SLR-BD – 1

Seat No.	

F.Y.M.C.A. (Under Faculty of Engg.) (Part – I) Examination, 2014
FUNDAMENTALS OF COMPUTER ENVIRONMENT

Day and Date : Friday, 5-12-2014 Max. Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

1. Multiple choice questions : **20**

1) From _____ generation operating systems were developed.
   A) First B) Second C) Third D) Fourth

2) CD-ROM stands for _____
   A) Compactable Read Only Memory
   B) Compact Data Read Only Memory
   C) Compactable Disk Read Only Memory
   D) Compact Disk Read Only Memory

3) Compiler is a _____
   A) A compiler does a conversion line by line as the program is run
   B) A compiler converts the whole of a higher level program code into machine code in one step
   C) A compiler is a general purpose language providing very efficient execution
   D) None of the above

4) IBM 1401 is _____
   A) First Generation Computer B) Second Generation Computer
   C) Third Generation Computer D) Fourth Generation Computer

5) _____ computers are also called personal computers.
   A) Mainframe Computer B) Mini Computers
   C) Micro Computers D) Super Computers

6) _____ technology is used in reading a Compact disk.
   A) Mechanical B) Electrical
   C) Electro Magnetic D) Optical

7) WAN stands for _____
   A) Wap Area Network B) Wide Area Network
   C) Wide Array Net D) Wireless Area Network

8) A digital computer did not score over an analog computer in terms of _____
   A) Speed B) Accuracy
   C) Reliability D) Cost

9) Operating system, editors, and debuggers comes under _____
   A) System Software B) Application Software
   C) Utilities D) None of the above

10) _____ printer is very commonly used for desktop publishing.
   A) Laser printer B) Inkjet printer
   C) Daisywheel printer D) Dot matrix printer

11) As compared to diskettes, the hard disks are _____
   A) More expensive B) More portable
   C) Less rigid D) Slowly accessed

12) Primary memory stores _____
   A) Input Data only B) Instructions only
   C) Output Data only D) All of above

13) _____ requires large computers memory.
   A) Imaging B) Graphics C) Voice D) All of above

14) The signal which has infinitely many levels of intensity over a period of time is called _____
   A) Digital signal B) Analog signal
   C) Sound signal D) Both A) and B)

15) The translator program used in assembly language is called _____
   A) Compiler B) Interpreter C) Assembler D) Translator

16) The computer that process both analog and digital is called _____
   A) Analog Computer B) Digital Computer
   C) Hybrid Computer D) Mainframe

17) The storage subsystem in a microcomputer consists mainly of _____ or _____ media with varying capacities.

A) Memory or video B) Magnetic or optical

C) Optical or memories D) Video or magnetic

18) _____ communication lines are best suited to interactive processing application.

A) Simplex lines B) Narrow band channel

C) Full duplex lines D) Mixed band channel

19) Regarding data, computers are very good at _____

A) Store B) Processing

C) Retrieve D) All of above

20) _____ is groups of specially wrapped and insulated wire lines capable of transmitting data at high rates.

A) Coaxial Cable B) Twisted-pair wire

C) Optical fiber D) None of these

SECTION – I

2. Short notes (**Any 4**) : **20**

a) Characteristics of computer. Explain characteristics of computer any 6.

b) Storage Unit

c) Data scanning devices

d) Binary arithmetic

e) Work station

3. Answer the following : **20**

a) Define Computer and explain classification and types of computers.

b) What is Input/output Devices ? Explain speech recognition devices in detail.

OR

b) What is computer structure ? Explain Structure of computer in detail.

SECTION – II

4. Short notes **(Any 4)** : **20**

   a) Data Transmission Media

   b) Network types

   c) Characteristics of good languages

   d) Magnetic tapes

   e) Uses of Internet

5. Answer the following : **20**

   a) What is Data Communication ? Explain difference between digital and analog transmission.

   b) Define memory ? Explain magnetic memory in detail.

   OR

   b) What do you mean by Machine language ? Explain Assembly Language, High Level Language.

SLR-BD – 10

Seat No.	

F.Y.M.C.A. (Part – II) (Old) (Under Faculty of Engg.) Examination, 2014
SOFTWARE ENGINEERING

Day and Date : Tuesday, 16-12-2014 Max. Marks : 100

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

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

1. Multiple Choice Question. **20**

1) In the maintenance phase the product must be tested against previous test cases. This knows as _____ testing.
   A) Unit B) Integration C) Regression D) Beta

2) Spiral Model was developed by
   A) Bev Littlewood B) Berry Bohem
   C) Roger Pressman D) Victor Basili

3) Project risk factor is considered in
   A) Spiral Model B) Waterfall Model
   C) Prototyping Model D) Iterative enhancement model

4) RAD stand for
   A) Rapid Application Development
   B) Relative Application Development
   C) Ready Application Development
   D) Repeated Application Development

5) White box testing, a software testing techniques sometimes called
   A) Basic path B) Graph testing
   C) Glass box testing D) Dataflow

6) _____ is a black box testing method.
   A) Boundary value analysis B) Basic path testing
   C) Code path analysis D) None of the above

P.T.O.

