SLR-ER – 11

Seat No.	

F.Y.M.C.A. (Under Faculty of Engg.) (Part – II) Examination, 2016
OPERATING SYSTEM (Old)

Day & Date : Wednesdat, 30-11-2016 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. Multiple choice questions. : **20**

1) _____ provide an interface to the services made available by an operating system.

a) System calls b) Semaphores c) Communication d) Monitors

2) A _____ is a batch-system concept.

a) control card b) data card c) data control d) none of these

3) To start a new process, the shell executes a _____ system call.

a) exec() b) fork() c) exit() d) write()

4) _____ pipes on windows systems provide a richer communication mechanism than their UNIX counter parts.

a) Ordinary b) Routine c) Labeled d) Named

5) A _____ is memory that is dynamically allocated during process run time.

a) heap b) section c) queue d) secondary

6) A process control block also called as

a) task control block b) task management block

c) process management block d) task process block

7) One measure of work is the number of processes that are completed per time unit, called

a) waiting time b) turnaround time

c) response time d) throughput

P.T.O.

8) Under _____ scheduling, once the CPU has been allocated to a process, the process keeps the CPU until it releases the CPU either by terminating or by switching to the waiting state.

a) CPU b) Preemptive c) Nonpreemptive d) Process

9) The section of code implementing request permission to enter its critical section is the

a) entry section b) exit section c) in-section d) out-section

10) _____ are prevented by requiring that critical regions be protected by locks.

a) Mutual exclusion b) Race conditions

c) Semaphores d) None of these

11) A system is in the safe state if

a) the system can allocate resources to each process in some order and still avoid a deadlock

b) there exists a safe sequence

c) both (a) and (b)

d) none of the above

12) _____ is the deadlock avoidance algorithm.

a) Banker's algorithm b) Round-robin algorithm

c) Tasker algorithm d) Bitmap algorithm

13) One way to ensure that the circular wait condition never holds is to

a) impose a total ordering of all resource types and to determine whether one precedes another in the ordering

b) to never let a process acquire resources that are held by other processes

c) to let a process wait for only one resource at a time

d) all of these

14) 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

15) _____ is the address generated by CPU.

a) Physical address b) Absolute address

c) Logical address d) None of the above

16) Run time mapping from virtual to physical address is done by

a) Memory management unit b) CPU

c) PCI d) None of the mentioned

17) To create a file the necessary steps are

a) allocate the space in file system b) make an entry for new file in directory

c) both (a) and (b) d) none of these

18) In the two level directory structure

a) each user has his/her own user file directory

b) the system has its own master file directory

c) both (a) and (b)

d) none of these

19) _____ specifies user names and the types of access allowed for each user.

a) ACL b) BPL c) TCL d) None of these

20) The process of dividing a disk into sectors that the disk controller can read and write is

a) low-level formatting b) dividing

c) sectoring d) none of these

SECTION – I

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

1) Mass storage management.

2) Operating system services.

3) Threads.

4) First-come, First-served scheduling.

5) Monitors.

3. A) Explain process control block in detail. **10**

   B) Explain critical-section problem in detail. **10**

   OR

   B) How system calls are used ? Explain with example. **10**

SECTION – II

4. Write short note (**any 4**) : **20**

   1) Necessary conditions for deadlock.
   2) Swapping.
   3) Single-level directory.
   4) File direct access method.
   5) FCFS disk scheduling.

5. A) Explain deadlock prevention in detail. **10**

   B) Explain paging hardware using proper diagram. **10**

   OR

   B) Write a note on disk management. **10**

———————

SLR-ER – 12

Seat No.	

F.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
OBJECT ORIENTED PROGRAMMING USING C++ (Old)

Day and Date : Friday, 2-12-2016 Total Marks : 100

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

Instructions : *1) Figures to the **right** indicates marks.*

*2) Q. **3 A**. and Q. **5 A**. are **compulsory**.*

*3) Write a program if **necessary**.*

1. Multiple Choice Questions. **20**

1) OOP technique allows us to split big problem into a number of entities called
   a) data b) function
   c) object d) none of the above

2) The wrapping up of data and functions into a single unit is known as
   a) data hiding b) encapsulation
   c) inheritance d) none of the above

3) You can define classes that contain data members that are themselves instance of other classes is called
   a) containment b) nesting
   c) both a and b d) none of the above

4) C++ offers the size of to return the byte size of a data type or a variable is
   a) keyword b) an operator
   c) an identifier d) none of the above

5) A floating point value may be _____ if assigned to an integer identifier.
   a) rounded b) truncated
   c) both a and b d) none of the above

6) C++ allows, to use the same function name to declare and define different versions of a functions is called function
   a) overloading b) overriding
   c) prototyping d) none of the above

7) Preventing access from outside the class is _____ hiding.
   a) data b) function
   c) information d) none of the above

8) A member function of a class can be initialized by a special function is called
   a) friend b) constructor c) destructor d) none of the above

9) Class declaration may contain multiple _____ sections.
   a) private b) protected c) public d) all of the above

10) The structures may contain public, protected and private members and also have _____ members.
   a) data and function b) constructor
   c) destructor d) all of the above

11) _____ is the process of creating new classes from existing classes.
   a) inheritance b) abstraction
   c) both a and b d) none of the above

12) Using _____ inheritance, we create a descendent class that 'has the' attributes and operations of its parent class.
   a) hierarchical b) multiple
   c) multilevel d) none of the above

13) When a base class is privately inherited by derived class, "public members" of base class become " _____ members" of the derived class.
   a) private b) protected
   c) public d) none of these

14) Under the situation where the function name and prototype is the same in both the base class and derived class, this process is known as
   a) runtime polymorphism b) late binding
   c) both a and b d) none of these

15) A virtual function can not be
   a) static member b) friend function
   c) member function d) none of these

16) C++ offers the keyword _____ as a self reference pointer to the host class.
   a) static b) virtual c) this d) none of these

17) The C++ stream library contains the class _____ which declares identifiers that set the file stream mode.

a) ios b) iostream

c) istream d) ostream

18) The member function _____ which returns a nonzero value if there is no error in a stream operation.

a) good() b) fail()

c) eof() d) none of these

19) Throwing an exception occurs in a _____ block, which causes the compiler to pay special attention to generating code for handling exception.

a) try b) catch

c) both a and b d) none of these

20) C++ allows to _____ an exception after partially handling it or after determining that the exception handler cannot deal with is at all.

a) throw b) rethrow

c) both a and b d) none of these

SECTION – I

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

a) Characteristics of object oriented languages.

b) Memory management operators.

c) Function overloading.

d) Class and access specifiers.

e) Parameterized constructor.

3. A) What do you mean by static data members, static member functions ? Write program to explain their role. **10**

B) Explain various manipulators with their use in C++ programming. **10**

OR

B) Write a program to explain dynamic initialization of objects. **10**

SECTION – II

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

   a) Overloading Binary Operators

   b) Concept of inheritance

   c) Pointers to objects

   d) The ios class

   e) Function templates.

5. A) What do you mean by virtual base class ? Explain use of virtual base class with an example. **10**

   B) What is an input and output stream ? Write a program to create a copy of text file. **10**

   OR

   B) Explain with program example try and catch blocks. **10**

SLR-ER – 13

Seat No.	

F.Y.M.C.A. (Part – II) (Faculty of Engg.) (Old) Examination, 2016
MICROPROCESSOR

Day and Date : Monday, 5-12-2016 Total Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

1. Multiple choice questions : **20**

1) Which interrupt has highest priority ?
   a) TRAP b) INTR c) RST 7.5 d) RST 6.5

2) Which of the following units are used in 8085 ?
   a) Register b) ALU
   c) Control d) All of the above

3) Maximum memory which can be connected with 8085 ?
   a) 32 KB b) 1 KB c) 10 KB d) 64 KB

4) Which of the following is not the addressing mode in 8085 ?
   a) Register b) Direct
   c) Indirect d) Implied

5) Which of the following is not logical instruction in 8085 ?
   a) RLC b) DAA c) STC d) CMC

6) Which of the following is not an example of 8085 instruction category ?
   a) Data transfer b) Arithmetic and logic
   c) Branching d) Cache memory transfer

7) Which of the following instruction is used to save accumulator contents on to the stack ?
   a) PSH PSW b) PUSH A
   c) POP A d) None of the above

P.T.O.

8) What is the second machine cycle in ADD M instruction ?
   a) Memory read
   b) Memory write
   c) Idle machine
   d) No second machine cycle

9) How many times program counter is accessed in STA 2500H ?
   a) 1 b) 2 c) 3 d) 4

10) The INTA cycle consists of _____
   a) 3T-states
   b) 4T-states
   c) 5T-states
   d) 6T-states

11) TRAP can be considered as _____
   a) RST3.5
   b) RST4.5
   c) RST4
   d) RST5

12) RIM is used to check whether _____
   a) The write operation is done or not
   b) The interrupt is masked or not
   c) Both a) and b)
   d) None of the above

13) Vectored location for RST3 is
   a) 0020H
   b) 0024H
   c) 0018H
   d) None of the above

14) RAM may be
   a) Static RAM
   b) Dynamic RAM
   c) Both a) and b)
   d) None of the above

15) Permanent data and instructions storing memory is _____
   a) RAM chip
   b) ROM chip
   c) DRAM chip
   d) None of the above

16) Choose the correct statement for I/O mapped I/O mode
   a) Memory space available is greater
   b) IN and OUT are the only data transfer instruction available
   c) Memory space available is lesser
   d) I/O mapped I/O space greater than memory mapped I/O

17) The disadvantage of memory mapped I/O over I/O mapped I/O is
   a) Faster
   b) Many instructions supporting memory mapped I/O
   c) Require a bigger address decoder
   d) None of the above

18) What is the size of I/O ports in 8255 ?
   a) 8 bits b) 16 bits c) 4 bits d) 1 bit

19) Group A signals of 8255 consists of
   a) Port A and Port Cupper
   b) Port A and Port B
   c) Port B and Port Cupper
   d) Port B and Port Clower

20) Which port is associated with mode 2 of 8255 ?
   a) Port A b) Port B
   c) Port C d) None of the above

SECTION – I

2. Write short note on (**any four**) : **(4×5=20)**
   a) Pin out diagram
   b) Data lines
   c) Data transfer instructions
   d) Call and Ret subroutine related instructions
   e) I/O read and I/O writes.

3. A) Explain in brief internal architecture of 8085 microprocessor. **10**
   B) What are the different addressing modes of 8065 ? **10**

OR

   B) Describe Machine cycles of Opcode Fetch and Operand Fetch. **10**

SECTION – II

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

   a) Hardware interrupts

   b) Interrupt acknowledge Machine cycle

   c) BSR feature of 8255 interface controller

   d) RAM and ROM Memory

   e) Synchronous and asynchronous serial communication.

5. A) Explain programmable interval Timer 8253 with block diagram. **10**

   B) What do you mean by I/O mapped I/O and Memory Mapped I/O ? **10**

   OR

   B) Explain in detail vectored interrupt and non-vectored interrupt. **10**

SLR-ER – 15

Seat No.	

F.Y.M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
SOFTWARE ENGINEERING (Old)

Day and Date : Friday, 9-12-2016 Total Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

1. MCQ : **20**

1) The prototyping model of software development is
   a) A reasonable approach when requirements are well defined
   b) A useful approach when a customer cannot define requirements clearly
   c) The best approach to use for projects with large development teams
   d) A risky model that rarely produces a meaningful product

2) The first step in Software Development Life Cycle (SDLC) is
   a) Preliminary investigation and analysis
   b) System design
   c) System testing
   d) Coding

3) Which of the following is not included in the Software Requirements Specification (SRS) Document ?
   a) Functional requirements b) Non-functional requirement
   c) Goals of implementation d) User manual

4) A directed arc or line in DFD represents
   a) Data store b) Data process
   c) Data flow d) None of these

5) _____ is the process of determining whether the output of one phase of software conforms to that of its previous phase.
   a) Validation b) Verification
   c) Both a) and b) d) None of the above

6) Analysis models depict software in which three representations ?
   a) Architecture, interface, component
   b) Cost, risk, schedule
   c) Information, function, behavior
   d) None of the above

P.T.O.

