreaded
- c) both a and b
- d) none of the above

4) One data type is promoted to another _____ if no matching data type is found.

- a) implicitly
- b) explicitly
- c) both a and b
- d) none of the above

5) An Applet is a program that embedded in webpage to generate the _____ content.

- a) static
- b) dynamic
- c) shared
- d) none of the above



- 6) Multithreading is a process of executing multiple threads
- a) serially
 - b) synchronously
 - c) simultaneously
 - d) none of the above
- 7) A variable that is created inside the class but outside the method is known as _____ variable.
- a) instance
 - b) private
 - c) public
 - d) none of the above
- 8) _____ this is the state when the thread is still alive, but currently not eligible to run and not processor allocated.
- a) blocked
 - b) terminated
 - c) zombie
 - d) none of the above
- 9) _____ class provides constructors and methods to create and perform operations on a thread.
- a) Thread class
 - b) Runnable interface
 - c) Object class
 - d) None of the above
- 10) Events which occur when the user interacts with UI elements is
- a) state
 - b) behavior
 - c) action
 - d) none of the above
- 11) JTable class is used to display the data in _____ dimensional tables of cells.
- a) one
 - b) two
 - c) both a and b
 - d) none of the above
- 12) Layout Manager provides a layout manager for the new panel. By default, a panel uses
- a) Flow Layout
 - b) Grid Layout
 - c) Card Layout
 - d) None of the above
- 13) Swing makes the default combo box into a dropdown list because the default setting is
- a) non-editable
 - b) editable
 - c) drop-down list
 - d) none of these



- 14) _____ can be used directly to support fast, connectionless, unreliable transport of packets.
a) UDP b) TCP c) IP d) All of these
- 15) The Result Set tuple is received and its content can be examined by executing the
a) SQL query b) Java code
c) Both a and b d) None of these
- 16) The J Table component is a swing component that allow to _____ tabular data.
a) show b) edit
c) both a and b d) none of these
- 17) RMI stand for
a) Remote Method Invocation b) Real Method Invocation
c) Rare Method Invocation d) None of these
- 18) _____ represents standard way to identify a resource.
a) URL b) URI
c) Both a and b d) None of these
- 19) _____ is an API that provides a mechanism to create distributed application.
a) RMI b) JDBC
c) AWT d) None of these
- 20) _____ provides a reasonable intelligible form to uniquely identify information on the internet.
a) HTTP b) URL
c) www d) None of these

SECTION – I

2. Write short note on **(any four)** :

(4×5=20)

- a) Abstract class
- b) An applet in Java
- c) Thread class
- d) File reading and writing
- e) Flow layout manager.



3. A) Explain in detail features of Java. 10
- B) What do you mean by exceptions ? Explain with program example an exception handling. 10
- OR
- B) Explain in detail an action event handling. 10

SECTION – II

4. Write short note on **(any four)** : **(4×5=20)**
- a) Java swing J List control.
 - b) Java networking concept.
 - c) Http URL Connection class.
 - d) RMI application.
 - e) Network protocol driver.
5. A) What are different Result Set interfaces ? Write a program to explain processing of Result Set tuple. 10
- B) Explain the concept of J Panel control. Write a program example to explain the use of J Panel. 10
- OR
- B) What is table and combo box ? Write a program to explain use of J Table control. 10
-



Seat No.	
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**S.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)**

Day and Date : Saturday, 7-5-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions : 1) Draw diagram *wherever* necessary.
2) Figure to the **right** indicates **full** marks.

1. MCQ/Objective Type Questions. 20
- 1) Purpose of process is to deliver software
 - a) in time
 - b) with acceptable quality
 - c) that is cost efficient
 - d) both (a) and (b)
 - 2) To check whether we are developing the right product according to the customer requirements or not. It is a static process
 - a) Validation
 - b) Verification
 - c) Quality Assurance
 - d) Quality Control
 - 3) Variance from product specifications is called
 - a) Report
 - b) Requirement
 - c) Defect
 - d) None of these
 - 4) It measures the quality of a product. It is a specific part of the QA procedure, it is a corrective process, it applies for particular product and deals with the product.
 - a) Validation
 - b) Verification
 - c) Quality Assurance
 - d) Quality Control
 - 5) Phase Definition. It will come under
 - a) CMM Level 1
 - b) CMM Level 2
 - c) CMM Level 3
 - d) None of these
 - 6) Automated Static Analysis Checks can check
 - a) Data faults
 - b) Control faults
 - c) Interface faults
 - d) All of the above
 - 7) Which Software Development Life cycle model will require to start Testing Activities when starting development activities itself ?
 - a) Water fall model
 - b) Spiral model
 - c) V-model
 - d) Both (a) and (c)



- 8) Optimization, defect prevention and quality control. It come under the
 - a) CMM Level 2
 - b) CMM Level 3
 - c) CMM Level 4
 - d) CMM Level 5
- 9) Management and Measurement, it will come under
 - a) CMM Level 1
 - b) CMM Level 2
 - c) CMM Level 3
 - d) CMM Level 4
- 10) TQM represents
 - a) Tool Quality Management
 - b) Test Quality Manager
 - c) Total Quality Management
 - d) Total Quality Manager
- 11) Glen Myers states that Testing is process of executing a program with the intent of finding
 - a) an error
 - b) a software
 - c) a technology
 - d) none of these
- 12) In the test case format, A unique test case identification number is called as
 - a) test outline item
 - b) input
 - c) test case ID
 - d) result
- 13) Unit testing focuses verification effort on the _____ unit of software design.
 - a) largest
 - b) functional
 - c) critical
 - d) smallest
- 14) In security testing Hackers attempts to _____ systems for sport.
 - a) break
 - b) penetrate
 - c) remove
 - d) shut down
- 15) Each time a new module is added as a part of integration testing, the software changes and _____ is performed.
 - a) regression testing
 - b) installation
 - c) development
 - d) data testing
- 16) _____ testing is actually a series of different tests whose primary purpose is to fully exercise the computer-based system.
 - a) acceptance
 - b) usability
 - c) system
 - d) beta
- 17) The intend of _____ testing is to determine how system will respond to various loading conditions.
 - a) system
 - b) stress
 - c) security
 - d) load
- 18) Walkthroughs are less formal than inspections mainly because of
 - a) good preparation
 - b) lack of preparation
 - c) lack of input
 - d) good input
- 19) Black box testing is also known as
 - a) behavioural testing
 - b) structural testing
 - c) both (a) and (b)
 - d) none of these
- 20) The use of _____ can make testing easier, more effective and more productive.
 - a) testing tools
 - b) hackers
 - c) validation testing
 - d) (b) and (c)



SECTION – I

2. Solve **any four** : **(5×4=20)**
- 1) Roles in software inspection process.
 - 2) Software reliability.
 - 3) Building blocks of SQA.
 - 4) ISO 9000.
 - 5) Process Improvement.
3. A) Discuss clean room approach in detail. **10**
- B) What are the different SQA activities ? **10**
- OR
- B) Explain software quality metrics in detail. **10**

SECTION – II

4. Write short note on **(any 4)** : **20**
- A) Manual testing
 - B) Testers workbench
 - C) Usability testing
 - D) Review meeting
 - E) Cyclomatic analysis.
5. A) Write a note on Integration Testing along with its types, in detail. **10**
- OR
- A) Write a Long answer on Performance testing.
- B) Explain in detail Validation Testing Activities. **10**
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Seat No.	
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**S.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
UNIX OPERATING SYSTEM (Elective – I)**

Day and Date : Saturday, 7-5-2016
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

1. Choose the correct answers : **20**

- 1) Which of the following are unix os editors ?
a) ed b) vi
c) Both a) and b) d) None of the above

- 2) The process conventionally have access to standard _____
a) Input file b) Output file
c) Error file d) All of the above

- 3) In unix file subsystem access file data using _____ mechanism.
a) Buffering b) Blocking
c) Byte by byte d) None of the above

- 4) A user compiles a source code of a program to create
a) Executable file b) Command file
c) Assembly file d) None of the above

- 5) _____ is an instance of program in execution.
a) File b) Process
c) Program d) None of the above

- 6) If the kernel writes entire processes to swap a device, the unix system is called _____ system.
a) Swapping b) Paging
c) Both a) and b) d) None of the above



- 7) The kernel caches the data in buffer pool according to _____ algorithm.
- a) Least recently used
 - b) Frequently used
 - c) Rarely used
 - d) None of these
- 8) Execute permission on a directory allows a process to _____ the directory for a file name.
- a) Read
 - b) Write
 - c) Search
 - d) None of the above
- 9) The _____ system call create a new file in the system.
- a) Open
 - b) Read
 - c) Create
 - d) None of the above
- 10) _____ the system call create special file in the system.
- a) create
 - b) open
 - c) mknod
 - d) none of the above
- 11) The process is sleeping and resides in _____ memory.
- a) Main memory
 - b) Cache
 - c) Secondary
 - d) None of these
- 12) Every process has _____ U area.
- a) Private
 - b) Public
 - c) Protected
 - d) None of these
- 13) The state _____ is really same as the state ready to run in memory.
- a) Pre emptied
 - b) Zombie
 - c) Sleeping
 - d) None of these
- 14) _____ system call changes process state form kernel running to asleep in memory.
- a) Sleep
 - b) Wakeup
 - c) Both a) and b)
 - d) None of these



- 15) The location of the region is_____ memory.
a) Physical
b) Cache
c) Secondary
d) None of these
- 16) The fork system call must allocates space for_____process.
a) Child
b) Parent
c) Both a) and b)
d) None of these
- 17) _____is the process that swaps process into memory from swap devices.
a) Process 0
b) Swapper
c) Both a) and b)
d) None of the above
- 18) The disk driver translate a file system address of logical device no and block no to a particular_____ on the disk.
a) Block
b) Sector
c) Cylinder
d) None of the above
- 19) To allow only one user to work with a particular file at a particular time, one has to use.
a) Semaphore
b) Critical region
c) Locking
d) None of these
- 20) A process can communicate directly with each other by sharing parts of theirs_____ address space.
a) Physical
b) Logical
c) Virtual
d) None of these

SECTION – I

2. Write short notes on **(any 4)** :

(5×4=20)

- A) File subsystem
- B) File and record locking system calls
- C) Operating system services
- D) Change owner and change mode
- E) Inodes structure.