7) Data structure suitable for the application is discussed in
   A) Data design B) Architectural design
   C) Procedural design D) Interface design

8) In object oriented design of software, objects have
   A) Attribute and name only
   B) Operation and name only
   C) Attribute, name and operations
   D) None of above

9) Function oriented metrics were first proposed by
   A) John B) Gaffney C) Albrecht D) Basili

10) In system design, we do following
   A) Hardware design after software
   B) Software design after hardware
   C) Parallel hardware and software design
   D) No hardware design needed

11) Software engineering aims at developing
   A) Reliable software
   B) Cost effective software
   C) Reliable and cost effective software
   D) None of above

12) Design phase include
   A) data, architectural and procedural design
   B) architectural, interface and procedural design
   C) data, architectural and interface design
   D) data, architectural, interface and procedural design

13) Which of following tool for design phase ?
   A) Abstraction B) Refinement
   C) Information hiding D) All of above

14) ISO 9001 is not concerned with _____ of quality records.
A) collection B) maintenance
C) verification D) dis-positioning

15) Which requirements are the foundation from which quality is measured ?
A) Hardware B) Software
C) Programmers D) None of the mentioned

16) A description of each function presented in the DFD is contained in a _____
A) data flow B) process specification
C) control specification D) data store

17) A data model contains
A) data object B) attributes C) relationships D) all of the mentioned

18) Which one of the following is a requirement that fits in a developer's module ?
A) Availability B) Testability C) Usability D) Flexibility

19) How many feasibility studies is conducted in requirement analysis ?
A) Two B) Three C) Four D) Five

20) _____ and _____ are the two issues of Requirement Analysis.
A) Performance, Design B) Stakeholder, Developer
C) Functional, Non-functional D) None of above

SECTION – I

2. Write short note on (**any 4**) : **20**
I) Data design
II) Object oriented analysis modeling
III) Automated techniques for requirement analysis
IV) Spiral model
V) Communication techniques.

3. a) Define software engineering and explain classic life cycle with a diagram. **10**
b) Explain effective modular design. **10**

OR

b) Explain in detail basic notation and mechanics of structure analysis. **10**

SECTION – II

4. Write short note on (**any 4**) : **20**
   I) System testing
   II) User interface design
   III) Formal approaches to SQA
   IV) Data flow oriented design
   V) Validation testing.

5. a) Define software testing. Explain in detail basis path testing. **10**
   b) Explain reverse engineering and reengineering. **10**

   OR

   b) Define Software Quality Assurance. Explain the quality factor. **10**

SLR-BD – 16

Seat No.	

S.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2014
COMPUTER GRAPHICS WITH MULTIMEDIA (Old)

Day and Date : Friday, 5-12-2014 Max. Marks : 100

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

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

1. Choose the correct option from the following : **20**

1) Shadow mask technique is commonly used in
   a) Vector scan display b) Raster scan display
   c) Random scan display d) None

2) In light pen LDR stands for
   a) Light Detector Register b) Light Dependent Register
   c) Load Detector Register d) Load Dependent Register

3) In DDA algorithm _____ function makes the algorithm work in all quadrants.
   a) Sign b) Sin c) Cos d) None

4) The mid point circle drawing algorithm uses eight-way symmetry of the circle to generate it. It plots $1/8^{th}$ part of the circle i.e. from_____ to _____
   a) 90° to 0° b) 90° to 45° c) 0° to 90° d) 0° to 40°

5) _____ is a process of changing the position of an object in a straight line path from one co-ordinate location to another.
   a) Scaling b) Rotation c) Translation d) None

6) The transformation matrix for reflection about y –axis is _____

   a) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ b) $\begin{bmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ c) $\begin{bmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$ d) $\begin{bmatrix} 1 & 0 & 1 \\ 1 & 0 & 1 \\ 1 & 0 & 1 \end{bmatrix}$

7) _____ transformation maps normalized device co-ordinate to physical device co-ordinate.
   a) Work station b) Normalization c) World coordinates d) None

P.T.O.

8) In Sutherland Hodgeman polygon clipping, if both vertices of the edge are outside the window boundary_____ is added to the output list.
   a) Second vertex b) Intersection vertex c) Nothing d) First vertex

9) An area on a device to which a window is mapped is called_____
   a) Window b) Clipping c) Viewport d) None

10) _____is smallest and addressable plot of screen element
   a) Point b) Pixel c) Region d) None

11) _____ is a device that converts electrical energy to acoustic energy.
   a) Microphone b) Amplifier c) Loudspeaker d) Audio mixer

12) RLE for 'PPPPPPPPP'
   a) P b) PPPP c) (P, 9) d) Only (1, P)

13) _____ is used to boost the levels of the electrical signals.
   a) Speakers b) Microphones c) Audio recorder d) Amplifier

14) Speed of sound in air is about
   a) 1500 m/sec b) 340 m/sec c) 1340 m/sec d) 380 m/sec

15) Loudness of sound is measured in a unit called _____
   a) Hertz (Hz) b) Decibel (dB) c) Pressure d) None of these

16) SWF stands for _____
   a) Shock Wave Format b) Smart Wave Format
   c) Smart Wave File d) None of these

17) In 3D animation _____ is a process of changing a 2D shape into a 3D object by moving the shape along specific direction.
   a) Lofting b) Lathing c) Rotation d) None of these

18) _____can be used to grasp a virtual object.
   a) Data glove b) Digitizer c) Track ball d) Image scanner

19) MPEG stands for _____
   a) Movie Pictures Expert Group b) Media Pictures Expert Group
   c) MAC Pictures Expert Group d) Motion Pictures Expert Group

20) CCIR defines a standard for digitization of video signal known as _____
   a) CCIR – 602 recommendations
   b) CCIR – 601 recommendations
   c) CCIR – 604 recommandations
   d) CCIR – 605 recommandations

2. Write short answer on **(any 4)** : **20**
   1) 3D scalling
   2) Polygon filling
   3) Touch panels
   4) Weighted and unweighted area sampling
   5) Projection transformation.