7) The result of the requirements engineering elaboration task is an analysis model that defines which of the following problem domain(s) ?
   a) Information
   b) Functional
   c) Behavioral
   d) All of the above

8) The system specification describes the
   a) Function, performance and constraints of a computer-based system
   b) Implementation of each allocated system
   c) Element software architecture
   d) Time required for system simulation

9) Which of the following is not an objective for building an analysis model ?
   a) Define set of software requirements that can be validated
   b) Describe customer requirements
   c) Develop an abbreviated solution for the problem
   d) Establish basis for software design

10) The data dictionary contains descriptions of each software
   a) Control item
   b) Data object
   c) Diagram
   d) Both a) and b)

11) The data flow 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) Both a) and c)

12) Top-down integration testing has as it's major advantage(s) that
   a) Low level modules never need testing
   b) Major decision points are tested early
   c) No drivers need to be written
   d) Both b) and c)

13) Acceptance tests are normally conducted by the
   a) Developer
   b) End users
   c) Test team
   d) Systems engineers

14) Which of the following is not a diagram studied in Requirement Analysis ?
   a) Use Cases
   b) Entity Relationship Diagram
   c) State Transition Diagram
   d) Activity Diagram

15) What is the final outcome of the requirements analysis and specifications phase ?
   a) Drawing the data flow diagram
   b) The SRS document
   c) Coding the project
   d) The user manual

16) The testing technique that requires devising test cases to exercise the internal logic of a software module is called
   a) Behavioral testing
   b) Black-box testing
   c) Grey-box testing
   d) White-box testing

17) Fault-based testing is best reserved for
   a) Conventional software testing
   b) Operations and classes that are critical or suspect
   c) Use-case validation
   d) White-box testing of operator algorithms

18) Which of these techniques is not useful for partition testing at the class level ?
   a) Attribute-based partitioning
   b) Category-based partitioning
   c) Equivalence class partitioning
   d) State-based partitioning

19) The first step in project planning is to
   a) Determine the budget
   b) Select a team organizational model
   c) Determine the project constraints
   d) Establish the objectives and scope

20) Which of the following activities is not part of the software re engineering process model ?
   a) Forward engineering
   b) Inventory analysis
   c) Prototyping
   d) Reverse engineering

SECTION – I

2. Solve **any four** : **(5×4=20)**
   1) Prototyping.
   2) Skills required in system analyst.
   3) Decision table.
   4) Entity relationship diagram.
   5) Architectural design.

3. A) What are the phases of spiral model and also list its benefits ? **10**

   B) Draw DFD for college admission system. **10**

   OR

   B) Explain system analysis and requirement analysis in detail. **10**

SECTION – II

4. Solve **any four** : **(5×4=20)**
   1) Integration testing.
   2) Need for SQA.
   3) Reverse engineering.
   4) Basis path testing.
   5) Design of program specification.

5. A) Explain user interface design in detail. **10**

   B) What is software maintenance ? Explain types of maintenance. **10**

   OR

   B) What is software testing ? Explain black box testing with an example. **10**

SLR-ER – 16

Seat No.	

SY M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
DATA STRUCTURE

Day and Date : Tuesday, 29-11-2016 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

1. Multiple choice questions. **(20×1=20)**

1) Stacks are used in
   a) Compilers in passing an expression by recursion
   b) In memory management in operating system etc.
   c) a) and b) both
   d) None of the above
2) Queues are important in
   a) Simulation model b) data model c) Trees d) Electric circuits
3) In _____ 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
4) In _____ we use divide and conquer concept.
   a) Linear search b) Binary search c) Radix sort d) None of these
5) Queue performs _____ operation.
   a) FIFO b) FILO c) LIFO d) None of these
6) The simplest form of an array is a non-dimensional or
   a) Scalar array b) Vector array c) Both a) and b) d) None of these
7) In _____ start at the beginning of the list and check every element in the list.
   a) Linear Search b) Binary Search c) Hash Search d) Binary Tree Search
8) Which is/are the application (s) of stack ?
   a) Function calls
   b) Large number Arithmetic
   c) Evaluation of arithmetic expressions
   d) All of the above

9) The term 'node' is used to designate
   a) A unit of storage space b) Data
   c) An item d) None of the above
10) The Midsquare method give 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
11) Collision in hashing
   a) Can be ignored b) Cannot be ignored
   c) a) or b) d) None of these
12) _____ is very useful in situation when data have to stored and then retrieved in reverse order.
   a) Stack b) Queue
   c) List d) Link list
13) In linked list, we traverse the list in
   a) Only one direction b) Two directions
   c) Sometimes a) or b) d) None of these
14) A set of trees is called a
   a) Graph b) Forest c) Nodes d) Sub trees
15) In adjacency list representation, we store graph as
   a) Cross linked structure b) Linked structure
   c) Both a) and b) d) None
16) 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
17) 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
18) Drawback of chaining method
   a) Maintaining linked list b) Extra storage space for link fields
   c) a) and b) d) Neither a) nor b)
19) The number of binary trees with 3 nodes which when traversed in post order gives the sequence A, B, C is
   a) 3 b) 9 c) 7 d) 5
20) 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

SECTION – I

2. Write short note on following (**any 4**) : **20**
   a) Records.
   b) Example to show conversion of prefix into postfix expression.
   c) Implementation of binary search method.
   d) Priority queue.
   e) Complexity of an algorithm.

3. A) Elaborate difference between insertion sort and selection sort. **10**

   B) Write any program which shows the concept array within function. **10**

   OR

   B) What is queue ? Explain it's type. Write operations on queue in detail. **10**

SECTION – II

4. Write short note on following (**any 4**) : **20**
   a) Threaded binary search.
   b) Path length.
   c) Heap sort.
   d) B-tree.
   e) Indexing.

5. A) Write two binary operations which show linked list implementation. **10**

   B) What is hash collision ? Explain collision resolving techniques in detail. **10**

   OR

   B) What is graph ? Write algorithm of graph traversing method. **10**

———————

SLR-ER – 17

Seat No.	

S.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
SYSTEM PROGRAMMING

Day and Date : Thursday, 1-12-2016 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

1. MCQ : **20**

1) An assembler is a language translator whose source language is _____ language.
   a) Assembly b) C c) Binary d) None of the above

2) _____ rules which govern the formation of valid lexical units.
   a) Lexical b) Syntax c) Semantic d) None of the above

3) _____ are used to provide a program generation facility through macro expansion.
   a) Macro b) Function c) Software tools d) None of the above

4) A static binding is a binding performed _____ the execution of a program.
   a) Before b) After
   c) Both a) and b) d) None of the above

5) _____ are used to reduce the main memory requirement of a program.
   a) Program b) Overlay c) Function d) None of the above

6) The default flow of control during macro expansion is
   a) Random b) Sequential c) Both a) and b) d) None of the above

7) A block is a program unit which can contain data
   a) Declarations b) Functions c) Database d) None of the above

8) Address assigned by _____ is called load time address.
   a) Loader b) Linker c) Compiler d) None of the above

9) In the postfix notation each operator appears immediately after the _____ operand.
   a) First b) Last c) Middle d) None of the above

10) A software tool is a _____ program.
a) System b) Application
c) Linker d) None of the above

11) A macro _____ leads to macro expansion.
a) Call b) Function c) Body d) None of the above

12) The _____ is responsible for interpreting user commands.
a) Dialog manager b) Compiler
c) Interpreter d) None of the above

13) Address assigned by the _____ is called translation time.
a) Compiler b) Interpreter
c) Translator d) None of the above

14) An _____ has the same load origin as some other part of the program.
a) Overlay b) Compiler
c) Program d) None of the above

15) Address assigned by _____ is called linked address.
a) Linker b) Loader
c) Both a) and b) d) None of the above

16) A _____ incorporates an awareness of the structure of a document.
a) Linker b) Loader
c) Structure editor d) None of the above

17) A _____ is the specification of legal values for variable of the type.
a) Data type b) Linker c) Loader d) None of the above

18) A _____ is a unit of specification for program generation through expansion.
a) Macro b) Linker c) Loader d) None of the above

19) The CPU uses _____ to note address of the next instruction.
a) Program counter b) Linker
c) Loader d) None of these

20) The intel 8088 microprocessor support _____ bit arithmetic.
a) 8 b) 16 c) Both a) and b) d) None of the above

SECTION – I

2. Write short note on **(any 4)** : **(4×5=20)**
   1) Assembler directives.
   2) Data structure of assembler
   3) LPDT tools
   4) Binding and binding time
   5) Language processing activities.

3. Answer the following :
   1) Explain macro definition and call and macro expansion in detail. **10**
   2) Explain assembly language statements in detail. **10**

   OR

   2) Explain simple assembly scheme in detail. **10**

SECTION – II

4. Write short note on **(any 4)** : **(4×5=20)**
   1) Debug monitors.
   2) Bootstrap loaders
   3) Lexical analysis
   4) Interpreters
   5) Basic compiler functions.

5. Answer the following :
   1) Explain relocation and program linking in detail. **10**
   2) What is editor ? Explain types of editors in detail. **10**

   OR

   2) Explain MS-DOS linker and Cray MPP linker in detail. **10**

SLR-ER – 18

Seat No.	

S.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
COMPUTER ORGANIZATION AND ARCHITECTURE

Day and Date : Saturday, 3-12-2016 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

1. MCQ **20**

1) Which of the architecture is power efficient ?
   a) CISC b) RISC c) ISA d) IANA

2) The addressing mode, where you directly specify the operand value is
   a) Immediate b) Direct c) Definite d) Relative

3) The access time is composed of
   a) Seek time b) Rotational delay
   c) Latency d) Both a and b

4) The data can be accessed from the disk using
   a) Surface number b) Sector number
   c) Track number d) All of the above

5) _____ are the different type/s of generating control signals.
   a) Micro-programmed b) Hardwired
   c) Micro-instruction d) Both a and b

6) The virtual memory basically stores the next segment of data to be executed on the
   a) Secondary storage b) Disks
   c) RAM d) ROM

7) The binary address issued to data or instructions are called as
   a) Physical address b) Location
   c) Reloadable address d) Logical address

8) The program is divided into operable parts called as
   a) Frames b) Segments c) Pages d) Sheets

9) The number successful accesses to memory stated as a fraction is called as
   a) Hit rate b) Miss rate c) Success rate d) Access rate

10) The bit used to signify that the cache location is updated is
   a) Dirty bit b) Update bit c) Reference bit d) Flag fit

11) The reason for the implementation of the cache memory is
   a) To increase the internal memory of the system
   b) The difference in speeds of operation of the processor and memory
   c) To reduce the memory access and cycle time
   d) All of the above

12) The next level of memory hierarchy after the L2 cache is
   a) Secondary storage b) TLB
   c) Main memory d) Register

13) The fastest data access is provided using
   a) Caches b) DRAM's c) SRAM's d) Registers

14) When process requests for a DMA transfer,
   a) Then the process is temporarily suspended
   b) The process continues execution
   c) Another process gets executed
   d) Both a and c

15) In DMA transfers, the required signals and addresses are given by the
   a) Processor b) Device drivers
   c) DMA controllers d) The program itself

16) How can the processor ignore other interrupts when it is servicing one ?
   a) By turning off the interrupt request line
   b) By disabling the devices from sending the interrupts
   c) By using edge-triggered request lines
   d) All of the above

17) Which interrupt is unmaskable ?

a) RST 5.5 b) RST 7.5 c) TRAP d) Both a and b

18) The return address from the interrupt-service routine is stored on the

a) System heap b) Processor register

c) Processor stack d) Memory

19) The method which offers higher speeds of I/O transfers is

a) Interrupts b) Memory mapping

c) Program-controlled I/O d) DMA

20) In memory-mapped I/O

a) The I/O devices and the memory share the same address space

b) The I/O devices have a separate address space

c) The memory and I/O devices have an associated address space

d) A part of the memory is specifically set aside for the I/O operation

SECTION – I

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

1) Instruction format

2) Subroutines

3) Micro programmed control organization

4) Interrupt cycle

5) Flowchart

3. Answer the following :

A) Explain addressing modes in detail. **10**

B) What is Interrupt ? Explain different types of interrupts. **10**

OR

B) Explain Register stack and Memory stack in detail. **10**

SECTION – II

4. Write short note on **any 4** : **(5×4=20)**
   1) I/O versus memory bus
   2) Asynchronous data transfer
   3) Arithmetic pipeline
   4) Memory hierarchy
   5) Segmented-page mapping.