3. A) Explain architecture of UNIX operating system with neat block diagram of the system kernel. **10**
- B) Write and explain an algorithm read (reading file). **10**
- OR
- B) Explain in detail allocation of disk blocks. **10**

SECTION – II

4. Write short note on **(any 4)** : **20**
- A) Layout of system memory
- B) Demand paging
- C) Clists
- D) System V IPC shared memory
- E) Process states and transitions.
5. A) Explain structure of process with process states and transitions diagrams. **10**
- B) Explain V IPC messages and semaphore. **10**
- OR
- B) Explain an algorithms for open and closed for I/O devices. **10**
-



Seat No.	
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**S.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
OBJECT ORIENTED ANALYSIS AND DESIGN (Elective – I)**

Day and Date : Saturday, 7-5-2016
Time : 3.00 p.m. 6.00 p.m.

Total Marks : 100

1. MCQ :

20

SECTION – I

- 1) The generation of code from a UML model into a programming language is called
a) Forward engineering b) Reverse engineering
c) Both a and b d) None of these
- 2) The vocabulary of the UML encompasses _____ kinds of building blocks.
a) Two b) Three c) Four d) None of these
- 3) A component diagram shows the _____ among a set of components.
a) Organizations b) Dependencies
c) Both a and b d) None of these
- 4) An _____ is a named property of a class that describes a range of values that instances of the property may hold.
a) Attribute b) Object
c) Instance d) None of above
- 5) _____ is sometimes called an “is-a-kind-of” relationship.
a) Generalization b) Association c) Specialization d) Dependencies
- 6) A class diagram is a diagram that shows a set of
a) Classes b) Interfaces c) Collaborations d) All of above



- 7) An _____ is a structural relationship that specifies that objects of one thing are connected to objects of another.
- a) Association
 - b) Generalization
 - c) Specialization
 - d) Both b and c
- 8) A _____ is a description of a set of objects that share the same attributes, operations, relationships and semantics.
- a) Class
 - b) Interface
 - c) Collaboration
 - d) Use case
- 9) A _____ is an extension of the vocabulary of the UML, allowing you to create new kinds of building blocks similar to existing ones but specific to your problem.
- a) Stereotype
 - b) Tagged value
 - c) Constraint
 - d) Note
- 10) The public parts of a package are called its _____
- a) Exports
 - b) Imports
 - c) Shared
 - d) Namespace

SECTION – II

- 11) A _____ is specification of communication between objects that convey information with expectation that activity will ensue.
- a) Message
 - b) State machine
 - c) Collaboration
 - d) Transitions
- 12) We can specify _____ flow of control represented using filled solid arrowhead.
- a) Procedural
 - b) Nested
 - c) Flat
 - d) Both a and b
- 13) A _____ is a behavior that specifies the sequence of state an object goes through during its lifetime in response to events.
- a) State
 - b) State Machine
 - c) Interaction
 - d) Collaboration



- 14) _____ is specification of significant occurrence that has location in time and space.
a) signal b) call c) event d) create
- 15) _____ is an object that owns a process or thread and can initiate control activity.
a) Passive object b) Class
c) Active object d) None of the above
- 16) A _____ is a heavyweight flow that can execute concurrently with other processes.
a) Thread b) Objects c) Class d) Process
- 17) A _____ is physical and replaceable part of the of a system that conforms to and provides the realization of set of interfaces.
a) Required interface b) Provided interface
c) Process d) Component
- 18) A _____ is society of classes, interfaces, and other elements that work together to provide some cooperative behavior that's bigger than sum of all its parts.
a) Component b) Nodes
c) Collaboration d) None of the above
- 19) Which of the following is correct ?
a. Time event is the event that represents the passage of time
b. Generally signal is asynchronous event
c. Call event is synchronous event
a) only a b) only b c) only c d) a, b, c
- 20) A _____ is rectangle window through which one component communicate with outside the world.
a) Port b) Part
c) Interface d) None of the above



SECTION – I

2. Write short notes on (**any 4**) : **(5×4=20)**
- 1) Behavioral things.
 - 2) Common uses of class diagram.
 - 3) Forward and Reverse Engineering in use case diagram.
 - 4) Organization of attributes and operations of classes.
 - 5) Generalizations.
3. A) Explain object diagram in detail with an example. **10**
- B) What is activity diagram ? Explain with suitable example. **10**
- OR
- B) Explain modeling system's architecture in detail. **10**

SECTION – II

4. Write a short note on (**any 4**) : **20**
- 1) Behavioral collaboration.
 - 2) Interaction diagram.
 - 3) Sequencing in interaction.
 - 4) Communication in processes.
 - 5) Deployment diagram.
5. A) Explain component diagram with example. **10**
- B) Explain sequence diagram. Draw a sequence diagram for ATM system. **10**
- OR
- B) Explain state chart diagram with example.
-



- 16) LIR stands for
- a) Least interference routing
 - b) Lost interference routing
 - c) Lossless interference routing
 - d) Less interference routing
- 17) Initially DHCP client sends
- a) DHCPDISCOVER
 - b) DHCPREQUEST
 - c) DHCPCLIENT
 - d) None
- 18) _____ tries to keep micro-ability support as transparent as possible for both home agents and mobile nodes.
- a) Cellular IP
 - b) Hawaii
 - c) IPv6
 - d) HMIPv6
- 19) In small cells the mobile station and the base station only have to deal with
- a) Less transmission power
 - b) Local interference
 - c) Robustness
 - d) High capacity
- 20) RSS of GSM system includes
- a) BSC, VLR, HLR
 - b) MS, MSC, BTS
 - c) OMC, AuC.EIR
 - d) MS, BTS, BSC

SECTION – I

2. Write short notes on **any four** : **(4×5=20)**
- a) Direct sequence spread spectrum.
 - b) Mobile and wireless devices.
 - c) Hidden and exposed terminals.
 - d) Network and switching subsystem of GSM.
 - e) Hard and soft handover in UMTS.
3. A) Explain security services offered by GSM. **10**
B) Explain GPRS system in detail. **10**
- OR
- B) Why baseband signal cannot be directly transmitted in a wireless system ?
Explain three basic schemes known for analog modulation. **10**



SECTION – II

4. Write short notes on **any four** : **(4×5=20)**
- a) Explain advantages of WLAN.
 - b) IEEE 802.11 physical layer.
 - c) WATM handover.
 - d) Cellular IP.
 - e) Hierarchical ad-hoc routing.
5. A) How does the MN discover that it has moved ? **10**
- B) Explain Routing in adhoc networks with example. **10**

OR

- B) Explain how tunneling works for mobile IP using IP-in-IP, minimal and generic routing encapsulation, respectively. **10**
-



Seat No.	
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**T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
DATA WAREHOUSING AND DATA MINING (New)**

Day and Date : Wednesday, 11-5-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instructions : 1) Figures to the **right** indicate **full** marks.
2) Q. 3 A) and Q. 5 A) are **compulsory**.

1. Choose the correct alternative : **20**
- 1) The full form of OLAP is
 - A) Online Analytical Processing
 - B) Online Advanced Processing
 - C) Online Advanced Preparation
 - D) Online Analytical Performance
 - 2) _____ is a subject-oriented, integrated, time-variant, nonvolatile collection or data in support of management decisions.
 - A) Data Mining
 - B) Data Warehousing
 - C) Document Mining
 - D) Text Mining
 - 3) The data is stored, retrieved and updated in _____
 - A) OLAP
 - B) OLTP
 - C) SMTP
 - D) FTP
 - 4) An _____ system is market-oriented and is used for data analysis by knowledge workers, including managers, executives, and analysts.
 - A) OLAP
 - B) OLTP
 - C) Both of the above
 - D) None of the above
 - 5) _____ is a good alternative to the star schema.
 - A) Star schema
 - B) Snowflake schema
 - C) Fact constellation
 - D) Star-snowflake



- 6) The _____ exposes the information being captured, stored and managed by operational systems.
- A) top-down view B) data warehouse view
C) data source view D) business query view
- 7) The type of relationship in star schema is _____
- A) many to many B) one to one
C) one to many D) many to one
- 8) The _____ allows the selection of the relevant information necessary for the data warehouse.
- A) top-down view
B) data warehouse view
C) data source view
D) business query view
- 9) Which of the following is not a component of a data warehouse ?
- A) Metadata
B) Current detail
C) Lightly summarized data
D) Component key
- 10) Which of the following is not a kind of data warehouse application ?
- A) Information processing
B) Analytical processing
C) Data mining
D) Transaction processing
- 11) Which of the following is not a data mining functionality ?
- A) Characterization and discrimination
B) Classification and regression
C) Selection and interpretation
D) Clustering and analysis
- 12) _____ is a summarization of the general characteristics or features of a target class of data.
- A) Data characterization B) Data classification
C) Data discrimination D) Data selection