3. A) Explain construction and working of plasma panel. **10**

   B) Explain Sutherland-Hodgeman polygon clipping algorithm. **10**

   OR

   B) Explain DDA algorithm with an example. **10**

4. Write short answer on **(any 4)** : **20**
   1) Loudspeaker with woofer and tweeters
   2) MIDI
   3) Types of animation
   4) CODEC
   5) NTSC and PAL.

5. a) What is virtual reality? Explain applications of virtual reality. **10**

   b) Explain steps for creating multimedia presentation. **10**

   OR

   b) What is image compression ? Explain Lossy and Lossless compression. **10**

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SLR-BD – 17

Seat No.	

S.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2014
SYSTEM PROGRAMMING (Old)

Day and Date : Monday, 8-12-2014 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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

1. Multiple choice questions : **20**

1) _____ phase is concerned with construction of target language statements which implement the meaning of the source statement.
   a) Analysis b) Semantic
   c) Synthesis d) None of the above

2) A binding is the association of _____ of a program entity with _____
   a) An attribute type, value type b) An attribute, a value
   c) Variable, type d) None of the above

3) LPDT stands for _____
   a) Language Program Development Tool
   b) Language Development Tool
   c) Language Processor Development Tool
   d) None of the above

4) _____ statement indicates an action to be performed during the execution of the assembled program.
   a) An imperative b) Declarative
   c) An assembler directive d) All of the above

5) Which of the following is assembler directive statement available in assembly language ?
   a) ADD b) DC c) DS d) END

6) _____ contain information about constants used in the source program.
   a) Symbol table b) Literal table
   c) Both a) and b) d) None of the above
7) The EQU statement define symbol to _____ specification.
   a) Value b) Data c) Address d) Statement
8) The macro preprocessor accepts an assembly program and translates it into an assembly program _____
   a) Containing macro definitions b) Containing macro calls
   c) Both a) and b) d) None of the above
9) A macro may constitute a call on another macro, such calls are known as _____
   a) Nested macro calls b) Nested function calls
   c) Nested program calls d) None of the above
10) Which statements support advanced macro facilities ?
   a) AIf, AGO and ANOP b) EV's
   c) SET d) All of the above
11) _____ is storage that is local to the program and is allocated prior to execution time.
   a) Static storage b) Dynamic storage
   c) Internal static d) External static
12) In _____ memory is allocated to the variables declared in a program unit when the program unit is entered during execution.
   a) automatic dynamic allocation
   b) direct dynamic allocation
   c) automatic static allocation
   d) direct static allocation
13) _____ are characterized by the fact that many invocations of a procedure coexist during the execution of a program.
   a) Recursive procedures
   b) Interpretation procedure
   c) Rollback procedure
   d) None of these

14) The _____ of a language is the collection of language features for altering the flow of control during the execution of a program.
   a) flow control b) flow structure
   c) program control d) control structure

15) _____ is the process of modifying the addresses used in the address sensitive instructions of a program.
   a) Program execution b) Program relocation
   c) Program allocation d) Program modification

16) A _____ is used to keep track of each segment's assigned location.
   a) Program load address b) Program counter address
   c) Load address d) Counter address

17) _____ are used to reduce the main memory requirement of a program.
   a) Structural overlays b) Controlled overlays
   c) Both a) and b) d) None of these

18) In the _____ mode, the user keys in the text to be added to the file.
   a) data b) command c) current d) none of these

19) A _____ is a software tool that collects information regarding the execution behaviour of a program.
   a) execution profile b) profile monitor
   c) execution behaviour d) both a) and c)

20) The _____ is responsible for interpreting user commands and implementing them by invoking different modules of the application code.
   a) Presentation manager b) Dialog manager
   c) Interpretation manager d) Module manager

SECTION – I

2. Write short answer on (**any 4**) : **20**
   1) Program execution activity of language processor
   2) Forward reference problem
   3) Data structure of an assembler
   4) Two pass assembly scheme
   5) Altration of flow of control during macro expansion.

3. A) Explain in detail language processor Lex and YACC tools. **10**

   B) Explain single pass assembler for IBM PC. **10**

   OR

   B) Draw flow chart of Pass-II of an assembler. Explain in brief. **10**

SECTION – II

4. Write short note on (**any 4**) : **20**
   1) Control flow analysis
   2) Expression tree
   3) Self-relocating programs
   4) Loader with its functions
   5) Program preprocessing and instrumentation.

5. A) A software tool 'interfaces the results of a program with the entity consuming them'. Explain. **10**

   B) Explain code optimization in detail. **10**

   OR

   B) Write algorithm for program linking. **10**

SLR-BD – 18

Seat No.	