5. Answer the following :
   A) Explain Pipelining in detail. **10**
   B) What is DMA ? Explain DMA transfer. **10**

   OR

   B) Explain memory address map in detail. **10**

———————

SLR-ER – 19

Seat No.	

SYMCA (Part – I) (Under Faculty of Engg.) Examination, 2016
COMPUTER NETWORKS

Day and Date : Tuesday, 6-12-2016 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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

1) Transport layer protocols deals with
   a) application to application communication
   b) process to process communication
   c) node to node communication
   d) none of the mentioned

2) Which one of the following is a transport layer protocol ?
   a) stream control transmission protocol
   b) internet control message protocol
   c) neighbour discovery protocol
   d) dynamic host configuration protocol

3) The OSI model has _____ layers.
   a) 4 b) 5 c) 6 d) 7

4) Transmission data rate is decided by
   a) network layer b) physical layer
   c) data link layer d) transport layer

5) Header of a frame generally contains
   a) synchronization bytes b) addresses
   c) frame identifier d) all of the mentioned

6) 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

7) 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

8) Which transmission media has the highest transmission speed in a network ?
   a) coaxial cable b) twisted pair cable
   c) optical fiber d) electrical cable

9) HTTP is _____ protocol.
   a) application layer b) transport layer
   c) network layer d) none of the mentioned

P.T.O.

10) In file transfer protocol, data transfer can be done in
   a) stream mode b) block mode
   c) compressed mode d) all of the mentioned

11) In wireless ad-hoc network
   a) access point is not required b) access point is must
   c) nodes are not required d) none of the mentioned

12) Which multiple access technique is used by IEEE 802.11 standard for wireless LAN ?
   a) CDMA b) CSMA/CA c) ALOHA d) None of the mentioned

13) A wireless network interface controller can work in
   a) infrastructure mode b) ad-hoc mode
   c) both a) and b) d) none of the mentioned

14) Multiplexing is used in _____
   a) Packet switching b) Circuit switching
   c) Data switching d) None of the mentioned

15) Which multiplexing technique transmits digital signals ?
   a) FDM b) TDM c) WDM d) None of the mentioned

16) Multiplexing can provide
   a) Efficiency b) Privacy c) Anti jamming d) Both a) and b)

17) In TDM, slots are further divided into
   a) Seconds b) Frames c) Packets d) None of the mentioned

18) Multiplexing technique that shifts each signal to a different carrier frequency
   a) FDM b) TDM c) Either a) or b) d) Both a) and b)

19) ICMP is primarily used for
   a) error and diagnostic functions b) addressing
   c) forwarding d) none of the mentioned

20) 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

SECTION – I

2. Write short note on (**any 4**) : **(4×5=20)**
   1) Routers
   2) The mobile telephone system
   3) Types of Network
   4) Uses of computer network
   5) Network operating system.

3. Answer the following :
   1) Explain guided and wireless transmission in details. **10**
   2) Explain connection oriented and connectionless services in detail. **10**

   OR

   2) Explain error detection and correction codes in detail. **10**

SECTION – II

4. Write short note on (**any 4**) : **(4×5=20)**
   1) Elements of Transport Protocols
   2) SNMP and SMI
   3) Network Layer Design Issues
   4) Congestion Control
   5) UDP.

5. Answer the following :
   1) What is routing ? Explain routing algorithms in detail. **10**
   2) Explain DNS in detail. **10**

   OR

   2) Explain the Internet Transport Protocol in detail. **10**

SLR-ER – 20

Seat No.	

S.Y.M.C.A. Part – I (Under Faculty of Engg.) Examination, 2016
COMPUTER GRAPHICS

Day and Date : Thursday, 8-12-2016 Total Marks :100

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

1. Multiple choice questions : **20**

1) Video devices with reduced volume, weight and power consumption are collectively known as

a) Light weight monitors b) Flat-panel displays

c) CRT d) Portable display

2) Digitizing a picture definition into a set of intensity values is known as

a) Digitization b) Scan conversion

c) Refreshing d) Scanning

3) The slope of a line is important for

a) DDA algorithm only b) Bresenham's algorithm only

c) Both a) and b) d) Neither a) nor b)

4) _____ function is used to change the size of a character without changing the height : width ratio.

a) setTextSize (ts) b) setCharacterHeight (ch)

c) setCharacterSize (cs) d) setTextHeight (th)

5) Which of the following is not a basic transformation ?

a) Rotation b) Scaling

c) Reflection d) None of the above

6) The transformation that produces a parallel mirror image of an object are called

a) Rotation b) Reflection

c) Translation d) Scaling

7) (2, 4) is a point on a circle that has center at the origin. Which of the following points are also on circle ?

a) (2, – 4) b) (– 2, 4)

c) (– 4, – 2) d) All of above

8) The rectangle portion of the interface window that defines where the image will actually appear are called

a) Transformation viewing b) View port

c) Clipping window d) Screen coordinate system

9) The region code of a point within the window is

a) 1111 b) 0000

c) 1000 d) 0001

10) _____ identifies the picture portions that are exterior to the clip window.

a) Interior clipping b) Exterior clipping

c) Extraction d) None of the above

11) To assign meaning to an ensemble of recognized objects is the function of

a) Image interpretation b) Image description

c) Image recognition d) Image representation

12) Digitization of the spatial coordinates (x, y) is called

a) Image sampling b) Amplitude

c) Pixel d) None of these

13) _____ this indicates the spectral purity of the color in the light.

a) Saturation b) Brightness

c) Hue d) None of these

14) _____ mass storage category is for infrequent access.

a) Short-term storage b) Archival storage

c) On-line storage d) None of these

15) The type of Histogram Processing in which pixels are modified based on the intensity distribution of the image is called

a) Intensive b) Local

c) Global d) Random

16) In _____ image we notice that the components of histogram are concentrated on the low side on intensity scale.

a) Bright b) Dark

c) Colourful d) All of the mentioned

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) _____ can be used to brighten the intensities of an image.

a) Contrast transformations b) Logarithmic transformations

c) Gamma transformations d) Stretching transformations

19) Pick out the odd one out.

a) LED b) LCD

c) Gas discharge tube d) Plasma Panel

20) Two consecutive scaling transformation s1 and s2 are

a) Additive b) Multiplicative

c) Subtractive d) None of above

SECTION – I

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

a) Role of computer graphics.

b) Bresenhams line drawing algorithm.

c) Reflection.

d) 2D viewing.

e) Interior and exterior clipping.

3. A) Explain Cohan Sutherland line clipping algorithm. **10**

B) Explain 2D transformation and its matrix representation. **10**

OR

B) Write any one example to show window to viewport coordinate transformation. **10**

SECTION – II

4. Write short note on (**any 4**) : **20**
   a) Parallel projection.
   b) Spatial resolution.
   c) Image negatives.
   d) Order statistics filter.
   e) Fundamental steps in digital image processing.

5. A) What is bit plane searching ? Explain in detail. **10**
   B) Explain 3D transformation in detail. **10**

   OR

   B) How to represent digital image with respect to resolution ? **10**

———————

SLR-ER – 21

Seat No.	

S.Y.M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
RELATIONAL DATABASE MANAGEMENT SYSTEM

Day and Date : Wednesday, 30-11-2016 Total Marks : 100
Time : 3.00 p.m. to 6.00 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 language is used to permit or prohibit access to a table ?
   a) DCL b) DDL
   c) DML d) All of these

2) The relationship between data is defined in the _____
   a) Physical level b) View level
   c) Logical level d) None of the above

3) The security features of the database are set up by the _____
   a) Online Users b) Database Administrator
   c) Naive Users d) Application Programmer

4) SQL stands for _____
   a) Structured Question Language b) Structural Query Language
   c) Structured Query Language d) Systematic Query Language

5) A _____ refers to the complete definition of a database, including descriptions of all fields, tables and relationships.
   a) Schema b) Data repository
   c) Data manipulation language d) None of the above

6) The rule that requires that a foreign key value cannot be entered in one table unless it matches an existing primary key in another table
   a) Referential integrity b) Domain integrity
   c) Entity integrity constraint d) A data validation constraint

7) A (n) _____ is a person, place, thing or event for which data is collected and maintained.
   a) Primary key b) Table
   c) Record d) Entity

8) A _____ relationship has an associative entity with its own characteristics.
   a) 1 : 1 b) M : N
   c) 1 : M d) All of the above

9) The first entity in the relationship is the _____ entity.
   a) Parent b) Child
   c) Mother d) Brother

10) A table design that contains a repeating group is called _____
   a) A repetitive group b) Unfixed
   c) = d) 1NF

11) A (n) _____ record is one that contains a repeating group.
   a) Unnormalized b) 1NF
   c) 2NF d) 3NF

12) A _____ contains records that contain day-to-day business and operational data.
   a) Transaction file b) Work file
   c) Table file d) Master file

13) A _____ refers to a single characteristic or fact about an entity.
   a) Record b) Table
   c) Field d) Primary key

14) You can Place sub-query in
   a) Where clause b) Having clause
   c) From clause d) All of the above

15) Data that the db needs to manage itself is called
   a) User data b) System data
   c) Information data d) All of the above

16) In the 2NF
   a) Attributes may be functionally dependent on non-key attributes
   b) No attribute dependent on a non-key attribute
   c) No attributes dependent on a primary key
   d) None of the above is correct

17) Non key field is a field that is _____
   a) Not a candidate key for the primary key
   b) A candidate key for the primary key
   c) A primary key
   d) None of the above is correct

18) Which of these is an example of an entity ?
   a) Student
   b) A patient's name
   c) An employee's ID
   d) All of the above

19) Typically, a database management system is managed by a person called a _____
   a) System manager
   b) Technology manager
   c) Database manager
   d) Database administrator

20) DVD stands for
   a) Digital Video Disk
   b) Digital Vision Disk
   c) Digital Varying Disk
   d) All of these

SECTION – I

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

   a) Mapping Cardinality

   b) Tuple Relational Calculus

   c) Aggregate functions

   d) Null Value

   e) Stored Procedures.

3. A) What is trigger ? Explain trigger with example. **10**

   B) Explain DDL, DML and DQL with example. **10**

   OR

   B) Explain Authorization in SQL with an example. **10**

SECTION – II

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

   a) Functional Dependencies

   b) Magnetic Disk

   c) Serializibility

   d) Distributed System

   e) Data Dictionary.

5. A) What is ACID ? Explain ACID properties in detail. **10**

   B) Explain B+ tree index file in detail. **10**

   OR

   B) Explain Centralized System with example. **10**

SLR-ER – 22

Seat No.	