- 13) _____ is a comparison of the general features of the target class data objects against the general features of objects from one or multiple contrasting classes.
- A) Data characterization B) Data classification
C) Data discrimination D) Data selection
- 14) Strategic value of data mining is _____
- A) Cost-sensitive B) Work-sensitive
C) Time-sensitive D) Technical-sensitive
- 15) _____ is the process of finding a model that describes and distinguishes data classes or concepts.
- A) Data characterization B) Data classification
C) Data discrimination D) Data selection
- 16) The full form of KDD is _____
- A) Knowledge Database
B) Knowledge Discovery Database
C) Knowledge Data House
D) Knowledge Data Definition
- 17) The output of KDD is _____
- A) Data B) Information
C) Query D) Useful information
- 18) Data warehouse architecture is based on _____
- A) DBMS B) RDBMS
C) Sybase D) SQL Server
- 19) Data warehouse contains _____ data that is never found in the operational environment.
- A) Normalized B) Information
C) Summary D) Denormalized
- 20) The data from the operational environment enter _____ of data warehouse.
- A) Current detail data
B) Older detail data
C) Lightly Summarized data
D) Highly summarized data



SECTION – I

2. Write short note on **any four** : **(4×5=20)**
- a) Query Tools.
 - b) Metadata.
 - c) Picklist Prompts.
 - d) Browser Tools.
 - e) Parallel Processing.
3. A) Difference between OLAP and OLTP. **10**
B) Explain multiple data types in detail. **10**
- OR
- B) Explain data warehouse architecture in brief. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
- a) KDD
 - b) DBMS Versus DM
 - c) Web Usage Mining
 - d) Outlier
 - e) Agglomerative.
5. A) Explain Nearest Neighbour method. **10**
B) What are the issues and challenges in data mining ? **10**
- OR
- B) Explain data mining application in detail. **10**
-



Seat No.	
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**T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
INFORMATION SECURITY (New)**

Day and Date : Friday, 29-4-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instructions : 1) Figures to the **right** indicate **full** marks.
2) Q. 3 A) and Q. 5 A) are **compulsory**.

1. Choose the correct alternative. **20**

- 1) Security is “the _____ of being secure to be free from danger.
a) quality b) state
c) quality or state d) none of the above

- 2) A computer _____ consists of segments of code that perform malicious actions.
a) Viruses b) Worms
c) Trojan horses d) All of the above

- 3) An _____ is an act that takes advantage of a vulnerability to compromise a controlled system.
a) threat b) attack
c) both a and b d) none of the above

- 4) _____ is “the redirection of legitimate web traffic to an illegitimate site for the purpose of obtaining private information.
a) Pharming b) Sniffers
c) Phishing d) None of the above

- 5) Individuals with authorization and privileges to manage information within the organization are most likely to cause harm or damage by
a) accident b) ignorance
c) intent d) all of the above



- 15) Cyber crimes are unlawful acts where the computer is used as
- a) tool
 - b) target
 - c) both a and b
 - d) none of the above
- 16) _____ contains all the certificates issued by all the CAs in the country.
- a) NRDC
 - b) RCAI
 - c) CCA
 - d) None of the above
- 17) _____ shall perform the functions assigned to them by the Controller under the general superintendence and control of the controller.
- a) Deputy Controllers
 - b) Assistant Controllers
 - c) Both a and b
 - d) One domain name used to point to one and only one IP address
- 18) The Controller shall maintain a computerized database of all
- a) public keys
 - b) private keys
 - c) both a and b
 - d) none of the above
- 19) A DSC shall not be suspended for a period exceeding _____ days unless the subscriber has been given an opportunity of being heard in the matter.
- a) ten
 - b) fifteen
 - c) twenty
 - d) five
- 20) One domain name used to point to _____ IP address.
- a) only one
 - b) two
 - c) more
 - d) none of the above

SECTION – I

2. Write short note on **any four** :

(4×5=20)

- a) Forces of nature as most dangerous threats.
- b) Components of an information system.
- c) Man in the middle attack.
- d) Identification of possible controls to reduce the risk.
- e) Authorization.



3. A) Explain in detail different risk control strategies. **10**
B) Explain in brief Intrusion Detection and Prevention Systems. **10**

OR

- B) What do you mean by Cryptography ? Explain transposition cipher method with example. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
a) Information Technology Act, 2000.
b) Functions of Certifying Authority Controller.
c) Digital Signature Certification.
d) Explain concept of domain name system.
e) Meta Tags.

5. A) Explain in brief Cyber Regulations of Appellate Tribunal. **10**
B) Explain concept of Digital Signature under the IT Act, 2000. **10**

OR

- B) Explain in detail different functions of Certifying Authority Controller. **10**
-



- 6) A risk management strategy requires that information security professionals know their organizations information assets that is
- a) identify
 - b) classify
 - c) prioritize
 - d) all of the above
- 7) Information that can generally be distributed to the public without any threat is
- a) confidential
 - b) internal
 - c) external
 - d) unclassified data
- 8) Any _____ information or material the unauthorized disclosure of which reasonably could be expected to cause serious damage to the national security.
- a) secret data
 - b) confidential data
 - c) sensitive data
 - d) none of the above
- 9) Internet protocol is vulnerable to denial of service is
- a) vandalism
 - b) espionage
 - c) trespass
 - d) none of the above
- 10) NIST stands for
- a) National Institute for Standards and Technology
 - b) National Institute of Standards for Technology
 - c) National Information for Standards and Technology
 - d) None of the above
- 11) The IT Act, 2000 was developed to promote the IT industry, regulate e-commerce, facilitate e-governance and prevent
- a) cybercrime
 - b) electronic fraud
 - c) both b and c
 - d) none of the above
- 12) Electronic signatures are used to authenticate _____ records.
- a) physical
 - b) electronic
 - c) both a and b
 - d) none of the above
- 13) A digital signature can be used with kind of message, whether it is
- a) encrypted
 - b) decrypted
 - c) both a and b
 - d) none of the above
- 14) _____ ensure that the sender has signed the info cannot later time deny having signed it.
- a) Authentication
 - b) Integrity
 - c) Non Repudiation
 - d) All of the above



- 15) Cyber crimes are unlawful acts where the computer is used as
- a) tool
 - b) target
 - c) both a and b
 - d) none of the above
- 16) _____ contains all the certificates issued by all the CAs in the country.
- a) NRDC
 - b) RCAI
 - c) CCA
 - d) None of the above
- 17) _____ shall perform the functions assigned to them by the Controller under the general superintendence and control of the controller.
- a) Deputy Controllers
 - b) Assistant Controllers
 - c) Both a and b
 - d) One domain name used to point to one and only one IP address
- 18) The Controller shall maintain a computerized database of all
- a) public keys
 - b) private keys
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- 19) A DSC shall not be suspended for a period exceeding _____ days unless the subscriber has been given an opportunity of being heard in the matter.
- a) ten
 - b) fifteen
 - c) twenty
 - d) five
- 20) One domain name used to point to _____ IP address.
- a) only one
 - b) two
 - c) more
 - d) none of the above

SECTION – I

2. Write short note on **any four** :

(4×5=20)

- a) Forces of nature as most dangerous threats.
- b) Components of an information system.
- c) Man in the middle attack.
- d) Identification of possible controls to reduce the risk.
- e) Authorization.



3. A) Explain in detail different risk control strategies. **10**
B) Explain in brief Intrusion Detection and Prevention Systems. **10**

OR

- B) What do you mean by Cryptography ? Explain transposition cipher method with example. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
a) Information Technology Act, 2000.
b) Functions of Certifying Authority Controller.
c) Digital Signature Certification.
d) Explain concept of domain name system.
e) Meta Tags.

5. A) Explain in brief Cyber Regulations of Appellate Tribunal. **10**
B) Explain concept of Digital Signature under the IT Act, 2000. **10**

OR

- B) Explain in detail different functions of Certifying Authority Controller. **10**
-



Seat No.	
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**T.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
ADVANCED INTERNET TECHNOLOGY (New)**

Day and Date : Monday, 2-5-2016

Total Marks : 100

Time : 10.30 a.m. to 1.30 p.m.

Instructions : 1) Figures to the **right** indicate **full** marks.
2) Q. 3 (A) and Q. 5 (A) are **compulsory**.

1. Choose the correct alternative :

20

- 1) Which of the following is not a type of personal computer ?
a) Desktop b) Mainframe c) Notebook d) Netbook
- 2) Every Web page has a unique address called a(n)
a) ARL b) URL c) RUL d) LUR
- 3) A Web _____ is a series of Web pages on a specific topic.
a) Home b) Site c) Group d) URL
- 4) Which of the following is not an output device ?
a) Printer b) Mouse c) Projector d) Speaker
- 5) Which of the following is the largest community in classification of e-commerce ?
a) Business to Consumer (B to C) b) Business to Business (B to B)
c) Business to Government (B to G) d) Government to Government (G to G)
- 6) Which of the following is not the example of business to consumer (B to C) e-commerce ?
a) e-bay.com b) Amazon.com c) dell.com d) lastminute.com
- 7) What is the limit of data to be passed from HTML when doGet() method is used ?
a) 4K b) 8K c) 1K d) 2K
- 8) The life cycle of a servlet is managed by
a) Servlet Context b) http or https
c) Servlet Container d) All of the above
- 9) Which of the below symbols is a newline character ?
a) \r b) /n c) \n d) /r

P.T.O.