S.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2014
COMPUTER ORGANIZATION AND ARCHITECTURE (Old)

Day and Date : Wednesday, 10-12-2014 Max. 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 options : **20**

1) EDVAC stands for_____
   a) Electrical Data Variable Computer
   b) Electronic Data Variable Computer
   c) Electronic Discrete Variable Computer
   d) None of the above

2) RISC processors have_____ instruction format.
   a) Variable length b) Fixed length
   c) Implicit d) Explicit

3) Group of lines that connects several devices is called _____
   a) Port b) Shared memory
   c) Bus d) Peripheral

4) _____ can be loaded from an external source as well as from the address field of a micro instruction.
   a) CMDR b) CMRR c) CMAR d) CMCR

5) Interrupts can be generated in response to
   a) Input/output activities b) Internal timers
   c) Both a) and b) d) None of the above

P.T.O.

6) Machine instructions are implicit commands that specify the _____ operations to be performed.
   a) Arithmetic b) Logical
   c) Both a) and b) d) None of the above

7) In relative Address Mode, the content of _____is added to the address part of the instruction to obtain effective address.
   a) Indexed register b) Base register
   c) Both a) and b) d) Program counter

8) _____stream flowing from memory to the processor.
   a) Data b) Segment c) Address d) Instruction

9) ADD AX, [BX +5] represents the _____
   a) Register Addressing Mode b) Based Addressing Mode
   c) Direct Addressing Mode d) All of the above

10) The microroutine for all instructions of instruction set are stored in a special memory called_____
   a) Control store b) Tag memory
   c) Central store d) Memory block

11) Which of the following is the internal memory of the system ?
   a) CPU register b) Cache
   c) Main memory d) All of these

12) In a virtual memory system the address space specified by the address lines of the CPU must be_____ than the physical memory size and _____ than the secondary storage size.
   a) Smaller, smaller b) Smaller, larger
   c) Larger, smaller d) Larger, larger

13) The idea of cache memory is based on
   a) The property of locality of reference
   b) The heuristic 90 – 10 rule
   c) The fact that only a small portion of a program is referenced relatively frequently
   d) None of these

14) Which of the following is not a form of memory ?
   a) Instruction cache
   b) Instruction register
   c) Instruction opcode
   d) Both a) and b)

15) A technique used in many machines is to assign a part of the main memory address space to IO ports. This technique is called _____
   a) Memory – Mapped IO
   b) Interrupt – Mapped IO
   c) Programmed – Mapped IO
   d) Programmed – Driven IO

16) A _____ request by an I/O device only requires the CPU to grant control of the memory bus to the requesting device.
   a) DMA
   b) Acknowledge
   c) Processor
   d) Process element

17) The word _____ is used in a broad sense for any infrequent or exceptional event that causes a CPU to temporarily transfer control from its current program to another program.
   a) Interrupt b) Tolerance c) Coherence d) Dead lock

18) Pipeline implement
   a) Fetch instruction
   b) Decode instruction
   c) Execute instruction
   d) All of above

19) _____redundancy refers to the use of redundant hardware or software components which form a permanent part of t he system.
   a) Static b) Dynamic c) Data d) Variable

20) A multiprocessor is an _____ computer containing two or more CPUs that cooperate on common computational tasks.
   a) SIMD b) MIMD c) SISD d) MISD

SECTION – I

2. Write short answer on **(any four)** : **20**
   1) Memory unit
   2) Booth algorithm flow chart
   3) RISC processors
   4) Floating point arithmetic
   5) Micro programmed control.

3. A) Explain functional units of a computer. **10**

   B) Explain with an example unsigned division. **10**

   OR

   B) Explain hard wired control unit. **10**

SECTION – II

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

   1) Segment

   2) Direct mapping

   3) Interrupt

   4) Cache memory

   5) Dynamic redundancy.

5. A) What is cache coherence problem ? How to overcome these situations ? **10**

   B) Write in detail programmed input output. **10**

   OR

   B) Explain process of conversion of virtual address to physical address. **10**

SLR-BD – 19

Seat No.	

S.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2014
RELATION DATABASE MANAGEMENT SYSTEM (Old)

Day and Date : Friday, 12-12-2014 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

***Instructions** : 1) Figure to the **right** indicates **full** marks.*
*2) Q. **3 A** and Q. **5 A** are **compulsory**.*
3) To the point answer carry weightage.

1. Multiple choice questions : **20**

1) Entities are described in a database by a set of

A) Attributes B) Key

C) Tables D) Rows

2) Data about data is

A) Database B) Data table

C) Metadata D) Data warehouse

3) A data base system provides a _____ to specify the database schema and a _____ to express database queries and updates.

A) Data-definition language, Data-manipulation language

B) Data-control language, data-query language

C) Data-manipulation language, data-definition language

D) Data control language, transaction control language

4) A variable whose domain is the set of all tuples is

A) Relational variable B) Domain variable

C) Both A) and B) D) Tuple variable

5) A set of one or more attributes that taken collectively, allows us to identify uniquely a tuple in the relation that is

A) Super key B) Alternate key

C) Candidate key D) Composite key

P.T.O.

6) If where clause and having clause appear in the same query, SQL applies the predicate in the _____ Clause first.