S.Y.M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
OPERATIONS RESEARCH

Day and Date : Friday, 2-12-2016 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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

1. Choose the correct alternative : **(20×1=20)**

1) Operations Research cannot give perfect _____ to problems.
   a) Answers b) Solutions
   c) Both a) and b) d) Decisions

2) Operations Research simply helps in improving the _____ of the solution but does not result in a perfect solution.
   a) Quality b) Clarity
   c) Look d) None of the above

3) Operations Research involves _____ attack of complex problems to arrive at the optimum solution.
   a) Scientific b) Systematic
   c) Both a) and b) d) Statistical

4) A solution may be extracted from a model either by
   a) Conducting experiments on it b) Mathematical analysis
   c) Both a) and b) d) Diversified techniques

5) Operations Research uses models to help the management to determine its _____ scientifically.
   a) Policies b) Actions
   c) Both a) and b) d) None of the above

6) Operations Research is a
   a) Science b) Art
   c) Mathematics d) Both a) and b)

7) What have been constructed for Operations Research problems and methods for solving the models that are available in many cases ?
   a) Scientific models b) Algorithms
   c) Mathematical models d) None of the above

8) What aims at optimizing inventory levels ?
   a) Inventory control b) Inventory capacity
   c) Inventory planning d) None of the above

P.T.O.

9) Which theory concerns making sound decisions under conditions of certainty, risk and uncertainty ?
   a) Game theory
   b) Network analysis
   c) Decision theory
   d) None of the above

10) To find the optimal solution, we apply
   a) LPP
   b) VAM
   c) MODI method
   d) Rim

11) Operations Research (OR), which is a very powerful tool for
   a) Research
   b) Decision-making
   c) Operations
   d) None of the above

12) Who coined the term Operations Research ?
   a) J.F. McCloskey
   b) F.N. Trefethen
   c) P.F. Adams
   d) Both a) and b)

13) The term Operations Research was coined in the year
   a) 1950
   b) 1940
   c) 1978
   d) 1960

14) This innovative science of Operations Research was discovered during
   a) Civil War
   b) World War I
   c) World War II
   d) Industrial revolution

15) Operations Research was known as an ability to win a war without really going into a
   a) Battle field
   b) Fighting
   c) War
   d) Both a) and b)

16) Who defined Operations Research as scientific method of providing executive departments with quantitative basis for decisions regarding the operations under their control ?
   a) Morse and Kimball (1946)
   b) P.M.S. Blackett (1948)
   c) E.L. Arnoff and M.J. Netzorg
   d) None of the above

17) Who defined Operations Research as scientific approach to problem solving for executive management ?
   a) E.L. Arnoff
   b) P.M.S. Blackett
   c) H.M. Wagner
   d) None of the above

18) Who defined Operations Research as an aid for the executive in marketing his decisions by providing him with the quantitative information based on the scientific method of analysis ?
   a) C. Kitte
   b) H.M. Wagner
   c) E.L. Arnoff
   d) None of the above

19) Operations Research has the characteristics it is done by a team of
   a) Scientists
   b) Mathematicians
   c) Academics
   d) All of the above

20) There is a great scope for _____ working as a team to solve problems of defence by using the Operations Research approach.
   a) Economists
   b) Administrators
   c) Statisticians and Technicians
   d) All of the above

SECTION – I

2. Attempt **any four** : **(4×5=20)**

1) Solve the following assignment problem for minimum cost.

	I	II	III	IV	V
P	–	2	5	7	1
Q	16	–	3	8	2
R	8	7	–	4	7
S	12	4	6	–	5
T	1	3	2	8	–

2) Solve the following game using dominance principle :

Player B

		I	II	III	IV
Player A	1	–5	3	1	20
	2	5	5	4	6
	3	–4	2	0	–5

3) Write Branch and Bound Algorithm.

4) Solve the following assignment problem for minimum cost :

	V	W	X	Y	Z
A	3	5	10	15	8
B	4	7	15	18	8
C	8	12	20	20	12
D	5	5	8	10	6
E	10	10	15	25	10

5) Find the sequence that minimizes the total elapsed time to complete the following jobs in the order M_1 and M_2 on machines and elapsed time.

Job no.		1	2	3	4	5	6
Machine	M_1	4	8	3	5	7	5
Machine	M_2	6	3	7	2	8	4

3. Attempt **any one** : **10**

1) Solve the following game graphically :

		I	II
Player A	I	2	4
	II	2	3
	III	3	2
	IV	–2	6

2) Solve the following game graphically

		I	II	III	IV
Player A	I	2	2	3	–1
	II	4	3	2	6

4. Using graphical method to reduce the following games and hence solve **10**

		B	
		B_1	B_2
A	A_1	1	2
	A_2	5	6
	A_3	–7	–9
	A_4	–4	–3
	A_5	2	1

SECTION – II

5. Attempt **any four** : **(4×5=20)**

a) Describe differences between PERT and CPM.

b) A company manufactures 50000 bottles in an year the factory cost per bottle is Rs. 5, the set up cost per production run is estimated to be Rs. 90 and the carrying costs on finished goods inventory amount to 20% of the cost per annum. The production rate is 600 bottles per day and sales amount to 150 bottles per day. What is the optimal production lot size and the number of production runs ?

c) Find the sequence that minimizes the total time required in performing the following jobs on three machines in the order ABC processing time (in hours) are given in the following table :

Job	1	2	3	4	5
Machine A	8	10	6	7	11
Machine B	5	6	2	3	4
Machine C	4	9	8	6	5

d) The annual demand for an item is 3200 units. The unit cost is Rs. 6 and inventory carrying charges 25% /annum. If the cost of one procurement is Rs. 150 determine
   i) Economic order quantity
   ii) No. of orders per year
   iii) The optimal cost.

e) A contractor has to supply 10000 bearings/day to an automobile manufacturer. He finds that, when he starts a production run, he can produce 25000 bearing per day. The cost of holding a bearing in stock for one year is 20 paise and set-up cost of a production run is Rs. 180.00. How frequently should production run be made ?

6. Attempt the following :

a) Describe steps to process n-jobs through two machines. **10**

b) There are 5 jobs, each of which must go through machines A, B and C in the order ABC. **10**

	Processing Times		
Jobi	**Ai**	**Bi**	**Ci**
1	8	5	4
2	10	6	9
3	6	2	8
4	7	3	6
5	11	4	5

OR

b) A firm is considering the replacement of a machine, whose cost price is Rs. 12,200 and its scrap value is Rs. 200 from experience the running (maintenance and operating) costs are found to be as follows : **10**

Year	1	2	3	4	5	6	7	8
Running Cost (Rs.)	200	500	800	1,200	1,800	2,500	3,200	4,000

When should the machine be replaced ?

———————

SLR-ER – 23

Seat No.	

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

Day and Date : Monday, 5-12-2016 Total Marks : 100
Time : 3.00 p.m. to 6.00 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) 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(log2 n) D) O(n log2 n)

2) 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) × g(n) B) Max (f(n), g(n))

C) Min(f(n), g(n)) D) f(n) + g(n)

3) 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

4) The total number of comparisons in a bubble sort is

A) 0(log n) B) 0(n log n)

C) 0(n) D) None of the above

5) Time complexities of three algorithms are given. Which should execute the slowest for large values of N ?

A) (12) O N B) O(N)

C) O(log N) D) None of these

P.T.O.

6) 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

7) Which of the following case does not exist in complexity theory ?
   A) Best case B) Worst case
   C) Average case D) Null case

8) The worst case running time to search for an element in a balanced binary search tree with n2n elements is
   A) T(nlogn) B) T(n2n)
   C) T(n) D) T(logn)

9) 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

10) The quick sort algorithm exploit _____ design technique.
   A) Greedy B) Dynamic programming
   C) Divide and conquer D) Backtracking

11) The number of distinct simple graphs with up to three nodes are
   A) 15 B) 10
   C) 7 D) 9

12) 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

13) Graphs are represented using
   A) Adjacency tree B) Adjacency linked list
   C) Adjacency graph D) Adjacency queue

14) Number of edges of a complete binary tree with 16 leaf nodes are
   A) 14 B) 30
   C) 32 D) 28

15) Leaves of which of the following trees are at the same level ?
A) Binary tree B) B-tree
C) AVL-tree D) Expression tree

16) 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

17) The time complexity to build a heap of n elements is
A) 0(1) B) 0(1gn)
C) 0(n) D) 0(n1gn)

18) The best average behaviour is shown by
A) Quick sort B) Merge sort
C) Insertion sort D) Heap sort

19) 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

20) In worst case Quick Sort has order
A) O (n log n) B) O (n2/2)
C) O (log n) D) O (n2/4)

SECTION – I

2. Write short note on **any four** : **(4×5=20)**
a) Randomize algorithm
b) Asymptotic notation
c) Convex hull
d) Single source shortest path
e) Multistage graph.

3. A) What is algorithm ? Explain algorithm specification in detail. **10**
B) Explain KNAPSACK problem with example. **10**

OR

B) Explain with an example traveling salesman problem. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
   a) Breadth First
   b) FFT Modular Arithmetic
   c) Efficiency Consideration
   d) Evaluation and Interpolation
   e) Modular Arithmetic.

5. A) Explain 8 Queen's problem. **10**

   B) What do you mean by Bi-connected component ? **10**

   OR

   B) Explain graph coloring with example. **10**

SLR-ER – 24

Seat No.	

S.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
PROGRAMMING IN JAVA

Day and Date : Wednesday, 7-12-2016 Total Marks : 100

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

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

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

1) _____ package contains classes for implementing graphical user interface.
   a) AWT b) io c) sql d) none of these

2) Which of these is an example of compound assignment operator ?
   a) a=5 b) a=b=c=5 c) a=b+c d) a+=b/c

3) The sequence of methods invoked automatically when an applet is loaded till it is destroyed is
   a) init(), paint(), start(), stop(), destroy()
   b) start(), init(), paint(), stop(), destroy()
   c) start(), paint(), init(), destroy(), stop()
   d) init(), start(), paint(), stop(), destroy()

4) Which of these statement is incorrect ?
   a) Every class must contain in main() method
   b) Applets do not require a main() method at all
   c) There can be only one main() method in a program
   d) main() method must be made public

5) Which of this access specifies can be used for a class so that its members can be accessed by a different class in the same package ?
   a) Public b) Protected
   c) No modifier d) All of the mentioned

P.T.O.

6) Which of these interfaces handles the event when a component is added to a container ?
   a) ComponentListener b) ContainerListener
   c) FocusListener d) InputListener

7) Thread priority in Java is
   a) Integer b) Float c) Double d) Long

8) Which function of pre defined class thread is used to check weather current thread being checked is still running ?
   a) isAlive() b) Join() c) isRunning() d) Alive()

9) Which of these events is generated when the component is added or removed ?
   a) ComponentEvent b) ContainerEvent
   c) FocusEvent d) InputEvent

10) Which of these methods is used to get x coordinate of the mouse ?
   a) getX() b) getXCoordinate()
   c) getCoordinateX() d) getPointX()

11) The _____ is the basis of all swing components.
   a) JComponent class b) JComponent interface
   c) JContainer class d) JContainer interface

12) In swing buttons of all kinds are built on the _____ class.
   a) Button b) JButton
   c) AbstractButton d) All of these

13) The JTable component is a swing component that allow to _____ tabular data.
   a) show b) edit
   c) both a and b d) none of these

14) The function of java API is to document a _____ for dealing with data which may be tabular or relational data.
   a) Standard framework b) Class library
   c) DLL d) None of these

15) _____ is a connection that a JDBC client makes to a middleware process that acts as a bridge to the DBMS server.
   a) Direct b) Indirect
   c) Both a and b d) None of these

16) RMI stand for
   a) Remote Method Invocation b) Real Method Invocation
   c) Rare Method Invocation d) None of these

17) _____ is a low level routing protocol that breaks data into small packets and sends them to an address across network.
   a) IP b) TCP c) UDP d) All of these

18) We can gain access to the input streams associated with socket by use of _____ method.
   a) getInputStream() b) read()
   c) streamReader() d) all of these

19) _____ represents standard way to identify a resource.
   a) URL b) URI
   c) Both a and b d) None of these

20) TCP/IP sockets are used to implement _____ stream based connection between hosts on the internet.
   a) reliable b) bidirectional c) persistent d) all of these

SECTION – I

2. Write short note on (**any 4**) : **20**
   a) Discuss with example passing parameters to an applet.
   b) Thread synchronization.
   c) Difference between java and c++.
   d) Action listener events.
   e) Example of FileInputStream.