SECTION – I

2. Write short note on **any four** : **(4×5=20)**
- a) Web System Architecture.
 - b) Uniform Resource Locator.
 - c) Servlet Versus CGI.
 - d) Authentication.
 - e) Cookies.
3. A) Explain HTTP protocol and its request and response. **10**
- B) What are the various applications of E-Commerce ? **10**
- OR
- B) Explain C2B E-Commerce with its advantages and disadvantages. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
- a) Session.
 - b) Include Statement.
 - c) PHP and HTTP Environment.
 - d) Error Handling in JSP.
 - e) PHP Constant.
5. A) Explain flow control and loop structure in PHP with example. **10**
- B) Explain directives in JSP with example. **10**
- OR
- B) Explain Datatypes in PHP with an example. **10**
-



Seat No.	
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**T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
ARTIFICIAL TECHNOLOGY (Elective – II) (New)**

Day and Date : Thursday, 12-5-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instructions: 1) Figures to the **right** indicate **full** marks.
2) Q. 3 A) and Q. 5 A) are **compulsory**.

1. Choose the correct alternative : **20**
- 1) What is the term used for describing the judgemental or common sense part of problem solving ?
a) Heuristic b) Critical c) Value based d) Analytical
 - 2) What stage of the manufacturing process has been described as “the mapping of function onto form” ?
a) Design b) Distribution
c) Project management d) Field service
 - 3) What kind of planning consists of successive representations of different levels of a plan ?
a) Hierarchical Planning b) Non-hierarchical Planning
c) Project Planning d) All of the above
 - 4) Decision support programs are designed to help managers make
a) Budget projections b) Visual presentations
c) Business decisions d) Vacation schedules
 - 5) Programming a robot by physically moving it through the trajectory you want it to follow is called
a) Contact sensing control b) Continuous-path control
c) Robot vision control d) Pick-and-place control
 - 6) To invoke the LISP system, you must enter
a) AI b) LISP
c) CL (Common Lisp) d) None of the above



- 7) Prior to the invention of time sharing, the prevalent method of computer access was
- a) Batch processing
 - b) Telecommunication
 - c) Remote access
 - d) All of the above
- 8) In a rule-based system, procedural domain knowledge is in the form of
- a) Production rules
 - b) Rule interpreters
 - c) Meta-rules
 - d) Control rules
- 9) An AI technique that allows computers to understand associations and relationships between objects and events is called
- a) Heuristic processing
 - b) Cognitive science
 - c) Relative symbolism
 - d) Pattern matching
- 10) The field that investigates the mechanics of human intelligence is
- a) History
 - b) Cognitive science
 - c) Psychology
 - d) Sociology
- 11) A problem is first connected to its proposed solution during the _____ stage.
- a) Conceptualization
 - b) Identification
 - c) Formalization
 - d) Implementation
- 12) What is the name of the computer program that simulates the thought processes of human beings ?
- a) Human logic
 - b) Expert reason
 - c) Expert system
 - d) Personal information
- 13) A computer program that contains expertise in a particular domain is called an
- a) Intelligent planner
 - b) Automatic processor
 - c) Expert system
 - d) Operational symbolizer



- 14) Ambiguity may be caused by
- a) Syntactic ambiguity
 - b) Multiple word meanings
 - c) Unclear antecedents
 - d) All of the above
- 15) Natural language processing is divided into the two subfields of
- a) Symbolic and numeric
 - b) Time and motion
 - c) Algorithmic and heuristic
 - d) Understanding and generation
- 16) High-resolution, bit-mapped displays are useful for displaying
- a) Clearer characters
 - b) Graphics
 - c) More characters
 - d) All of the above
- 17) A bidirectional feedback loop links computer modelling with
- a) Artificial science
 - b) Heuristic processing
 - c) Human intelligence
 - d) Cognitive science
- 18) A process that is repeated, evaluated and refined is called
- a) Diagnostic
 - b) Descriptive
 - c) Interpretive
 - d) Iterative
- 19) A natural language generation program must decide
- a) What to say
 - b) When to say something
 - c) Why it is being used
 - d) Both a) and b)
- 20) Who is considered to be the “father” of artificial intelligence ?
- a) Fisher Ada
 - b) John McCarthy
 - c) Allen Newell
 - d) Alan Turning



SECTION – I

2. Write short note on **any four** : **(4×5=20)**
- a) Artificial intelligence
 - b) Additional problems
 - c) Problem Reduction
 - d) Frame problem
 - e) Best First Search.
3. A) Explain the approaches to knowledge representation in detail. **10**
- B) What is hill climbing ? Write and explain simple hill climbing algorithm. **10**
- OR
- B) Explain issues in knowledge representation. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
- a) Resolution
 - b) Expert System
 - c) Conceptual dependency
 - d) Waiting for Quiescence
 - e) Pragmatic Processing.
5. A) Explain in detail resolution in predicate logic. **10**
- B) Explain in detail truth maintenance system. **10**
- OR
- B) Explain in detail secondary search. **10**
-



Seat No.	
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**T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) (New) Examination, 2016
INFORMATION RETRIEVAL SYSTEM (Elective – II)**

Day and Date : Thursday, 12-5-2016

Total Marks : 100

Time : 10.30 a.m. to 1.30 p.m.

1. MCQ

20

- 1) In information retrieval model Q is
 - a) Set of logical views
 - b) Framework
 - c) Document
 - d) None of the above

- 2) Boolean model is a simple model based on
 - a) Set theory
 - b) Boolean algebra
 - c) Both a and b
 - d) None of the above

- 3) Boolean model is based on binary
 - a) Queries
 - b) Decision criterion
 - c) Both a and b
 - d) None of the above

- 4) For _____ weights are assigned to index terms in queries and documents
 - a) Non binary
 - b) Binary
 - c) Hexadecimal
 - d) None of the above

- 5) A _____ is a high level interactive navigational structure.
 - a) Link
 - b) Model
 - c) Hypertext
 - d) None of the above

- 6) A _____ is the formulation of a user information need.
 - a) Query
 - b) Text
 - c) Program
 - d) None of the above



- 7) Phrase is a sequence of _____ queries.
- a) Single word
 - b) Double word
 - c) Multiword
 - d) None of the above
- 8) Boolean query has a syntax composed of
- a) Atoms
 - b) Items
 - c) Text
 - d) None of the above
- 9) Boolean _____ works on their operands.
- a) Algebra
 - b) Operator
 - c) Expression
 - d) None of the above
- 10) An interesting proposal to combine browsing and searching on the web is
- a) Webglimpse
 - b) Website
 - c) Program
 - d) None of the above
- 11) PDF stands for
- a) Possible Document Format
 - b) Portable Document Format
 - c) Both a and b
 - d) None of the above
- 12) A _____ is a set of syntactic features that must occur in a text segment.
- a) Pattern
 - b) Expression
 - c) Program
 - d) None of the above
- 13) XML stands for
- a) eXtensible Markup Language
 - b) eXtended Markup Language
 - c) both a and b
 - d) none of the above
- 14) Hy Time is a
- a) Hypermedia Time based structuring language
 - b) Hypermedia Time based database
 - c) Both and b
 - d) None of the above
- 15) A signature file uses
- a) Hash function
 - b) Index function
 - c) Both a and b
 - d) None of the above



- 16) MULTOS stands for
 - a) Multimedia Office Server
 - b) Multi Office Server
 - c) Both a and b
 - d) None of the above
- 17) Shift Or is based on
 - a) Bit concurrency
 - b) Bit parallelism
 - c) Both a and b
 - d) None of the above
- 18) GIF stands for
 - a) Graphic Interchange Format
 - b) Graphical Interchange format
 - c) Both a and b
 - d) None of the above
- 19) Multimedia includes
 - a) Audio
 - b) Video
 - c) Images
 - d) All of the above
- 20) MIME stands for
 - a) Multipurpose Internet Mail Exchange
 - b) Multi Internet Mail Exchange
 - c) Both a and b
 - d) None of the above

SECTION – I

2. Write short note on (**any 4**). **(4×5=20)**

- 1) Context queries
- 2) A formal characterization of IR models
- 3) Structural queries
- 4) Multimedia Data and formats
- 5) Graphic and virtual reality

3. Answer the following.

- 1) Explain textual images and Hy Time in detail. **10**
- 2) Explain Single-word queries and Boolean queries in detail. **10**

OR

- 2) Explain pattern matching in detail. **10**



SECTION – II

4. Write short note on (**any 4**). **(4×5=20)**

- 1) Data Retrieval
- 2) The MULTOS query language
- 3) One dimensional time series
- 4) Search Engines
- 5) Meta searchers.

5. Answer the following.

- 1) What is searching ? Explain Searching using Hyperlinks in detail. **10**
- 2) Explain generic multimedia indexing approaches in detail. **10**

OR

- 2) Explain Representation and Access of digital libraries. **10**



Seat No.	
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**T.Y. M.C.A. (Part – I) (Under Faculty of Engg.) (New) Examination, 2016
Elective – II : FUZZY LOGIC AND ARTIFICIAL NEURAL NETWORK**

Day and Date : Thursday, 12-5-2016

Total Marks : 100

Time : 10.30 a.m. to 1.30 p.m.

Instructions : 1) Figures to the **right** indicate **full** marks.
2) Q. 3 (A) and Q. 5 (A) are **compulsory**.

1. Choose the correct alternative :

Marks : 20

1) A type of logic that recognizes more than simple true and false values is

- a) Fuzzy logic
- b) Crisp set
- c) Boolean logic
- d) None of these

2) A fuzzy set A in X is characterized by a membership function

- a) $F(x)$
- b) $A(x)$
- c) $\mu A(x)$
- d) All of these

3) A brain contains about _____ units called neurons.