A) Where B) Having

C) Both A) and B) D) None of these

7) Integrity constraints can be added to an existing relation by using the command

A) ALTER B) DROP

C) CREATE D) UPDATE

8) Students and courses are enrolled, is an example of

(Note : one student can take admission to more than one course)

A) One to one relationship B) One to many relationship

C) Many to one relationship D) Many to many relationship

9) CREATE, ALTER, DROP belongs to

A) DDL B) DML

C) DQL D) DCL

10) Pick odd man out (Aggregate function).

A) SUM B) MAX

C) MIN D) PERCENT

11) The first _____ was developed by ARDANET.

A) LAN B) WAN

C) MAN D) SAN

12) The unit of storage on disk is called as _____ in hashing.

A) Bucket B) Skew

C) Dew D) View

13) Data dictionary is also known as _____

A) System catalog B) Backup system

C) Data Management D) B) and C) both

14) _____ is one form of dynamic hashing.

A) Extendable B) Shrink

C) Static D) B) and C) both

15) _____ helps to avoid writing the results of many subexpressions to disk, by using the result in the parent expression even as they are being generated.

A) Pipelining B) Materialization

C) A) and B) both D) RAID

16) We can sort relations larger than memory by the _____ sort-merge algorithm.

A) Internal B) External

C) Excel D) Independent

17) _____ is the smallest unit of information that can be read from or written to the disk.

A) Sector B) Track

C) Platter D) None of these

18) User metadata consist of

A) Username B) Encrypted-password

C) Group D) All of these

19) Pick odd man out (parallel system).

A) Shared-memory B) Shared disk

C) Shared nothing D) Shared PEROM

20) Pick odd man out (functional dependency).

A) Full B) Partial

C) Transitive D) Pipelining

SECTION – I

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

i) Modification of database

ii) Set operations

iii) Triggers

iv) Embedded SQL

v) Tuple relational calculus.

3. a) Explain any ten relational algebra operations with an example. **10**

   b) Explain authorization in SQL with example in-detail **10**

   OR

   b) What is Entity Relationship Diagram ? List any seven notations used in ERD with example.

SECTION – II

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

   a) Distributed system

   b) Physical storage media

   c) Measures of query cost

   d) File organization

   e) Ordered indices.

5. a) What is normalization ? Explain 1NF, 3 NF and BCNF with example. **(10×1=10)**

   b) Explain B and B+ tree index files in detail. **(10×1=10)**

   OR

   b) What is RAID ? Explain levels of RAID with systematic diagram. **(10×1=10)**

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SLR-BD – 2

Seat No.	

F.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2014
PROGRAMMING IN C

Day and Date : Monday, 8-12-2014 Total Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

1. Multiple choice question : **20**

1) The prototype of the function in the header file is
   A) Stdio.h B) stdlib.h C) conio.h D) io.h

2) Which of the following function calculate the square of 'X' in C ?
   A) sqr(X) B) pow(2,X) C) pow(X,2) D) power(X,2)

3) A function that calls itself for its processing is known as
   A) Inline Function B) Nested Function
   C) Overloaded Function D) Recursive Function

4) A static variable by default gets initialized to
   A) 0 B) blank space C) 1 D) garbage value

5) Which of the following statements are correct about a for loop used in c program ?
   A) for loop works faster than a while loop
   B) for (;;) implements an infinite loop
   C) Both A) and B)
   D) None of the above

6) The default parameter passing technique is
   A) Call by Value B) Call by Reference
   C) Call by value result D) None of the above

7) A $\rightarrow$ B is syntactically correct if
   A) A and B are structure
   B) A is a structure and B is a pointer to structure
   C) A is a pointer to structure and B is a structure
   D) A is a pointer to structure in which B is a field

P.T.O.

8) For binary files, a _____ must be appended to the mode string.
A) Nothing B) “b” C) “binary” D) “01”

9) Which is valid string function ?
A) strpbrk B) strlen C) strxfrm D) strcut

10) The prototype of the function in the header file is
A) Stdio.h B) stdlib.h C) conio.h D) io.h

11) Which of the following is used as a string termination character ?
A) 0 B) \0 C) /0 D) None of these

12) Which of the following are unary operators in C ?
A) ! B) sizeof C) ~ D) All of the above

13) The index of the last argument in command line arguments is
A) argc –2 B) argc +1 C) argc D) argc –1

14) Which of the following complete function ?
A) int funct( ); B) int funct(int x) {return x=x+1;};
C) void funct(int) (printf(“Hello”);); D) None of these

15) Which of the following is not a relational operator ?
A) ! B) != C) >= D) <

16) #pragma exit is primarily used for
A) Checking memory leaks after exiting the program
B) Informing Operating System that program has terminated
C) Running a function at exiting the program
D) No such preprocessor exist

17) An _____ is similar to an ordinary variable except that it can store multiple elements of similar types.
A) Array B) Structure C) Union D) Macro

18) Which of the following are correct syntaxes to send an array as a parameter to function ?
A) func(&array); B) func(array[size]);
C) func(*array); D) All of the above

19) What is sizeof In 'C' ?