3. A) Write features of java in detail. **10**

   B) Explain with examples KeyListener and MouseListener. **10**

   OR

   B) When are two threads said to be deadlocked ? Write a simple application program to illustrate the deadlock situation. **10**

SECTION – II

4. Write a short note on (**any 4**) : **20**

   a) Swing button component.

   b) Java networking terminologies.

   c) Socket and ServerSocket.

   d) Thin driver.

   e) RMI architecture.

5. A) Describe different types of ResultSet interfaces. Write a program to explain processing of ResultSet tuples. **10**

   B) Explain different steps of creating RMI application. Write and explain program for RMI application. **10**

   OR

   B) Explain the concept of Scroll Pane in swing. Explain the use of JScrollPane with program example. **10**

———————

SLR-ER – 25

Seat No.	

S.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Friday, 9-12-2016 Total Marks : 100

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

1. Multiple Choice Questions. **20**

1) A plan to overcome the risk called as

a) Migration plan b) Master plan

c) Maintenance plan d) None of these

2) TQM represents

a) Tool Quality Management b) Test Quality Manager

c) Total Quality Management d) Total Quality Manager

3) Phase definition, it will come under

a) CMM Level 1 b) CMM Level 2

c) CMM Level 3 d) None of these

4) Management and Measurement, it will come under

a) CMM Level 1 b) CMM Level 2

c) CMM Level 3 d) CMM Level 4

5) RAD stands for

a) Rapid Application Data b) Rapid Action Development

c) Rapid Application Development d) None of the above

6) Which of the following acceptance testing is done prior to a new build ?

a) Alpha testing b) Beta testing

c) Smoke testing d) None of the above

7) For black-box testing

   a) The tester is completely unconcerned about the internal behaviour of the program

   b) The tester is concerned with finding circumstances in which the program does not behave according to specifications

   c) Test data is derived solely from specifications

   d) All of the above

8) A plan to overcome the risk called as

   a) Mitigation plan b) Maintenance plan

   c) Master plan d) None of these

9) Unit Testing will be done by

   a) Customer b) Developers

   c) End Users d) None of the above

10) _____ predicts the maintenance requirements of the system, maintenance costs and effort required.

   a) Maintenance plan b) Validation

   c) Testing d) None of the above

11) Beta testing will be done at

   a) User place b) Developers place

   c) Both a and b d) None of the above

12) The name of the testing which is done to make sure the existing features are not affected by new changes

   a) Regression testing b) White box testing

   c) Unit testing d) None of these

13) All of the following might be done during unit testing EXCEPT

   a) Desk check b) Manual support testing

   c) Walkthrough d) Compiler based testing

14) Which type of test include, how well the user will be able to understand and interact with the system ?
   a) Usability Testing
   b) User Acceptance Testing
   c) Alpha Testing
   d) None of these

15) Alpha testing will be done at
   a) User's site
   b) Developer's site
   c) Both a and b
   d) None of the above

16) Informing to the developer which bug to be fix first is called as
   a) Traceability
   b) Fix ability
   c) Priority
   d) None of the above

17) Which is Black-Box Testing method ?
   a) Equivalence partitioning
   b) Code coverage
   c) Fault injection
   d) None of the above

18) What are the types of Integration Testing ?
   a) Bottom Up testing
   b) Top Down Testing
   c) Both a and b
   d) None of the above

19) Acceptance testing is known as
   a) Beta Testing
   b) White box testing
   c) Black box testing
   d) None of these

20) Boundary value analysis belongs to which testing method ?
   a) Black Box Testing
   b) White Box testing
   c) Both a and b
   d) None of these

SECTION – I

2. Solve **any four** : **(5×4=20)**
   1) Software Inspections.
   2) Reliability Measures.
   3) ISO.
   4) Automated Static Analysis.
   5) Need for SQA.

3. A) Explain Building blocks of SQA in detail. **10**

   B) What is SQA ? Explain different SQA activities ? **10**

   OR

   B) Explain clean room approach in detail. **10**

SECTION – II

4. Solve **any four** : **(5×4=20)**

   1) Testing Life cycle
   2) Data Flow Analysis
   3) Integration Testing
   4) BVA
   5) Cyclomatic Complexity Analysis

5. A) Explain review guidelines and review checklist in detail. **10**

   B) What is Black Box testing ? Explain types of black box testing. **10**

   OR

   B) What is test case ? Explain test case format. **10**

SLR-ER – 26

Seat No.	

S.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
UNIX OPERATING SYSTEM (Elective – I)

Day and Date : Friday, 9-12-2016 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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

1. Choose the correct alternatives : **(20×1=20)**

1) _____ is a mechanism that allows a stream of data to be passed between reader and writer processes.
a) Block b) Buffer c) Pipe d) None of these

2) The raises the processor execution level in _____ to block out interrupts.
a) Wake-up b) Sleep c) Attaching d) None of these

3) The _____ algorithm allocates an in-core of an inode.
a) Iput b) iread c) iwrite d) iget

4) Shell is an exclusive feature of
a) DOS b) UNIX c) Windows d) All of these

5) Use of buffer catch can _____ the amount of disk traffic.
a) Increase b) Decrease c) Not change d) None of these

6) When a process executes a system call, the *execution mode* of the process changes from
a) Kernel mode to user mode b) User mode to kernel mode
c) Execution mode to user mode d) None of these

7) Inode contains _____ and last modification times.
a) Permissions b) Owner
c) Groups d) None of these

8) To change the owner of a file, the kernel converts the file name to an inode using algorithm
a) namei b) geti c) chown d) none of these

P.T.O.

9) To access the data of a file a process must use a _____ system call.
   a) Read b) Write c) Open d) All of these

10) The system call _____ creates special files in the file system including named pipes, device files and directories.
   a) mknod b) mount c) open d) all of these

11) The UNIX operating system contains types of devices _____ and _____.
   a) Block and raw b) Block and character
   c) Both (a) and (b) d) None of these

12) Fork system call returns the pid of
   a) Child b) Parent c) Both (a) and (b) d) None of these

13) _____ is a memory management policy.
   a) Paging b) Message queue
   c) Semaphore d) None of the above

14) The kernel duplicates every region of the parent process during the _____ system call and attaches it to child process.
   a) Kill b) Fork c) Wait d) None of these

15) The process executes the exit system call and is in the _____ state.
   a) Zombie b) Swapped c) Preempt d) None of these

16) The _____ contains fields that need to be accessible only to the running process.
   a) process region b) u-area c) both (a) and (b) d) none of these

17) The _____ process is process dispatcher, spawning processes that allow user to log into the system.
   a) system boot b) init c) both (a) and (b) d) none of these

18) The kernel maintain free space for file system in a linked list of free blocks in file system as
   a) Boot block b) Data block c) Super block d) None of these

19) The kernel to device driver interface is given by
   a) Block device switch table b) Character device switch table
   c) Both (a) and (b) d) None of these

20) Shared memory provides _____ mechanism to share very large amount of data without coping or using system call.
   a) Very fast b) Versatile c) Both (a) and (b) d) None of these

SECTION – I

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

   a) Architecture of UNIX operating system.

   b) Algorithm for creating a file.

   c) Operating system services.

   d) Buffer allocation process.

   e) Advantages and disadvantages of buffer cache.

3. A) Write and explain algorithm for block read. **10**

   B) Explain structure of buffer pool. **10**

   OR

   B) Explain with an example in-core inode and disk inode concepts. **10**

SECTION – II

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

   a) Process state transitions.

   b) Demand paging.

   c) Disk driver.

   d) Semaphore.

   e) Process tracing

5. A) What operations kernel does for the fork ? Write and explain algorithm for fork. **10**

   B) What do you mean by sockets ? Explain system calls that support socket mechanism. **10**

   OR

   B) Explain swapping process out and swapping process in mechanisms. Write and explain algorithm for swapper. **10**

———————

SLR-ER – 27

Seat No.	

S.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2016
OBJECT ORIENTED ANALYSIS AND DESIGN (Elective – I (3))

Day and Date : Friday, 9-12-2016 Total Marks : 100

Time : 3.00 p.m. to 6.00 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) What does a simple name in UML Class and objects consists of ?
   a) Letters b) Digits
   c) Punctuation characters d) All of the mentioned

2) What does a composite name consists of in a UML Class and object diagram ?
   a) Delimiter b) Simple names
   c) Digits d) All of the mentioned

3) A class consists of which of these abstractions ?
   a) Set of the objects b) Operations
   c) Attributes d) All of the mentioned

4) A class is divided into which of these compartments ?
   a) Name Compartment b) Attribute Compartment
   c) Operation Compartment d) All of the mentioned

5) An attribute is a data item held by which of the following ?
   a) Class b) Object
   c) All of the mentioned d) None of the mentioned

6) An operation can be described as
   a) Object behaviour b) Class behaviour
   c) Functions d) a, b

7) Which of these are part of class operation specification format ?
   a) Name
   b) Parameter list
   c) Return-type list
   d) All of the mentioned

8) Which of these are the heuristics ?
   a) Name classes, attributes and roles with noun phrases
   b) Name operations and associations with verb phrases
   c) Stick to binary associations
   d) All of the mentioned

9) Which of the following statement is true concerning objects and/or classes ?
   a) An object is an instance of a class
   b) A class is an instance of an object
   c) An object includes encapsulates only data
   d) A class includes encapsulates only data

10) A UML diagram includes which of the following ?
   a) Class name
   b) List of attributes
   c) List of operations
   d) All of the above

11) A constructor operation does which of the following ?
   a) Creates a new instance of a class
   b) Updates an existing of a class
   c) Deletes and existing instance of a class
   d) All of the above

12) An object can have which of the following multiplicities ?
   a) Zero
   b) One
   c) More than one
   d) All of the above

13) Multiplicity is the same as what concept for an ERD ?
   a) Relationship
   b) Attribute
   c) Entity
   d) Cardinality

14) The fact that the same operation may apply to two or more classes is called what ?
   a) Inheritance
   b) Polymorphism
   c) Encapsulation
   d) Multiple Classifier

15) Composition is a stronger form of which of the following ?
a) Aggregation b) Encapsulation
c) Inheritance d) All of the above

16) Which of the following applies to a class rather than an object ?
a) Query b) Update
c) Scope d) Constructor

17) Which of the following is a technique for hiding the internal implementation details of an object ?
a) Encapsulation b) Polymorphism
c) Inheritance d) All of the above

18) The class diagram, component diagram, object diagram and deployment diagram are considered as types of
a) Structural diagrams b) Behavioral diagrams
c) Non-behavioral diagrams d) Non structural diagrams

19) The weak entities are represented in UML diagrams by using aggregations called
a) Qualified segregation b) Non-qualified segregation
c) Non-qualified aggregation d) Qualified aggregation

20) In UML diagrams, the relationship between the object and component parts is represented by
a) Ordination b) Aggregation c) Segregation d) Increment

SECTION – I

2. Write short note on **any four** : **(4×5=20)**
a) OMG
b) Extend, Include and Generalize
c) Merge, Fork and Join
d) Classes
e) Things

3. A) Explain Rational Unified Process in detail. **10**

   B) Explain Activity Diagram with example. **10**

   OR

   B) Explain Object Diagram in detail. **10**

SECTION – II

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

   a) Events and Types

   b) Processes and Threads

   c) Object Creation and Destruction

   d) Branching

   e) Interaction Diagram.