- a) 10^9
- b) 10^{10}
- c) 10
- d) 10^5

4) The _____ which is a very minute gap at the end of the dendritic link contains a neuro transmitter fluid.

- a) Synaptic junction
- b) Neuron
- c) Spike
- d) None of these

5) A very commonly used activation function is the

- a) Step function
- b) Interference function
- c) Heaviside function
- d) Thresholding function

6) _____ function is also known as quantizer function.

- a) Signal function
- b) Signum function
- c) Sigmoidal function
- d) All the above



- 7) The hidden layer neurons are linked to the output layer neurons and corresponding weights are referred as
- a) Hidden output layer weights
 - b) Hidden input layer weights
 - c) Layer weights
 - d) Weights
- 8) In Hebbian learning the input output pattern pairs are associated by the weight matrix W known as
- a) Relation matrix
 - b) Identity matrix
 - c) Correlation matrix
 - d) Square matrix
- 9) In _____ weights are adjusted in probabilistic fashion.
- a) Gradient descent learning
 - b) Stochastic learning
 - c) Competitive learning
 - d) Hebbian learning
- 10) A crossover point of a fuzzy set A is a point $x \in X$ at which
- a) $\mu A(x) = 1$
 - b) $\mu A(x) = 0$
 - c) $\mu A(x) = \alpha$
 - d) $\mu A(x) = e$
- 11) ART is
- a) Adaptive Resonance Theory
 - b) Adaptive Resistance Theory
 - c) Adaptive Right Theory
 - d) None
- 12) _____ of parameters of membership functions is widely used and practised in fuzzy modelling and applications.
- a) Probabilistic selection
 - b) Priority selection
 - c) Cluster selection
 - d) Heuristic selection
- 13) _____ is the process of formulating a non-linear mapping from a given input space to an output space.
- a) Fuzzification
 - b) Inference
 - c) Plant
 - d) All the above
- 14) A fuzzy system is characterized by a set of linguistic statements based on
- a) Fuzzification
 - b) System knowledge
 - c) Expert knowledge
 - d) deFuzzification



- 15) _____ is a mapping from a space of fuzzy control actions defined over an output universe of discourse into a space of non-fuzzy (crisp) control actions.
 - a) Defuzzification
 - b) Fuzzification
 - c) Calculation
 - d) None

- 16) Trapezoidal membership functions have four parameters and can burden the optimization procedure
 - a) True
 - b) False

- 17) The output of a _____ is limited to only – 1 and + 1 depending on the value of the input signal.
 - a) Linear function
 - b) Step function
 - c) Ramp function
 - d) None

- 18) In a _____, only forward connectivity of the neurons is considered.
 - a) Backward network
 - b) Integrated network
 - c) Feedforward network
 - d) Neural network

- 19) _____ networks consist of receptive field units (hidden units).
 - a) Multilayer perception
 - b) Stochastic
 - c) Belief
 - d) Radial Basis Function (RBF)

- 20) The _____ is a two-layer feedforward neural network for classification of binary bipolar n-tuple input vectors using minimum Hamming distance denoted as DH.
 - a) Hamming Network (HN)
 - b) Belief network
 - c) GRNN
 - d) Probabilistic neural networks

SECTION – I

2. Write short note on **any four** :

(4×5=20)

- a) Fuzzy Sets
- b) Fuzzification
- c) Defuzzification Methods
- d) Fuzzy Logic Control
- e) Classical Set Operations.



3. A) Give applications of fuzzy logic. 10
B) Describe fuzzy classification. 10
OR
B) Explain design of fuzzy controller. 10

SECTION – II

4. Write short note on **any four** : (4×5=20)
a) Organization of brain
b) McCulloch – Pitts model
c) Artificial neuron model
d) Perception model
e) Kolmogorov theorem.
5. A) Give applications of ANN. 10
B) Explain ANN architecture. 10
OR
B) Explain Hebbian learning. Explain BAM energy function. 10
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Seat No.	
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**T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
Elective – II : CLOUD COMPUTING (New)**

Day and Date : Thursday, 12-5-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instructions : 1) Figures to the **right** indicate **full** marks.
2) Q. 3 A) and Q. 5 A) are **compulsory**.

1. Choose the correct alternative :

20

- 1) The _____ cloud allows systems and services to be accessible by group of organizations.
a) Public b) Private c) Community d) Hybrid
- 2) _____ models define the type of access to the cloud.
a) Deployment b) Traditional
c) Security d) Service
- 3) _____ provides the runtime environment for applications, development and deployment tools, etc.
a) PaaS b) SaaS c) IaaS d) None of these
- 4) _____ model allows to use software applications as a service to end users.
a) DaaS b) SaaS c) IaaS d) PaaS
- 5) _____ is the use of a disk to store active areas of memory to make the available memory appear larger.
a) Hard disk b) Secondary memory
c) Cache memory d) Virtual memory
- 6) _____ virtualization is a method of partitioning a physical server computer into multiple servers so that each has the appearance and capabilities of running on its own dedicated machine.
a) Server b) System
c) Client d) All of these



- 7) _____ private cloud is hosted within an organization's own facility.
- a) Externally Hosted
 - b) On-Premise
 - c) Heterogeneous
 - d) Non-Heterogeneous
- 8) _____ Web Services is not a platform in the traditional sense.
- a) Amazon
 - b) Google
 - c) Yahoo
 - d) Microsoft Azure
- 9) The _____ cloud is more suitable for processing and storing non-sensitive data.
- a) Hybrid
 - b) Public
 - c) Private
 - d) Multi
- 10) _____ platform-as-a-service arm has set the standard for developing multitenant cloud applications.
- a) Google's
 - b) Salesforce's
 - c) Yahoo's
 - d) Microsoft's
- 11) _____ security can begin with the screening of employees who will eventually have access to computers, data and information.
- a) Behavioral
 - b) Logical
 - c) Physical
 - d) All of these
- 12) _____ is one of the oldest profession of humanity and used for secure communication over network of computers.
- a) Cryptography
 - b) Encryption
 - c) Decryption
 - d) Authentication
- 13) _____ service prevents unauthorized use of information and communication resources.
- a) Authorization
 - b) Confidentiality
 - c) Access control
 - d) Integrity
- 14) Data _____ service assures that data received is exactly as sent by authorized.
- a) Authentication
 - b) Access control
 - c) Confidentiality
 - d) Integrity
- 15) _____ is a one of serious issue in a cloud computing environment.
- a) Data stealing
 - b) Data location
 - c) Data loss
 - d) Data handling



3. A) Explain all the service models of cloud computing. **10**
- B) Explain private cloud building blocks namely physical layer, virtualization layer, cloud management layer with diagram. **10**

OR

- B) Explain all the PaaS vendors in detail. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
- a) What is network security ? And what are the challenges of network security ?
- b) Explain insecure interfaces and APIs.
- c) Explain the challenges in managing heterogeneous clouds.
- d) Explain the benefits and advantages of multi-cloud management system.
- e) Explain cloud applications in detail.
- f) Explain cloud security.

5. A) How to implement server security ? **10**
- B) Explain all the current issues in cloud computing leading to future research directions. **10**

OR

- B) Explain future technology trends in cloud computing with a focus on cloud service models. **10**
-



- 7) The priority arrays contain a priority _____ used to efficiently discover the priority runnable task in the system.
- a) bit map b) byte map c) block map d) none of the above
- 8) System calls are simple to implement and _____ to use.
- a) easy b) difficult c) moderate d) none of the above
- 9) Linux interrupt handlers are normal _____ functions.
- a) C b) C++ c) Java d) None of the above
- 10) The same interrupt handler is _____ invoked concurrently to service a nested interrupt.
- a) always b) rare c) never d) none of the above
- 11) Code paths that access the manipulate shared data are called _____
- a) critical region b) process region
c) both a and b d) none of the above
- 12) The lock prevents concurrency and prevents the queue from _____
- a) deadlock b) race condition
c) both a and b d) none of the above
- 13) If thread of execution attempts to acquire a lock it already hold, it has to wait for the lock to be released is _____
- a) deadlock b) self-deadlock
c) others deadlock d) none of these
- 14) _____ is a measurement of how well a system can be expanded.
- a) throughput b) response time
c) scalability d) all of these
- 15) Atomicity means that _____
- a) instruction succeed in their entirely
b) instruction succeed in their uninterrupted
c) instructions fail to execute at all
d) all of these



- 16) A spin lock is a lock that can be held by _____ thread of execution.
- a) at most one
 - b) only one
 - c) more than one
 - d) none of these
- 17) Semaphores in Linux are _____
- a) spin locks
 - b) bottom halves
 - c) sleeping locks
 - d) none of these
- 18) Semaphores can allow for _____ of simultaneous lock holders.
- a) two
 - b) limited number
 - c) arbitrary number
 - d) none of these
- 19) The facility used to schedule events that run once after a specified time has elapsed is _____
- a) system time
 - b) dynamic timer
 - c) both a and b
 - d) none of these
- 20) Linux partitions the systems pages into _____ have a pooling in place to satisfy allocation as needed.
- a) blocks
 - b) zones
 - c) regions
 - d) none of these

SECTION – I

2. Write short note on (**any four**) : **(4×5=20)**
- a) Operating system and kernel.
 - b) Process scheduling policy.
 - c) Linux implementation of threads.
 - d) System call implementation.
 - e) Interrupt control.
3. A) What is Linux scheduler algorithm ? Explain Linux scheduler algorithm steps. **10**
- B) Explain Linux Operating System and its kernel. **10**
- OR
- B) What do you mean by Interrupts ? Explain working of interrupt handler. **10**



SECTION – II

4. Write short note on (**any four**) : **(4×5=20)**
- a) Locking.
 - b) The timer interrupt handler.
 - c) Common files system interface.
 - d) The super block object.
 - e) Radix tree.
5. A) Explain the concepts super block, inode, dentry and file objects. **10**
- B) What do you mean by Pages and Zones ? Explain kmalloc(), vmalloc() system calls. **10**

OR

- B) What do you mean by memory descriptor, memory areas ? Describe methods of manipulating memory areas. **10**
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Seat No.	
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**T.Y.M.C.A. (Under Faculty of Engg.) (Part – I) (Old) Examination, 2016
MOBILE COMMUNICATIONS**

Day and Date : Monday, 25-4-2016
Time : 10.30 a.m. to 1.30 p.m.