A) Operator B) Keyword C) Both A) and B) D) Function

20) What is the output of this C code ?

```
#include<stdio.h>
 int main( )
   {
    if(~0==1)
        printf("yes\n");
 else
     printf("no\n");
}
```

A) Yes B) No

C) Compile time error D) Undefined

SECTION – I

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

I) Application of Pointer

II) For loop

III) Operators

IV) Algorithm

V) Conditional Statement.

3. a) What is String ? Explain its function with example. **10**

b) What is an Array ? Write short note on Bound Checking with example. **10**

OR

b) Write a program to print the following format : **10**

```
    *
   *A*
  *A*A*
 *A*A*A*.
```

SECTION – II

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

   I) File Opening Modes

   II) Function Vs. Macro

   III) Bitwise Operators

   IV) Difference between Structure and Union

   V) Conditional Compilation.

5. a) What is Structure ? Explain the nested structure with example. **10**

   b) Explain concept Arrays of Structures with example. **10**

   OR

   b) Write a program that prompts the user for two files, one containing a line of text known as source file and other, an empty file known as target file and then copies the content of source file into target file. **10**

SLR-BD – 20

Seat No.	

S.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2014
COMPUTER ALGORITHMS (Old)

Day and Date : Monday, 15-12-2014 Total 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 correct alternatives : **20**

1) The time complexity of quick sort in worst case is _____
   a) O(nlog n) b) $O(n^2)$
   c) $O(n^2+1)$ d) $O(n^m)$

2) If the sample space consists of n sample points then there are _____ possible events.
   a) 2^n+1 b) 2^n
   c) n d) $(n+1)^2$

3) Consider an experiment of rolling 2 dice what is the probability that sum of two faces is 9.
   a) 1/12 b) 1/9
   c) 1/11 d) 1/12

4) If the computing time is represented as $O(n^2)$ then it is called as _____
   a) Quadratic b) Linear
   c) Exponential d) Non linear

5) _____ is the process of executing correct program on data sets and measuring the time and space it takes to compute the result.
   a) Analysis b) Profiling
   c) Debugging d) Validation

P.T.O.

6) The word "Algorithm" came from the name of _____

a) D.H. Lehmer b) R.J. Walker

c) S. Golombo d) None of these

7) Algorithms that are definite and effective are also called as _____

a) Profiling b) Predicate Caculus

c) Assertions d) None of these

8) The algorithm that produce the same output for the same input are called _____

a) Las Veags b) Monte Carlo

c) Recursive d) np Hard

9) In the optimal merge pattern problem a leaf node is known as _____

a) E-node b) Internal node

c) Dead node d) None of these

10) In the algorithm arrays and records are passed by _____

a) Value b) Reference

c) Type d) Recursion

11) An element in commutative ring is called a _____ n^{th} root of unity.

a) Fourier b) Quadratic

c) Lagrange's d) None of these

12) A b^{-1} in a multiplication modulo of 7 when b=5 is _____

a) 3 b) 2

c) 7 d) 4

13) A _____ search always generate the state space tree by levels.

a) D search b) FIFO

c) Lc search d) None of these

14) Which of the following is not a search method ?

a) FIFO b) LCBC

c) LIFO d) LC

15) According to BFS if G is not connected then _____ calls of BFS are required.

a) At least 2 b) Minimum one

c) Maximum one d) None of these

16) In _____ time we can obtain the connected components in BFS.

a) O(n+e) b) $O(n^2+e)$

c) O(log n) d) O(n log n)

17) Let two integers 10, 15 and p=7, p=9. If we perform the 15-10 then we can obtain

a) (5, 5) b) (5, 2)

c) 7, 9) d) None of these

18) The computing time of ExEuclid algorithm in algebraic problem requires _____ operations.

a) O(n) b) $O(n^2)$

c) $O(n^3)$ d) None of these

19) The name "Back Track" was first coined by _____ in 1950.

a) D.H. Lehmer b) R.J. Walker

c) L. Baumert d) S. Golomb

20) We can estimate number of nodes generated by backtracking algorithm by using _____ method.

a) Las Vegas b) Monte Carlo

c) Recursive d) Iterative

SECTION – I

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

1) Reliability design

2) Performance analysis

3) Recursive algorithm for two way merge pattern

4) Algorithm for all path shortest path

5) Job sequencing algorithm.

3. Answer the following : **20**

   a) Write advantage and disadvantages of randomized algorithm, and prove that $f(n)=O(g(n))$, $f(n)=\Omega(g(n))$, $f(n)=\Theta(g(n))$.

   b) Write and explain single source shortest paths first algorithm in greedy method.

   OR

   b) Write an algorithm for quick sort.

SECTION – II

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

   1) Algorithm for Ubound in knap sack problem.

   2) Multiplication modulo of 7.

   3) Applications of BFS.

   4) Transformation Technique for polynomial Product.

   5) N queens problem.

5. Answer the following : **20**

   a) Draw a state space tree generated by procedure LCBB in traveling salesperson problem.

   b) Write an algorithm for 8 queens problem.

   OR

   b) Write an algorithm for sum of subset.

SLR-BD – 21

Seat No.	