5. A) What is Component ? Explain Internal Structure of Component. **10**

   B) Explain Deployment diagram with example. **10**

   OR

   B) Explain State Machine with example. **10**

———————

SLR-ER – 28

Seat No.	

T.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
MOBILE COMMUNICATION

Day and Date : Tuesday, 29-11-2016 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) The ground wave work at frequency
   a) < 2 MHz b) 2 – 30 MHz c) 30 – 40 MHz d) None of these

2) In frequency division multiplexing the space between interface ranges is called
   a) Interference b) Guard space c) Space d) All of these

3) _____ layer is responsible in simplified reference model for end to end connection.
   a) Data link layer b) Network layer c) Transport layer d) Physical layer

4) In 1991, ETSI adopted the standard _____ for digital cordless telephony.
   a) ITU b) CEPT c) DECT d) GSM

5) Disadvantage of FDMA is
   a) Antennas typically fixed b) Guard space needed
   c) Synchronization difficult d) Inflexible

6) In _____, one channel carries all transmissions simultaneously.
   a) CDMA b) FDMA c) TDMA d) SDMA

7) The _____ works fine for a light load and does not require any complicated process.
   a) Spread ALOHA b) Classical ALOHA
   c) Slotted ALOHA d) Simple ALOHA

P.T.O.

8) Submarine communication or AM radio uses _____ waves.
   a) Sky b) Ground c) Line of sight d) Micro

9) In _____ CSMA, all situations wishing to transmit access the medium at the same time as soon as it becomes idle.
   a) p-persistent b) 1–persistent c) non-persistent d) 2-persistent

10) DAMA also called as
   a) Pure ALOHA b) Slotted ALOHA
   c) Reservation ALOHA d) Polling

11) The idea of spreading the spectrum using orthogonal codes is in
   a) SDMA b) FDMA c) CDMA d) TDMA

12) Registration is depending on
   a) Care of Address (CoA) b) Foreign Agent (FA)
   c) Home Network (HN) d) Home Agent (HA)

13) Disadvantage of HAWAII is
   a) Manageability b) Efficiency c) Transparency d) Implementation

14) For agent advertisements _____ protocol is used.
   a) TCP b) IP c) RFC d) ICMP

15) A _____ is an end-system or router that can change its point of attachment to the internet using mobile IP.
   a) Mobile node b) Foreign agent c) Home agent d) Care-of address

16) Data is trasmitted is small portions, called
   a) explores b) bursts c) bounces d) destroys

17) Initially DHCP client sends
   a) DHCPDISCOVER b) DHCPREQUEST
   c) DHCPCLIENT d) None

18) The _____ can provide several services to the MN during its visit to the foreign network.
   a) Mobile node b) Foreign agent c) Home agent d) Care-of address

19) A socket consists of

a) address and port b) address

c) port d) location

20) _____ encapsulation allows the encapsulation of packets of the protocol suite into the payload portion of a packet of another protocol suite.

a) IP-in-IP b) Minimal c) Generic routing d) Maximum

SECTION – I

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

a) Advantages of Cellular Systems

b) Multi-path propagation

c) PRMA

d) RSS

e) GSM TDMA frame

f) MTC.

3. A) Explain A3, A5, A8 algorithms is GSM security. **10**

B) Explain handover in UMTS. **10**

OR

B) What is multiplexing ? Give different techniques of multiplexing of a signal. **10**

SECTION – II

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

a) Design goals for WLAN.

b) Infra red vs radio transmission.

c) The steps for roaming between access points.

d) Agent solicitation.

e) Hawaii.

5. A) Explain in detail networking of Bluetooth devices. **10**

B) What is IEEE 802.11 ? Explain its two basic architectures. **10**

OR

B) What are three phases of different competing nodes in EY-NPMA ? Give details of each. **10**

_____

SLR-ER – 29

Seat No.	

T.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
DATA WAREHOUSING AND DATA MINING

Day and Date : Thursday, 1-12-2016 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 data mining functionality ?
   A) Characterization and Discrimination
   B) Classification and Regression
   C) Selection and Interpretation
   D) Clustering and Analysis

2) _____ 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

3) _____ 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

4) Strategic value of data mining is
   A) Cost-sensitive B) Work-sensitive
   C) Time-sensitive D) Technical-sensitive

5) _____ 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

6) The full form of KDD is
   A) Knowledge Database
   B) Knowledge Discovery Database
   C) Knowledge Data House
   D) Knowledge Data Definition

7) The output of KDD is
   A) Data
   B) Information
   C) Query
   D) Useful information

8) Data warehouse architecture is based on
   A) DBMS
   B) RDBMS
   C) Sybase
   D) SQL Server

9) Data warehouse contains _____ data that is never found in the operational environment.
   A) Normalized
   B) Informational
   C) Summary
   D) Denormalized

10) 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

11) The full form of OLAP is
   A) Online Analytical Processing
   B) Online Advanced Processing
   C) Online Advanced Preparation
   D) Online Analytical Performance

12) _____ is a subject-oriented, integrated, time-variant, non-volatile collection or data in support of management decisions.
   A) Data Mining
   B) Data Warehousing
   C) Document Mining
   D) Text Mining

13) The data is stored, retrieved and updated in
   A) OLAP B) OLTP C) SMTP D) FTP

14) 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

15) _____ is a good alternative to the star schema.
   A) Star schema
   B) Snowflake schema
   C) Fact constellation
   D) Star-snowflake

16) 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

17) The type of relationship in star schema is
A) Many to many B) One to one
C) One to many D) Many to one

18) 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

19) Which of the following is not a component of a data warehouse ?
A) Metadata B) Current detail
C) Lightly summarized data D) Component key

20) Which of the following is not a kind of data warehouse application ?
A) Information processing
B) Analytical processing
C) Data mining
D) Transaction processing

SECTION – I

2. Write short note on **any four** : **(4×5=20)**
a) Metadata
b) Picklist Prompts
c) Query Tools
d) Parallel Processing
e) Browser Tools.

3. A) Explain Datawarehouse Architecture in brief. **10**
B) Explain Multiple Data types in detail. **10**

OR

B) Difference between OLAP and OLTP. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
   a) DBMS Versus DM
   b) Web Usage Mining
   c) KDD
   d) Agglomerative
   e) Outlier.

5. A) Explain Data Mining Application in detail. **10**
   B) What are the issues and challenges in data mining ? **10**

   OR

   B) Explain Nearest Neighbour Method. **10**

———————

SLR-ER – 30

Seat No.	

T.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
INFORMATION SECURITY

Day and Date : Saturday, 3-12-2016 Total Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

MCQ/Objective Type Questions

1. Choose the correct alternative :

1) National security is a multilayered system that protects the sovereignty of a state, its

a) Assets b) Resources

c) People d) All of the above

2) _____ can continue replicating themselves until they completely fill available resources, such as memory, hard drive space and network bandwidth.

a) Virus b) Worms

c) Trojan Horse d) All of the above

3) In a _____ attack, the attacker sends a large number of connection or information requests to a target.

a) Denial-of-service b) Dictionary

c) Mail bombing d) None of the above

4) _____ is an attempt to gain personal or financial information from an individual, usually by posing as a legitimate entity.

a) Sniffers b) Social engineering

c) Phishing d) None of the above

5) _____ comprises a wide variety of laws that govern a nation or state and deal with the relationships and conflicts between organizational entities and people.

a) Civil law b) Property law

c) Copy right law d) None of the above

6) A risk management strategy requires that information security professionals know their organizations' information asset that is

a) Identify b) Classify

c) Prioritize d) All of the above

7) The typical information classification scheme has _____ category or categories.

a) Confidential b) Internal

c) External d) All of the above

8) Any _____ information or material the unauthorized disclosure of which reasonably could be expected to cause serious damage to the national security.

a) Confidential data b) Secret data

c) Sensitive data d) None of the above

9) Internet protocol is vulnerable to denial of service is

a) Sabotage b) Espionage

c) Trespass d) None of the above

10) A _____ is a plan or course of action that conveys instructions from an organization's senior management to those who make decisions, take actions and perform other duties.

a) Policy b) Standards

c) Practices d) All of the above

11) IT Act, 2000 is India's legislation regulating the use of computers, computer systems and computer networks, data and information in the _____ format.

a) Electronic b) Digital

c) Both a) and b) d) None of the above

12) Violation of cyber laws rules of conduct lead to Govt. action as

a) Imprisonment b) Fine

c) Both a) or b) d) Both a) and b)

13) IT Act penalizes various cyber crimes and provides strict punishments as imprisonment up to

a) 10 years b) 20 years

c) 25 years d) 5 years

14) The sender and receiver of a message had assurance that the message not been altered during transmission is

a) Authentication b) Integrity

c) Non Repudiation d) All of the above

15) Electronic signatures are used to authenticate _____ records.

a) Physical b) Electronic

c) Both a) and b) d) None of the above

16) A certifying authority is a trusted body whose central responsibility is to _____ and provide directories of digital certificates.

a) Issue b) Revoke

c) Renew d) All of the above

17) The _____ issue digital signature certificates for electronic authentication of users.

a) CA b) CCA

c) Both a) and b) d) All of the above

18) _____ of certifying authority certify public keys of the certifying authorities.

a) Controller b) Supervisor

c) Assistant d) None of the above

19) _____ may make an application of the certifying authority for the issue of a DS certificate.

a) Company authority b) Company owner

c) Any person d) None of the above

20) _____ is the registering of sites with famous names in the hope or selling them at a profit.

a) Cyber squatting b) Reverse Hacking

c) Meta Tags d) None of the above

SECTION – I

2. Write short note on **any four**. **(4×5=20)**
   a) Components of an information system.
   b) Explain virus, Worm and Trojan horse concepts.
   c) HIPAA.
   d) Risk assessment.
   e) Access control.

3. A) Explain in brief components of risk identification. **10**
   B) Explain in detail approaches of discretionary access controls. **10**

   OR

   B) Explain in brief packet filtering and circuit gateways firewall models. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
   a) Cyber law and laws rules of conduct.
   b) Need of certifying authority.
   c) Suspension of Digital Signature Certificate.
   d) Reverse Hacking.
   e) Powers of adjudication officers.

5. A) Explain in detail different functions of certifying authority controller. **10**
   B) Explain the use of electronic records, digital signatures in Govt. and its agencies. **10**

   OR

   B) Explain in brief Cyber Regulations of Appellate Tribunal. **10**

SLR-ER – 31

Seat No.	