Max. Marks : 100

Instructions: 1) *All questions are compulsory.*
2) *Figures to the right indicates full marks.*

1. Choose correct alternative :

20

- 1) The sky wave work at _____ frequency.
 - a) < 2 MHz
 - b) 2-30 MHz
 - c) 30-40 MHz
 - d) None of these
- 2) Waves in the _____ frequency ranges are used by submarines.
 - a) Low
 - b) High
 - c) Very low
 - d) Very high
- 3) Conventional analog TV transmission uses
 - a) VHF and UHF
 - b) AM and FM
 - c) LF and VLF
 - d) SHF and EHF
- 4) _____ antennas radiate equal power in all directions.
 - a) omni-directional
 - b) dipole
 - c) sectorized
 - d) isotropic
- 5) _____ effect occurs due to velocity of the electromagnetic waves depends on the density of the medium through which it travels.
 - a) Shadowing
 - b) Reflection
 - c) Refraction
 - d) Diffraction
- 6) The effect where energy intended for one symbol spills over to the adjacent symbol is called as
 - a) Intersymbol interface
 - b) Intrasymbol interface
 - c) Short term fading
 - d) Long term fading



- 7) The space between the interference ranges in some times called
- a) Intersymbol interface
 - b) Guard space
 - c) Blank space
 - d) All of these
- 8) _____ modulation shifts the center frequency of the baseband signal upto radio carrier.
- a) Digital
 - b) Analog
 - c) Spectral
 - d) None of these
- 9) _____ presents a simple scheme to solve hidden terminal problem.
- a) DAMA
 - b) MACA
 - c) TDMA
 - d) None of these
- 10) Assigning different slots for uplink and downlink using the same frequency is called
- a) FDD
 - b) TDD
 - c) FDMA
 - d) TDMA
- 11) _____ uses diffuse light reflected at walls, furniture etc. or directed light if a LOS exist between sender and receiver.
- a) Radio transmission
 - b) Infra red
 - c) Ground wave
 - d) None of these
- 12) _____ n/w do not need any infrastructure to work.
- a) wired
 - b) ad-hoc
 - c) both a) and b)
 - d) none of these
- 13) WPAN is
- a) Wireless Personal Area n/w
 - b) Wired Personal Area n/w
 - c) Wifipan
 - d) All of these
- 14) Bluetooth operates in the ISM band
- a) 2.4 GHz
 - b) 2.5 GHz
 - c) 2.9 GHz
 - d) 3.04 GHz
- 15) AMA is
- a) Actual Member Address
 - b) Active Member Address
 - c) Actual Member who is Active
 - d) None of these



SECTION – II

4. Write short note on **(any 4)** : **20**
- a) Mobile ad-hoc n/w
 - b) HIPERLAN
 - c) WAP architecture
 - d) Infrastructure and ad-hoc n/w
 - e) IEEE 802.11
5. a) Explain advantages and disadvantages of WLAN and explain infrared v/s radio communication. **10**
- b) Explain DHCP protocol. **10**
- OR
- b) Explain Bluetooth in detail. **10**
-



Seat No.	
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**T.Y.M.C.A. (Faculty of Engg.) (Part – I) Examination, 2016
WEB DESIGN TECHNIQUES (Old)**

Day and Date : Wednesday, 27-4-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instruction : Question 3A and 5A are compulsory.

1. MCQ :

20

- 1) To make a bulleted list which tag is use.
a) <list> b) <nl> c) d)
- 2) Choose the correct HTML tag for the smallest size heading ?
a) <heading> b) <h6> c) <h1> d) <head>
- 3) Which of the following is not a pair tag ?
a) <p> b) < u > c) <i> d)
- 4) HTML documents are saved in
a) Special binary format b) Machine language codes
c) ASCII text d) None of above
- 5) Which of the following is the default positioning elements with CSS ?
a) Relative b) Static
c) Absolute d) None of the mentioned
- 6) The _____ specifies whether a border should be solid, dashed line, dotted line, double line, groove etc.
a) Border-layout b) Border-decoration
c) Border-style d) Border-weight
- 7) An external style sheet is ideal when the style is applied to
a) many pages b) single page
c) few pages d) none of the above

P.T.O.



- 8) Java script is _____ side scripting language.
a) browser b) server c) isp d) none
- 9) _____ keyword is used to declare variables in Javascript.
a) Var b) Dim
c) String d) None of the above
- 10) Using which tag we insert an JavaScript in HTML page ?
a) <JavaScript type="text/javascript">
b) <script type="text/Javascript">
c) <JScript type="text/javascript">
d) <HTMLScript type="text/javascript">
- 11) The _____ operator is used to create an instance of an object type.
a) void b) new c) delete d) logical
- 12) VBScript is _____ scripting language.
a) Strongly typed b) Loosely typed
c) Both a) and b) d) None of these
- 13) _____ object used in VBScript error handling.
a) Error b) Err
c) On Error d) Err. Description
- 14) XML preserves white space.
a) False b) True
c) Depend on variable d) Depend on element
- 15) Is this well formed XML document ?
<?xml version="1.0" ?>
<empno>1</empno>
<ename>scott</ename>
<empno>2</empno>
<ename>Johan</ename>
a) Yes b) No
c) Can't say d) None of these



- 16) What is default scripting language in ASP ?
a) JavaScript b) VBScript c) JQuery d) None of these
- 17) How do you get information from a Form that is submitted using the “post” method ?
a) Request.queryString b) Request.form
c) Response.get d) Request.get
- 18) Which one of these events is standard Global.asa Event ?
a) Sesion_id b) Application_OnStart
c) Application_OnClick d) Sesseion_OnDeactivate
- 19) _____ is term used about text data that will be parsed by the XML parser.
a) CDATA b) PCCDATA
c) CPDATA d) PCDATA
- 20) All user of the same application share ONE Session object.
a) False b) True c) Can't say d) None

SECTION – I

- 2. Write short answer on **(any 4)** : **(5×4=20)**
 - 1) <div> and tag.
 - 2) Web Publishing.
 - 3) Ordered and unordered list.
 - 4) Margin Properties of CSS.
 - 5) Event Handling in Javascript.
 - 3. A) Write HTML code to demonstrate employee registration page with proper validations. **10**
 - B) What is CSS ? Explain inline, internal and external CSS with example. **10**
- OR
- B) Explain controls and looping structures in Java script with example. **10**



SECTION – II

4. Write short note on **(any 4)** : **(5×4=20)**
- 1) DOM using XML.
 - 2) Error handling in ASP.
 - 3) Loops in VB script.
 - 4) Syntax and elements of XML.
 - 5) XML XSLT.
5. A) What is VB script ? Explain Len, Trim, Replace and StrComp functions with example. **10**
- B) Explain Request and Response objects of ASP with example. **10**
- OR
- B) What is XML ? Explain DTD and Schema with example. **10**
-



Seat No.	
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**T.Y.M.C.A. (Part – I) (Under faculty of Engineering) (Old) Examination, 2016
INTERNET TECHNOLOGY**

Day and Date : Friday, 29-4-2016
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instructions : 1) *To the point answer carries weight-age.*
2) *Q. 3 a) and Q. 5 a) are compulsory.*

1. Select the correct alternative : 20
- 1) A _____ interface used to do session handling in Servlet.
 - a) Http Session
 - b) Cookie
 - c) Service
 - d) Session
 - 2) The servlet container calls the _____ method either during load time or at the first request.
 - a) destroy()
 - b) init()
 - c) doGet()
 - d) doPost()
 - 3) SET stands for
 - a) Secure Electrical Transaction
 - b) Secure Electronic Transaction
 - c) Secure Electronic Transcend
 - d) Secure Electrical Transcend
 - 4) _____ technique from the payment method consist of Deposit and Clear as one of the type.
 - a) Credit Card
 - b) E-cheque
 - c) E-cash
 - d) Smart card
 - 5) _____ is a card which has microprocessor chip built on it.
 - a) Debit
 - b) Smart
 - c) ATM
 - d) None of these
 - 6) RSA algorithm technique belongs to _____ key encryption.
 - a) Private
 - b) Public
 - c) Hybrid
 - d) None of these



- 7) Pick odd man out.
- a) destroy()
 - b) servletsession()
 - c) init()
 - d) service()
- 8) _____ is a reliable protocol.
- a) TCP
 - b) UDP
 - c) Both a) and b)
 - d) None of these
- 9) In B2B e-commerce B and B stands for _____ and _____ respectively.
- a) Busy and Business
 - b) Business and Business
 - c) Business and Busy
 - d) None of these
- 10) _____ is the protocol which consist of IPSec in built in it and also supports multicasting.
- a) IPV5
 - b) IPV6
 - c) IPV4
 - d) IPV3
- 11) If a boolean variable \$ alive = 5;
- a) \$ alive is false
 - b) \$ alive is true
 - c) \$ alive is overflow
 - d) the statement is not valid
- 12) What will be the output of the following code ?
- ```
<?php $Rent = 250;
function Expenses($Other)
{
$Rent = 250 + $Other;
return $Rent;
}
Expenses(50);
echo $Rent; ?>
```
- a) 300
  - b) 250
  - c) 200
  - d) Program will not compile
- 13) Which of the following is used to maintain the value of a variable over different pages ?
- a) static
  - b) session\_register
  - c) global
  - d) none of the above