S.Y.M.C.A. (Under Faculty of Engg.) (Part – I) (New) Examination, 2014
DATA STRUCTURE

Day and Date : Friday, 5-12-2014 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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

1. Choose correct alternative : **20**

1) The data structure in which insertion and deletion operations are performed from both ends is
   a) Circular queue b) Deque
   c) Ordered queue d) Priority queue

2) Pick odd man out
   a) Truncation b) Midsquare c) Folding d) Push

3) Which data structure allows deleting data elements from front and inserting at rear ?
   a) Stacks b) Queues c) Deques d) Binary search tree

4) Which of the following data structure is linear data structure ?
   a) Trees b) Graphs c) Arrays d) None of above

5) Two dimensional arrays are also called
   a) Tables arrays b) Matrix arrays
   c) Both of above d) None of above

6) Which of the following data structures are indexed structures ?
   a) Linear arrays b) Linked lists
   c) Both of above d) None of above

7) Identify the data structure which allows deletions at both ends of the list but insertion at only one end.
   a) Input-restricted deque b) Output-restricted deque
   c) Priority queues d) None of above

P.T.O.

8) An algorithm that calls itself directly or indirectly is known as
   a) Sub algorithm b) Recursion
   c) Polish notation d) Traversal algorithm

9) Time complexity is
   a) Space required by program
   b) Time required for program
   c) Amount of machine time necessary for running a program
   d) All of above

10) The postfix form of the expression : (A+B)*(C*D – E)*F/G, is
   a) AB + CD*E – FG/** b) AB + CD*E – F**G/
   c) AB + CD*E – *F *G/ d) AB + CDE * – * F * G/

11) In _____ searching the records already must be sorted.
   a) Linear search b) Hashing
   c) Binary search d) None of above

12) _____ is used for finding shortest path between two nodes.
   a) Stack b) Queue c) Binary tree d) Graph

13) _____ is used for computer representation of a graph.
   a) Adjacency matrix b) Adjacency list
   c) Both a) and b) d) None of above

14) _____ tree is used to provide indexed sequential file organization.
   a) B– Tree b) B+ Tree c) Multiway tree d) None of above

15) _____ technique uses queue for traversing all the nodes of the graph.
   a) DFS b) BFS c) Warshall d) Both a) and b)

16) _____ of node is defined as the difference between the height of left subtree and right subtree of node in AVL tree.
   a) Balance factor b) Number of levels
   c) Weight d) Height

17) The children of same parent is called
   a) Ancestor b) Descendents
   c) Terminal nodes d) None of these

18) In a Heap tree

a) Values in a node is greater than every value in left sub tree and smaller than right sub tree

b) Values in a node is greater than every value in children of it

c) Both of above conditions applies

d) None of above conditions applies

19) _____ is a process of going through all the nodes of a linked list from one end to another end.

a) Searching b) Traversing

c) Sorting d) Reversing

20) A full binary tree with 2n + 1 nodes contain.

a) n leaf nodes b) n non-leaf nodes

c) n-1 leaf nodes d) n-1 non-leaf nodes

SECTION – I

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

A) Abstract Data Types

B) Disadvantages of Sequential storage

C) Algorithm for Insertion Sort

D) Types of Queue

E) Write a function to insert a node in linked list.

3. A) Write a program to Dynamically implement Queue Data Structure. **10**

OR

A) Explain in detail the concept Radix Sort with example.

B) Explain in detail the Application of Stack. **10**

SECTION – II

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

   A) Hashing and its functions

   B) B and B+ indexing

   C) DFS

   D) Graph and its implementation

   E) Threaded Binary Tree.

5. A) Explain Tree and its types with neat diagrams and examples. **10**

   OR

   A) Explain Collision resolution technique and its types.

   B) Explain Warshall's Algorithm for shortest path. **10**

SLR-BD – 22

Seat No.	

S.Y.M.C.A. (Part – I) (Under Faculty of Engg.) (New) Examination, 2014
SYSTEM PROGRAMMING

Day and Date : Monday, 8-12-2014 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

***Instructions** : 1) Q. **1** is **compulsory**.*
*2) Figures to the **right** indicate **full** marks.*

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

1) _____ generates a program from it's specification.
   a) Program generation activity b) Linker
   c) Program counter d) Reserve pointer

2) The _____ is a system program that puts all programs together so that they can execute meaningfully.
   a) Compiler b) Loader c) Linker d) Processor

3) The CPU uses a _____ to hold the address of the memory location that contains the next machine instruction to be executed.
   a) Program counter b) Location counter
   c) Pointer d) Program pointer

4) A _____ differs from an immediate operand in that a computer need not have a special addressing mode to support it's use.
   a) Literal b) Pools c) Symbol d) None of these

5) A _____ statements must be represented in the intermediate code.
   a) OS b) DL c) AD d) DC

6) A _____ entry contains the fields symbol, address and length.
   a) OPTAB b) SYMTAB c) LITTAB d) POOLTAB

7) The _____ phase can search it by using the mnemonic field as the key field.
   a) Synthesis b) Analysis c) Syntax d) Lexical

P.T.O.