T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
ADVANCED INTERNET TECHNOLOGY

Day and Date : Tuesday, 6-12-2016 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 the largest community in classification of e-commerce ?
   a) Business to Business (B to B)
   b) Business to Consumer (B to C)
   c) Business to Government (B to G)
   d) Government to Government (G to G)

2) Which of the following is not the example of Business to Consumer (B to C) e-commerce ?
   a) Amazon.com b) e-bay.com
   c) dell.com d) lastminute.com

3) What is the limit of data to be passed from HTML when doGet( ) method is used ?
   a) 4K b) 8K
   c) 2K d) 1K

4) The life cycle of a servlet is managed by
   a) Servlet Context b) http or https
   c) Servlet Container d) All of the above

5) Which of the below symbols is a newline character ?
   a) \r b) \n
   c) /n d) /r

6) Who is the father of PHP ?
   a) Rasmus Lerdorf b) William Makepiece
   c) Drek Kolkevi d) List Barely

7) Which of the following tags is not a valid way to begin and end a PHP code block ?
   a) <% %> b) <??>
   c) <?= ?> d) <! !>

8) In PHP Language variables are case sensitive.
   a) True b) False
   c) Depends on website d) Depends on server

9) Which of the following statements prints in PHP ?
   a) Out b) Write
   c) Echo d) Display

10) Software which allows user to view the webpage is called as
   a) Website b) Interpreter
   c) Internet Browser d) Operating System

11) _____ connects web pages.
   a) Connector b) Link
   c) Hyperlink d) None of the above

12) Which of the following is not a type of personal computer ?
   a) Mainframe b) Desktop
   c) Notebook d) Netbook

13) Every Web page has a unique address called a(n)
   a) URL b) ARL
   c) RUL d) LUR

14) A Web _____ is a series of Web pages on a specific topic.
   a) site b) home
   c) group d) URL

15) Which of the following is NOT an OUTPUT device ?
   a) Mouse b) Printer
   c) Projector d) Speaker

16) To join the internet, the computer has to be connected to a
   a) Internet architecture board
   b) Internet society
   c) Internet service provider
   d) None of the mentioned

17) Which one of the following protocol is not used in internet ?
   a) HTTP b) DHCP
   c) DNS d) None of the mentioned

18) What type of commerce occurs when a business sell its products over the Internet to other businesses ?
   a) B2B b) B2C
   c) C2B d) Enterprise commerce

19) Variables always start with a _____ in PHP.
   a) Pond – sign b) Yen – sign
   c) Dollar – Sign d) Euro – sign

20) PHP is an open source software
   a) True b) False
   c) Depends on website d) None of these

SECTION – I

2. Write short note on **any four** : **(4×5=20)**
   a) Cookies
   b) HTTP Request
   c) Web System Architecture
   d) Digital Signature
   e) Uniform Resource Locator

3. A) What are the various applications of E-Commerce ? **10**

   B) What is a protocol ? What are the various protocols used in internet ? **10**

   OR

   B) What is the difference between GET and POST method in Servlet ? **10**

SECTION – II

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

   a) PHP and HTTP Environment

   b) Error Handling in JSP

   c) Include Statement

   d) Session

   e) PHP Constant.

5. A) Explain directives in JSP with example. **10**

   B) Explain flow control and loop structure in PHP with example. **10**

   OR

   B) Explain Datatypes in PHP with an example. **10**

SLR-ER – 32

Seat No.	

T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
ARTIFICIAL TECHNOLOGY (Elective – II) (I)

Day and Date : Saturday, 10-12-2016 Total Marks : 100
Time : 3.00 p.m. to 6.00 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 answer : **20**

1) A problem is first connected to its proposed solution during the _____ stage.
   a) Conceptualization b) Identification
   c) Formalization d) Implementation

2) 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

3) A computer program that contains expertise in a particular domain is called an
   a) Intelligent planner b) Automatic processor
   c) Operational symbolizer d) Expert system

4) Ambiguity may be caused by
   a) Syntactic ambiguity b) Multiple word meanings
   c) Unclear antecedents d) All of the above

5) Natural language processing is divided into the two subfields of
   a) Symbolic and numeric b) Understanding and generation
   c) Algorithmic and heuristic d) Time and motion

6) High-resolution, bit-mapped displays are useful for displaying
   a) Clearer characters b) Graphics
   c) More characters d) All of the above

P.T.O.

7) A bidirectional feedback loop links computer modelling with
   a) Artificial science
   b) Heuristic processing
   c) Cognitive science
   d) Human intelligence

8) A process that is repeated, evaluated and refined is called
   a) Iterative
   b) Descriptive
   c) Interpretive
   d) Diagnostic

9) 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)

10) Who is considered to be the "father" of artificial intelligence ?
   a) Fisher Ada
   b) John McCarthy
   c) Allen Newell
   d) Alan Turning

11) What is the term used for describing the judgmental or commonsense part of problem solving ?
   a) Heuristic
   b) Critical
   c) Value based
   d) Analytical

12) 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

13) 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

14) Decision support programs are designed to help managers make
   a) Budget projections
   b) Visual presentations
   c) Business decisions
   d) Vacation schedules

15) 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

16) To invoke the LISP system, you must enter
   a) AI
   b) LISP
   c) CL (Common Lisp)
   d) None of the above

17) 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

18) 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

19) 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

20) The field that investigates the mechanics of human intelligence is
   a) History
   b) Cognitive science
   c) Psychology
   d) Sociology

SECTION – I

2. Write short note on **any four** : **(4×5=20)**
   a) Frame problem
   b) Best First Search
   c) Problem Reduction
   d) Artificial Intelligence
   e) Additional problems.

3. A) What is hill climbing ? Write and explain simple hill climbing algorithm. **10**
   B) Explain the approaches to knowledge representation in detail. **10**

   OR

   B) Explain issues in Knowledge Representation. **10**

SECTION – II

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

   a) Pragmatic processing

   b) Waiting for Quiescence

   c) Conceptual dependency

   d) Expert system

   e) Resolution.

5. A) Explain in detail truth maintenance system. **10**

   B) Explain in detail resolution in predicate logic. **10**

   OR

   B) Explain in detail Secondary Search. **10**

SLR-ER – 33

Seat No.	

T.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
2) INFORMATION RETRIEVAL SYSTEM (Elective – II)

Day and Date : Thursday, 8-12-2016 Max. Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

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

2) Retrieval models which combine information on text content with information on the document structure are called
   a) Linear text b) Structured text
   c) Both a) and b) d) None of the above

3) Weights are ultimately used to compute the
   a) Degree of similarity b) Queries
   c) Set theory d) None of the above

4) Queries are specified as
   a) Flowchart b) Boolean expression
   c) Both a) and b) d) None of the above

5) Each document is described by a set of representative keywords called
   a) Index terms b) Primary term
   c) Secondary term 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) Boolean _____ works on their operands.
   a) Algebra b) Expression c) Operator d) None of the above

8) RTF stand for
   a) Rich Text Formal b) Rich Text Format
   c) Range Text Format d) None of the above

9) _____ is information on the organization of data.
   a) Meta data b) Data base c) Flow char d) None of the above

P.T.O.

10) MIME stands for
   a) Multipurpose Internet Mail Exchange
   b) Multi Internet Mail Exchange
   c) Both a) and b)
   d) None of the above

11) Multimedia includes
   a) Audio b) Video c) Images d) All of the above

12) Hy Time is a
   a) Hypermedia Time based structuring language
   b) Hypermedia Time based database
   c) Both a) and b)
   d) None of the above

13) A _____ is a tree data structure built over all the suffixes of the text.
   a) Suffix tree b) Prefix tree c) Postfix tree d) None of the above

14) A signature files are based on
   a) Hashing b) Indexing c) Both a) and b) d) None of the above

15) Shift OR is based on
   a) Bit concurrency b) Bit parallelism
   c) Both a) and b) d) None of the above

16) The backward DAWG matching algorithm is based on
   a) Suffix automation b) Prefix c) Postfix d) None of the above

17) MULTOS stands for
   a) Multimedia Office Server b) Multi Office Server
   c) Both a) and b) d) None of the above

18) Meta searchers are
   a) Web servers b) Information
   c) Programs d) None of the above

19) Most search engine use a centralized
   a) Crawler indexer b) Central indexer
   c) Indexer d) None of the above

20) Multimedia depends on the
   a) Stream abstraction b) Abstraction
   c) Both a) and b) d) None of the above

SECTION – I

2. Write short note on (**any 4**) : **(4×5=20)**
   1) Boolean Model of classic information retrieval.
   2) Single-word queries.
   3) Natural language.
   4) Text data and formats.
   5) Hy time.

3. Answer the following :
   1) Explain Pattern Matching in detail. **10**
   2) Explain structural queries in detail. **10**

   OR

   2) Explain Retrieval Performance Evaluation-Recall and Precision in detail. **10**

SECTION – II

4. Write short note on (**any 4**) : **(4×5=20)**
   1) Query Languages.
   2) Uncertainty, proximity in query expression.
   3) Search Engines.
   4) Two dimensional color images.
   5) Meta searchers.

5. Answer the following :
   1) Explain document models in detail. **10**
   2) Explain architectural issues of digital libraries in detail. **10**

   OR

   2) Explain representation and access of digital libraries. **10**

———————

SLR-ER – 34

Seat No.	

T.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
Elective – II-3 : FUZZY LOGIC AND ARTIFICIAL NEURAL NETWORK

Day and Date : Thursday, 8-12-2016 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) The theory of fuzzy logic is based upon the notion of _____ graded membership and so are the function of cognitive.
   a) relative b) absolute c) part of d) none of the above

2) A fuzzy set works as a concept that makes it possible to treat fuzziness in a _____ manner.
   a) qualitative b) quantitative c) both a and b d) none of the above

3) The union between sets gives all those elements in the universe that belong to
   a) either set A or set B b) both set A and B
   c) both a and b d) none of the above

4) Fuzzy sets viewed as _____ of the basic concepts of crisp sets.
   a) Extension b) Generalization
   c) Both a and b d) None of the above

5) The matrix representing a fuzzy relation is called _____ matrix.
   a) Fuzzy b) Relation
   c) Element d) None of the above

6) Let relation R on universe X be a relation from X to X, Relation R is an equivalence relation is the _____ properties are satisfied.
   a) Reflexivity b) Symmetry c) Transitivity d) All of the above

7) A fuzzy set whose membership function has at least one element x in the universe whose membership value is unity called _____ set.
   a) normal fuzzy b) abnormal fuzzy
   c) optimal fuzzy d) none of the above

P.T.O.

8) The membership functions may be defined by shape
   a) triangular b) trapezoidal c) bell-shaped d) all of the above

9) _____ defuzzification method employs the algebraic sum of the individual fuzzy subsets of their union.
   a) center of sums b) weighted average
   c) mean-max d) none of the above

10) Applications of the FLC are
   a) robotic control b) nuclear control
   c) boiler control d) all of the above

11) Sigmoidal function is _____ function that varies gradually between values 0 and 1 or –1 and +1.
   a) continuous b) discrete c) logical d) none of the above

12) The NNs possess the capability to generalize. Thus, they _____ new outcomes from past trends.
   a) can predict b) can't predict c) observe d) none of the above

13) Neural networks have shown remarkable progress in the recognition of visual images
   a) Handwritten characters b) Printed characters
   c) Speech recognition d) All of the above

14) _____ algorithms are known as error based learning algorithms.
   a) Reinforcement b) Supervised
   c) Unsupervised d) All of the above

15) A selection of tuning parameters _____ are required for efficient learning and design of stable BPN Network.
   a) momentum factor b) sigmoidal function
   c) threshold value d) all of the above

16) Supervised learning is performed _____ of teacher.
   a) with the help b) without help c) in absence d) none of the above

17) A neuron generates an output if the weighted sum of the input _____ the threshold value.
   a) Exceeds b) Equal to c) Less than d) None of the above

18) A network with a single linear unit is called _____ network.
   a) Adaline b) Madaline
   c) Radial basis function d) None of the above

19) A Hebb rule is widely used for finding the weights of _____ neural network.
   a) Feedforward b) BPN
   c) Associative memory d) None of the above

20) The BAM network performs _____ associative searches for stored stimulus responses.
   a) forward b) backward c) both a and b d) none of the above

SECTION – I

2. Write short note on **any four** : **(4×5=20)**
   a) Properties of crisp sets.
   b) Fuzzy relations.
   c) Defuzzification methods.
   d) Multiperson decision making.
   e) Control system design.

3. A) Explain in brief different properties of fuzzy sets. **10**
   B) Explain in detail Fuzzy Bayesian Decision Making. **10**

   OR

   B) Describe fuzzy rule based system with an example. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
   a) Model of an artificial neuron.
   b) Adaline network.
   c) Selection of various parameters in BNP.
   d) Supervised and unsupervised learning.
   e) Autocorrelators.