- 14) What will be the output of the following code ?  
echo 30\*5. 7;  
a) 150.7  
b) 1507  
c) You cant concatenate integers as error message  
d) None of these
- 15) JSP abbreviation stands for  
a) Java Session Page  
b) Java Server Page  
c) Java server Protocol  
d) Java Session Protocol
- 16) The \_\_\_\_\_ attribute of page directive is used for the purpose of session handling in JSP.  
a) session\_request  
b) session  
c) session\_response  
d) session\_invalidate
- 17) In your PHP application you need to open a file. You want the application to issue a warning and continue execution, in case the file is not found. The ideal function to be used is  
a) require()  
b) include()  
c) nowarn()  
d) getFile(false)
- 18) mysql\_connect( ) does not take following parameter.  
a) database host  
b) user Id  
c) password  
d) database name
- 19) The sendRedirect() belongs to \_\_\_\_\_ object in JSP.  
a) request  
b) response  
c) exception  
d) session
- 20) .jsp is extension for a \_\_\_\_\_ page.  
a) .servlet  
b) .jsp  
c) .php  
d) .javascript

2. Write notes on (**any four**) :

- a) Servlet Life Cycle
- b) Overview of Internet
- c) Cookies
- d) Web System Architecture
- e) Encryption



3. a) Assume a suitable structure of employee and write a program in servlet to insert a new record in employee table. **10**
- b) Define e-commerce. Explain any four advantages and disadvantages of e-commerce. **10**
- OR
- b) Explain any five differences between Generic Servlet and Http Servlet with example. **10**
4. Write notes on (**any four**) : **20**
- a) Datatypes in PHP
- b) Page and Include Directive in JSP
- c) Session handling in PHP
- d) Array in PHP
- e) Object Oriented PHP.
5. a) Assume a suitable structure of employee and write a program in JSP to insert a new record in employee table. **10**
- b) List and explain any three JSP Objects with example. **10**
- OR
- b) Define string ? Explain any nine string functions in PHP with example. **10**
-





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**T.Y. M.C.A. (Under Faculty of Engg.) (Part – I) Examination, 2016  
NETWORK ADMINISTRATION (Old)**

Day and Date : Monday, 2-5-2016

Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

1. MCQ/Objective Type Question Paper : **20**

SECTION – I

- 1) The lower \_\_\_\_\_ layer controls the access and transmittal of data to the physical layer in an algorithmic manner.  
a) MAC                      b) Session                      c) Network                      d) Data link
- 2) The OBJECT-IDENTITY macros is used to define information about an \_\_\_\_\_ assignment.  
a) TYPE NOTATION                      b) OBJECT IDENTITY  
c) OBJECT ENTITY                      d) OBJECT IDENTIFIER
- 3) The organizational model describes the components of network management and their  
a) Relationships      b) Maintenance      c) Behavior      d) None of these
- 4) The \_\_\_\_\_ model specifies the information base to describe managed objects and the relationship between managed objects.  
a) Organizational      b) Communication      c) Information      d) SNMP
- 5) The functional model components of OSI model addresses \_\_\_\_\_ oriented applications.  
a) User                      b) Client                      c) Receiver                      d) Server
- 6) A pure SNMP management system consists of SNMP agents and  
a) Delegates                      b) Workers                      c) Employees                      d) Managers
- 7) In ASN.1 symbol : : =  
a) Defined as or assignment                      b) Alternatives or options  
c) Definition of object                      d) Range



- 8) Modern telecommunication networks mostly carry \_\_\_\_\_ data.  
a) Analog                      b) Signal                      c) Digital                      d) All of these
- 9) IRTF stands for  
a) Internet Research Task Force  
b) International Research Task Force  
c) Internet Re-engineering Task Force  
d) International Re-engineering Task Force
- 10) The internet uses connectionless UDP/IP protocol for \_\_\_\_\_ messages.  
a) Receiving                      b) Transporting                      c) Embedding                      d) None of these

## SECTION – II

- 11) \_\_\_\_\_ is not a type of trap generated by SNMP agent process.  
a) Generic trap                      b) Specific trap                      c) Time stamp                      d) Data stamp
- 12) The \_\_\_\_\_ message is generated by manager process in SNMP.  
a) Get request                      b) Get-Next request                      c) Set request                      d) All of these
- 13) PDU stands for  
a) Private Data Unit                      b) Protocol Data Unit  
c) Profile Data Unit                      d) None of these
- 14) The EntryStatus data type in RMON1 has \_\_\_\_\_ states.  
a) 3                      b) 4                      c) 2                      d) 8
- 15) The enumeration value of Invalid state in Entry status data type is  
a) 1                      b) 2                      c) 3                      d) 4
- 16) The 'etherHistoryTable' belongs to \_\_\_\_\_ group.  
a) Filter                      b) Host                      c) History                      d) None of these
- 17) The filter group is used to filter \_\_\_\_\_ to be captured based on logical expressions.  
a) Data                      b) Packets                      c) Process                      d) All of these
- 18) In ATM RMON, ATM stands for  
a) Asynchronous Time Management  
b) Asynchronous Transfer Method  
c) Asynchronous Transfer Mode  
d) Asynchronous Time Mode



- 19) \_\_\_\_\_ tool captures SNMP packets going across the segment and stores them for later analysis.  
a) SNMP sniff      b) SNMP set      c) SNMP walk      d) SNMP trap
- 20) \_\_\_\_\_ is a graphical tool to capture, to inspect and to save ethernet packets.  
a) Ethereal      b) Wireshark      c) Both (a) and (b)      d) None of these

SECTION – I

2. Write short note on (**any 4**) : **20**
- a) Macros and functional model.
  - b) SNMP model.
  - c) Communication Architecture.
  - d) Network management standards.
  - e) SNMP organization model.
3. Answer the following : **20**
- a) Explain network management information model in detail.
  - b) Explain distributed computing environment in detail.
- OR
- b) Explain SNMPv1 managed network in detail.

SECTION – II

4. Write short note on (**any 4**) : **(4×5=20)**
- a) Major changes in SNMPv2.
  - b) SNMP Functional model.
  - c) Remote Monitoring (RMON).
  - d) Network status monitoring tools.
  - e) Network traffic monitoring tools.
5. a) Explain SNMP GetRequest and GetNextRequest Operations with diagram. **10**
- b) Draw and explain RMON 1 groups and functions in detail. **10**
- OR
- c) Discuss different statistics measurement systems in detail. **10**
-



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**T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) (Old) Examination, 2016  
DISTRIBUTED DATABASES (Elective – II)**

Day and Date : Friday, 6-5-2016  
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

1. MCQ :

20

- 1) Programs are written having a “conceptual” view of the data, is called as
  - a) Conceptual schema
  - b) Schema
  - c) Both
  - d) None of these
- 2)  $U(R)BU(S) \rightarrow U(R B S)$ , is called
  - a) Factorization
  - b) Distributivity
  - c) Associativity
  - d) Idempotence
- 3) Predicates is \_\_\_\_\_ if and only if any two tuples belonging to the same fragment are referenced with the same probability by any application.
  - a) Minimal
  - b) Complete
  - c) Incomplete
  - d) None of these
- 4) In optimization graph edges represents
  - a) Reduced fragments
  - b) Joins
  - c) Unions
  - d) Cartesian
- 5) A \_\_\_\_\_ is an atomic unit of execution.
  - a) Program
  - b) Procedure
  - c) Transaction
  - d) Both b and c
- 6) In optimization graph hypernodes represents
  - a) Reduced fragments
  - b) Joins
  - c) Unions
  - d) Cartesian
- 7) Primary and derived fragmentations are two types of \_\_\_\_\_ fragmentation.
  - a) Horizontal
  - b) Vertical
  - c) Simple
  - d) None of these
- 8) \_\_\_\_\_ is used to represent query practically.
  - a) Operator tree
  - b) Expression tree
  - c) Parse tree
  - d) generation tree
- 9) Bottom up design of a distributed database requires
  - a) Selection
  - b) Translation
  - c) Integration
  - d) All of these
- 10) Objectives of the design of data distribution
  - a) Workload distribution
  - b) Availability
  - c) Reliability
  - d) All of these



- 11) NLDD stands for  
a) Non-Local Deadlock Detector      b) Non-Link Deadlock Detector  
c) Nested Local Deadlock Detector    d) None of these
- 12) There exists a \_\_\_\_\_ which starts the whole transactions, so that when the user request the execution of an application, the root agent is started.  
a) Root agent      b) Being transaction  
c) Control message      d) Availability
- 13) \_\_\_\_\_ are unique name given to each object in the system.  
a) Separator      b) Worldwide name  
c) Systemwide name      d) Object name
- 14) Atomicity requires that if a transaction is interrupted by a failure, its \_\_\_\_\_ results are undone.  
a) Full      b) Mixed      c) Partial      d) All of these
- 15) A transaction manager is which of the following ?  
a) Maintains a log of transactions  
b) Maintains before and after database images  
c) Maintains appropriate concurrency control  
d) All of the above
- 16) The computational structure of distributed database transactions is organized in \_\_\_\_\_ structure.  
a) Centralized      b) Hierarchical      c) Both a and b      d) Linear
- 17) A buffer pool is do  
a) Store old page till the progress      b) Store new page  
c) Store unused pages      d) Store not anything
- 18) The transaction's durability is called \_\_\_\_\_  
a) Concurrency control      b) Database recovery  
c) Isolation      d) Serialibility
- 19) The \_\_\_\_\_ controllers method aims at exploiting for reducing communication costs.  
a) Hierarchical      b) Global      c) Centralized      d) Local
- 20) Location transparency allows for which of the following ?  
a) Users to treat the data as if it is at one location  
b) Programmers to treat the data as if it is at one location  
c) Managers to treat the data as if it is at one location  
d) All of the above