5. A) Write an explain with an example backpropagation learning algorithm. **10**
   B) Explain preceptron training algorithm for multiple output classes. **10**

   OR

   B) Explain in brief bidirectional associative memory. **10**

SLR-ER – 35

Seat No.	

T.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
Elective – II : CLOUD COMPUTING

Day and Date : Thursday, 8-12-2016 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) The _____ cloud is operated only within a single organization.
   a) Community b) Hybrid c) Public d) Private

2) The _____ cloud allows systems and services to be accessible by group of organizations.
   a) Public b) Private c) Community d) Hybrid

3) The _____ cloud is mixture of public and private cloud.
   a) Private b) Hybrid c) Public d) Community

4) _____ models define the type of access to the cloud.
   a) Deployment b) Traditional c) Security d) Service

5) _____ provide virtualized IT-infrastructures on demand.
   a) Virtual networks b) Virtual machines
   c) Virtual memory d) None of these

6) _____ 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

7) _____ private cloud is hosted within an organization's own facility.
   a) Externally Hosted b) On-Premise
   c) Heterogeneous d) Non-Heterogeneous

8) The _____ cloud is more suitable for processing and storing non-sensitive data.
a) Hybrid b) Public c) Private d) Multi

9) _____ cloud may be less secure because of its openness.
a) Hybrid b) Private c) Community d) Public

10) _____ allows the consumer to access computing resources through administrative access to virtual machines.
a) SaaS b) DaaS c) PaaS d) IaaS

11) Cloud computing security must be done on _____ levels.
a) Four b) Three c) Five d) Two

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 _____ protects data from unauthorized disclosure.
a) Integrity b) Confidentiality
c) Authentication d) All of these

15) Data _____ service assures that data received is exactly as sent by authorized.
a) Authentication b) Access Control
c) Confidentiality d) Integrity

16) The _____ application management platform also improves overall performance by using different resources or infrastructure.
a) Heterogeneous cloud b) Public cloud
c) Multi-cloud d) Hybrid cloud

17) One of the positive aspects of _____ in cloud is the business opportunity that creates new jobs.
a) Heterogeneity b) Security c) Services d) None of these

18) _____ services should be flexible enough to capture dynamic, context or attribute or credential-based access requirements.

a) Authentication b) Access control

c) Privacy d) Integrity

19) _____ is a core issue in many challenges in cloud computing including the need to protect identity information and transaction histories.

a) Policy b) Privacy c) Integrity d) All of these

20) In _____ cloud environments, providers must segregate customer identity and authentication information.

a) Public b) Hybrid c) Traditional d) Multi-tenant

SECTION – I

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

a) Explain Hybrid cloud with its benefits.

b) Explain cloud computing Software as a Service (SaaS).

c) Explain server virtualization in detail.

d) Explain the common challenges to private cloud implementations.

e) Explain when to opt for public cloud.

f) Explain Software as a Service offerings.

3. A) What is cloud computing ? Explain benefits, risks and characteristics of cloud computing. **10**

B) Explain all the private cloud vendors in detail. **10**

OR

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

SECTION – II

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

   a) Explain the security concerns in traditional IT.

   b) Explain the security reference model.

   c) Explain the concept of multi-cloud management.

   d) Explain the benefits and advantages of multi-cloud management system.

   e) Explain cloud applications in detail.

   f) Explain the current issues in cloud computing leading to future research directions.

5. A) Explain the following concepts (**any 5**) : **10**

      a) Abuse and nefarious use of cloud computing.

      b) Insecure interfaces and APIs.

      c) Malicious insiders.

      d) Shared technology issues.

      e) Data loss or leakage.

      f) Account or service hijacking.

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

   OR

   B) Explain cloud security in detail. **10**

SLR-ER – 36

Seat No.	

T.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2016
LINUX OPERATING SYSTEM (Elective – II)

Day and Date : Thursday, 8-12-2016 Total Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

1. Choose the correct answer : **(20×1=20)**

1) The application is said to be executing in a system call in kernel space and the kernel is running in
   a) file context b) process context
   c) application context d) all of the above

2) Linux is _____ kernel that is the Linux kernel executes in a single address space entirely in kernel mode.
   a) monolithic b) micro c) mini d) all of the above

3) The kernel stores a list of processes in a linked list called the task list
   a) doubly b) circular singly
   c) circular doubly d) none of the above

4) Linux and most modern operating systems provides _____ multitasking.
   a) preemptive b) cooperative
   c) both a) and b) d) none of the above

5) The timeslice is the numeric value that represents how long a task can run until it is
   a) finished b) suspended
   c) preempted d) none of the above

6) 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

7) System calls provide layer between _____ processes.
   a) hardware and user-space b) hardware and OS space
   c) both a) and b) d) none of the above

8) System call performance on Linux is blindingly
   a) slow b) fast c) optimum d) none of the above

P.T.O.

9) The function the kernel run in response to a specific interrupt is called
   a) interrupt handle b) interrupt service routine
   c) both a) and b) d) none of the above

10) Linux interrupt handlers are normal _____ functions.
   a) C b) C++ c) Java d) None of the above

11) The lock prevents concurrency and prevents the queue from
   a) dead lock b) race condition
   c) both a) and b) d) none of the above

12) An interrupt can occur _____ at almost any time, interrupting the currently executing process.
   a) serially b) synchronously
   c) asynchronously d) none of the above

13) _____ is a measurement of how well a system can be expanded.
   a) throughput b) response time
   c) scalability d) all of these

14) Atomic operations provide instructions that execute automatically means _____interruption.
   a) with b) without c) rare 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) _____ readers can concurrently hold the reader lock.
   a) only one b) more c) one or more d) none of these

17) Semaphores in Linux are
   a) spin locks b) bottom halves
   c) sleeping locks d) none of these

18) The system timer goes off at programmed frequency called the
   a) tick rate b) clock rate
   c) both a) and b) 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) The vmalloc() function allocates memory that is _____ contiguous.
   a) virtually b) physically
   c) both a) and b) d) none of these

SECTION – I

2. Write short note on (**any four**) : **(4×5=20)**
   a) Linux versus Classical Unix kernel
   b) Preemption and context switching
   c) Process creation
   d) System call handler
   e) Interrupt handler.

3. A) What do you mean by system call handler ? Explain in detail system call implementation. **10**

   B) Describe the Linux implementation of threads. What do you mean by process termination ? **10**

   OR

   B) Explain in detail process scheduling policy with an example. **10**

SECTION – II

4. Write short note on (**any four**) : **(4×5=20)**
   a) Atomic operations
   b) Delaying execution
   c) Pages and zones
   d) Slab layer and slab allocator interface
   e) Page tables and page cache.

5. A) What is a spin locks ? Explain in detail reader-writer spin locks. **10**

   B) Describe Linux file system VFS objects. What do you mean by data abstraction ? **10**

   OR

   B) What is request queue ? Explain in detail different I/O schedulers. **10**

———————

SLR-ER – 37

Seat No.	

M.C.A. (Engg.) Direct Second Year Students (Bridge Course) Examination, 2016
DISCRETE MATHEMATICAL STRUCTURES (Paper – I)

Day and Date : Saturday, 10-12-2016 Total Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

1. Choose the correct alternative : **(20×1=20)**

1) A _____ is an ordered collection of objects.
a) Relation b) Function c) Set d) Proposition

2) 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}

3) Power set of empty set has exactly _____ subset.
a) One b) Two c) Zero d) Three

4) 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)}

5) What is the cardinality of the set of odd positive integers less than 10 ?
a) 10 b) 5 c) 3 d) 20

6) 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}

7) The set of positive integers is
a) Infinite b) Finite c) Subset d) Empty

8) What is the Cardinality of the Power set of the set {0, 1, 2} ?
a) 8 b) 6 c) 7 d) 9

9) 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

10) The value of $\lfloor 1/2.\lfloor 5/2 \rfloor \rfloor$ is
   a) 1 b) 2 c) 3 d) 0.5

11) 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}

12) 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}

13) Two sets are called disjoint if there _____ is the empty set.
   a) Union b) Difference c) Intersection d) Complement

14) 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}

15) The difference of {1, 2, 3} and {1, 2, 5} is the set
   a) {1} b) {5} c) {3} d) {2}

16) The complement of the set A is
   a) A – B b) U – A c) A – U d) B – A

17) The bit strings for the sets are 1111100000 and 1010101010. The union of these sets is
   a) 1010100000 b) 1010101101 c) 1111111100 d) 1111101010

18) The set difference of the set A with null set is
   a) A b) null c) U d) B

19) 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

20) 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) $p \vee q$

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 Bipartitie Graph with example. **10**

4. Explain tree traversal technique. **10**

5. Explain Transpose of Matrix. **10**

6. Explain Hamiltonian with example. **10**

7. Explain Power Set and Cartesian Product with example. **10**

8. Explain Eulerian Graph with example. **10**

———————

SLR-ER – 38

Seat No.	

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

Day and Date : Tuesday, 13-12-2016 Total Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

1. Multiple Choice Questions : **20**

1) One of the most important aspects of operating system is the ability to _____
   a) Single program b) Multi-program
   c) Both a) and b) d) None of the above

2) Multiprocessor systems are known as _____ systems.
   a) Parallel b) Tightly coupled
   c) Both a) and b) d) All of the above

3) The operating system is responsible for _____
   a) Scheduling processes
   b) Suspending processes
   c) Process synchronization
   d) All of the above

4) A local area network connects computers within _____
   a) Room b) A floor
   c) A building 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 main advantage of the layered approach for operating system structure is _____ of construction and debugging.

a) Simplicity b) Reusability

c) Computability d) None of the above

7) Each process is represented by _____

a) Process control block b) Task control block

c) Both a) and b) d) None of the above

8) 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

9) 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 process

c) No other processes d) None of the above

10) A semaphore S is _____ variable that is accessed only through two atomic operators wait () and signal().

a) An integer b) Character

c) Real d) None of the above

11) Swapping requires a backing store. The backing store is commonly _____

a) Main memory b) Cache memory

c) Fast disk memory d) None of the above

12) Allocates the smallest hole that is enough. This strategy produces the smallest leftover hole is _____

a) First fit b) Best fit

c) Worst fit d) None of the above

13) _____ is a memory management scheme that supports user view of memory.

a) Paging b) Fragmentation

c) Segmentation d) All of these

14) A demand paging system is similar to a paging system with swapping where processes reside in _____

a) Secondary memory b) Main memory

c) Primary memory d) All of these

15) Optimal page replacement algorithm has the _____ page fault rate.

a) Optimum b) Lowest

c) Highest d) None of these

16) _____ is a named collection of related information that is recorded on secondary storage.

a) Process b) File

c) Both a) and b) d) None of these

17) The user may want to erase the content of the file but keep its attributes is _____

a) Writing a file b) Deleting a file

c) Truncating file d) None of these

18) Partitions are known as _____

a) Slices b) Minidisks

c) Both a) and b) d) None of these

19) The free space list is implemented as a _____

a) Bit vector b) Byte vector

c) Block vector d) None of these

20) Before a disk can store data, it must be divided into sectors that the disk controller can read and write. This process is called _____ formatting.

a) Low level b) Physical

c) Both a) and b) d) None of these

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

   a) Multi-programming.

   b) Inter-process communication.

   c) Round robin algorithm.

   d) Contiguous allocation.

   e) Access matrix.

3. Explain in detail multilevel feedback queue scheduling. **10**

4. What is a critical section problem ? Explain in brief synchronization hardware. **10**

5. Explain in brief memory space segmentation. **10**

6. What do you mean by paging ? Comment on demand paging performance. **10**

7. Explain the terms disk management and free space management. **10**

8. Distinguish between distributed and network operating systems. **10**