SECTION – I

2. Write short notes on **(any 4)** : **(5×4=20)**
- A) Operator tree of a query.
  - B) Horizontal fragmentation.
  - C) Uses of distributed databases.
  - D) General criteria for fragment allocation.
  - E) Problems in query optimization.
3. A) Explain framework for distributed database design in detail. **10**
- B) Explain Join queries in detail. **10**

OR

- B) Explain architecture for distributed databases in detail. **10**

SECTION – II

4. Write short note on **(any 4)** : **20**
- A) Goals of transaction
  - B) Deadlock
  - C) Authorization and protection
  - D) Serializability in centralized database
  - E) Distributed transaction.
5. A) Explain the concurrency control for Distributed Transactions. **10**
- B) What are the different fields of log record ? Explain each in brief. **10**

OR

- B) Explain Process model, Server model, Sessions and Datagrams. **10**
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**Direct Second Year Students M.C.A. – Bridge Course (Under Faculty of Engg.) Examination, 2016**  
**DISCRETE MATHEMATICAL STRUCTURE**  
**(Paper – I)**

Day and Date : Monday, 9-5-2016  
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

**Instructions:** 1) Figures to the **right** indicate **full** marks.  
2) **All are compulsory.**

1. Choose the correct alternatives : **20**
- 1) The difference of  $\{1, 2, 3\}$  and  $\{1, 2, 5\}$  is the set  
a)  $\{1\}$                       b)  $\{5\}$                       c)  $\{3\}$                       d)  $\{2\}$
  - 2) The complement of the set A is  
a)  $A - B$                       b)  $U - A$                       c)  $A - U$                       d)  $B - A$
  - 3) The bit strings for the sets are 1111100000 and 1010101010. The union of these sets is  
a) 1010100000                      b) 1010101101  
c) 1111111100                      d) 1111101010
  - 4) The set difference of the set A with null set is  
a) A                      b) Null                      c) U                      d) B
  - 5) The Boolean function  $[\sim(\sim p \wedge q) \wedge \sim(\sim p \wedge \sim q)] \vee (p \wedge r)$  is equal to the Boolean function  
a) q                      b)  $p \wedge r$                       c)  $p \vee q$                       d) p
  - 6) The truth table for  $(p \vee q) \vee (p \wedge r)$  is the same as the truth table for  
a)  $(p \vee q) \wedge (p \vee r)$                       b)  $(p \vee q) \wedge r$   
c)  $(p \vee q) \wedge (p \wedge r)$                       d)  $p \vee q$
  - 7) Which of the following two sets are equal ?  
a)  $A = \{1, 2\}$  and  $B = \{1\}$   
b)  $A = \{1, 2\}$  and  $B = \{1, 2, 3\}$   
c)  $A = \{1, 2, 3\}$  and  $B = \{2, 1, 3\}$   
d)  $A = \{1, 2, 4\}$  and  $B = \{1, 2, 3\}$



- 8) The set of positive integers is  
a) Infinite                      b) Finite                      c) Subset                      d) Empty
- 9) What is the cardinality of the power set of the set  $\{0, 1, 2\}$  ?  
a) 8                                  b) 6                                  c) 7                                  d) 9
- 10) A function is said to be \_\_\_\_\_, if and only if  $f(a) = f(b)$  implies that  $a = b$  for all  $a$  and  $b$  in the domain of  $f$ .  
a) One-to-many                      b) One-to-one  
c) Many-to-many                      d) Many-to-one
- 11) The value of  $[1/2.[5/2]]$  is  
a) 1                                  b) 2                                  c) 3                                  d) 0.5
- 12) The union of the sets  $\{1, 2, 5\}$  and  $\{1, 2, 6\}$  is the set  
a)  $\{1, 2, 6, 1\}$                       b)  $\{1, 2, 5, 6\}$   
c)  $\{1, 2, 1, 2\}$                       d)  $\{1, 5, 6, 3\}$
- 13) The intersection of the sets  $\{1, 2, 5\}$  and  $\{1, 2, 6\}$  is the set  
a)  $\{1, 2\}$                       b)  $\{5, 6\}$                       c)  $\{2, 5\}$                       d)  $\{1, 6\}$
- 14) Two sets are called disjoint if there \_\_\_\_\_ is the empty set.  
a) Union                                  b) Difference  
c) Intersection                      d) Complement
- 15) Which of the following two sets are disjoint ?  
a)  $\{1, 3, 5\}$  and  $\{1, 3, 6\}$   
b)  $\{1, 2, 3\}$  and  $\{1, 2, 3\}$   
c)  $\{1, 3, 5\}$  and  $\{2, 3, 4\}$   
d)  $\{1, 3, 5\}$  and  $\{2, 4, 6\}$
- 16) A \_\_\_\_\_ is an ordered collection of objects.  
a) Relation                                  b) Function  
c) Set                                          d) Proposition
- 17) The set  $O$  of odd positive integers less than 10 can be expressed by  
a)  $\{1, 2, 3\}$                       b)  $\{1, 3, 5, 7, 9\}$   
c)  $\{1, 2, 5, 9\}$                       d)  $\{1, 5, 7, 9, 11\}$
- 18) Power set of empty set has exactly \_\_\_\_\_ subset.  
a) One                                          b) Two  
c) Zero                                          d) Three





19) What is the Cartesian product of  $A = \{1, 2\}$  and  $B = \{a, b\}$  ?

- a)  $\{(1, a), (1, b), (2, a), (b, b)\}$
- b)  $\{(1, 1), (2, 2), (a, a), (b, b)\}$
- c)  $\{(1, a), (2, a), (1, b), (2, b)\}$
- d)  $\{(1, 1), (a, a), (2, a), (1, b)\}$

20) What is the cardinality of the set of odd positive integers less than 10 ?

- a) 10
- b) 5
- c) 3
- d) 20

2. Write short note on **any four** :

**(4×5=20)**

- a) Explain minimum spanning tree with example.
- b) Explain operation on set with example.
- c) Partition of set with example.
- d) Adjacency representation of graph.
- e) Distributed Lattice and Bounded Lattice.

3. Explain Power set and Cartesian Product with example.

**10**

4. Explain Transpose of matrix.

**10**

5. Explain tree traversal technique.

**10**

6. Explain Hamiltonian with example.

**10**

7. Explain Bipartite Graph with example.

**10**

8. Explain Eulerian graph with example.

**10**

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**Direct Second Year Students M.C.A. – Bridge Course (Engg.)  
Examination, 2016  
Paper – II : OPERATING SYSTEM**

Day and Date : Tuesday, 10-5-2016  
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

**Instructions :** 1) *Figures to the right indicate marks.*  
2) **All questions are compulsory.**

1. Multiple choice questions :

20

- 1) A time shared operating system allows many users to share the computer
  - a) Serially
  - b) Synchronously
  - c) Simultaneously
  - d) None of the above
- 2) Multiprocessor systems are known as \_\_\_\_\_ systems.
  - a) Parallel
  - b) Tightly coupled
  - c) Both a) and b)
  - d) None of the above
- 3) Access to the shared resource \_\_\_\_\_ computation speed.
  - a) Increases
  - b) Decreases
  - c) Optimize
  - d) None of the above
- 4) A wide area network links
  - a) Buildings
  - b) Cities
  - c) Countries
  - d) All of the above
- 5) An operating system provide an environment for the \_\_\_\_\_ of programs.
  - a) Compilation
  - b) Execution
  - c) Both a) and b)
  - d) None of the above
- 6) The Apple Mac OS X operating system uses a \_\_\_\_\_ structure.
  - a) Layered approach
  - b) Microkernel's
  - c) Modules
  - d) Hybrid
- 7) Dispatcher is a module that gives control of the CPU to the process selected by the \_\_\_\_\_ scheduler.
  - a) Short-term
  - b) Priority
  - c) Round robin
  - d) None of the above
- 8) The important feature of the system is that, when one process is executing in a critical section \_\_\_\_\_ is to be allowed to execute in its critical section.
  - a) One other process
  - b) Two other processes
  - c) No other processes
  - d) None of the above
- 9) A procedure defined within monitor can access those variables declared \_\_\_\_\_ within the monitor and its formal parameters.
  - a) Publically
  - b) Locally
  - c) Both a) and b)
  - d) None of the above





2. Write short note on (**any four**) : **(4×5=20)**
- a) Time sharing operating system.
  - b) CPU scheduling criteria.
  - c) Critical region.
  - d) Paging
  - e) Disk structure.
3. Describe with an example SJF scheduling algorithm. **10**
4. Explain in-detail deadlock system model. **10**
5. What do you mean by contiguous allocation ? Give an advantages and disadvantages. **10**
6. Explain page replacement algorithm with an example. **10**
7. Describe different disk scheduling methods. **10**
8. Explain the terms security program threats and system threats. **10**
-