8) A _____ in a program defines either a new operation or a new method of declaring data.
   a) Macro definition b) Macro function
   c) Macro expansion d) Semantic expansion

9) The first word of each record is used as a _____
   a) Reserved pointer b) Reverse pointer
   c) Record base pointer d) Base pointer

10) _____ implies replacement of a character string by another character string during program generation.
   a) Lexical substitution b) Macro substitution
   c) Both a) and b) d) None from a) and b)

11) The _____ is a system program that puts all programs together that they can execute meaningfully.
   a) Editor b) Compiler c) Loader d) Linker

12) The task of loading the operating system is performed by a special purpose loader is called
   a) Linking loader b) Absolute loader
   c) Bootstrap loader d) All of the above

13) The Cornell program synthesizer is _____
   a) Language processor b) Debug monitor
   c) Syntax director editor d) All of the above

14) The _____ of language is the collection of language features that can be used for altering the flow of control during execution of program.
   a) Control structure b) Program code
   c) Both a) and b) d) None of the above

15) The _____ of a language determine the parts of a program over which a variable may be accessed.
   a) Public specification b) Private specification
   c) Scope rules d) None of the above

16) Address sensitive program contains _____
   a) An address constants b) An address sensitive instructions
   c) Both a) and b) d) None of the above

17) _____ address assigned by the loader while loading the program in memory for the execution.

a) Translator origin b) Linked origin

c) Load origin d) All of the above

18) The editor guides the user to develop a well structured program through the use of _____

a) Dialogs b) Templates c) Menus d) None of the above

19) A user interface simplifies the interaction of a user with an application by providing means for conducting _____

a) Command dialogs b) Command help

c) Command menu d) All of the above

20) The code which can be omitted from a program without affecting its results is called _____

a) Redundant code b) Block of code

c) Dead code d) None of the above

SECTION – I

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

1) Program execution activity.

2) Binding and binding time.

3) Elements of assembly language programming.

4) Analysis phase in assembly.

5) Expansion time loop.

3. A) Explain language processing activity in detail. **10**

B) Explain data structure of macro preprocessor in detail. **10**

OR

B) Explain in detail pass-2 assembler with algorithm. **10**

SECTION – II

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

   1) Code generation stage in compiler

   2) An absolute loader

   3) Dynamic linking

   4) Principles of command dialog design

   5) User interface management system.

5. A) Explain in detail machine independent compiler features. **10**

   B) Explain different tasks involved in storage allocation. **10**

   OR

   B) Describe in brief editor's types. **10**

SLR-BD – 23

Seat No.	

S.Y.M.C.A. (Under Faculty of Engg.) (Part – I) (New) Examination, 2014
COMPUTER ORGANIZATION AND ARCHITECTURE

Day and Date : Wednesday, 10-12-2014 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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

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

1) _____ is micro operation.
   a) The operations executed on data stored in registers
   b) The operations executed on data stored in CD ROM
   c) The operations executed on data stored in micro chips
   d) The operations executed on data stored in RAM

2) The internal storage of a computer is called _____
   a) CPU b) ALU c) Memory d) Control Unit

3) ISP stands for _____
   a) Instruction Set Processor b) Information Standard Processing
   c) Interchange Standard Protocol d) Interrupt Service Procedure

4) _____ specifies the operation to be performed.
   a) Machine code b) CPU code
   c) Opcode d) ALU code

5) A microprogram is sequencer perform the operation _____
   a) read b) write
   c) read and write d) read and execute

6) Memory access in RISC architecture is limited to instructions _____
   a) CALL and RET b) PUSH and POP
   c) STA and LDA d) MOV and JMP

7) The location of the memory is provided by the input called as _____
   a) Address b) Number c) List d) Data

8) Interrupts which are initiated by an instruction are _____
   a) internal b) external c) hardware d) software

9) The register that keeps track of the instructions in the program stored in memory is _____
   a) control register b) program counter
   c) status register d) direct register

10) Micro-programmed control unit is _____ than hardwired but _____
   a) cheaper, more error prone b) faster, more error prone
   c) less error prone, slower d) faster, harder to change

11) Input or output devices attached to the computer are also called as _____
   a) I/O b) Peripherals
   c) Online d) None of these

12) _____are special hardware components between CPU and peripherals to supervise and synchronize all input and output transfers.
   a) Interface units b) Communication
   c) Links d) None of these

13) In I/O interface, a _____ command transfer data from bus into one of the registers.
   a) Control b) Status c) Data output d) Data input

14) The _____ method of asynchronous data transfer uses a single control line to time each transfer.
   a) handshaking b) strobe control c) both d) none of these

15) The memory unit that directly communicates with the CPU is called as the _____
   a) secondary memory b) auxiliary memory
   c) tertiary memory d) main memory

16) The _____ RAM consists of internal flip-flops that store binary information.

a) static b) dynamic

c) primary d) MOS

17) A memory unit having a storage capacity of 256 bits requires _____ number of address bits.

a) 6 b) 7 c) 8 d) 9

18) A memory unit accessed by content is called _____ memory.

a) primary b) dynamic c) static d) associative

19) _____ is achieved by distributing the data among multiple functional units.

a) Parallel processing b) Sequential processing

c) Both of these d) None of these

20) A _____ reads consecutive instructions from memory while previous instructions are being executed in other segments.

a) arithmetic pipeline b) instruction pipeline

c) segment d) none of these

SECTION – I

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

a) Major components of CPU.

b) Input/Output configuration.

c) Symbolic micro program.

d) Instruction format.

e) RISC and CISC characteristics.

3. Answer the following : **20**

   a) Define Micro program. Explain micro programmed control organization in detail.

   b) Explain stack organization in detail.

   OR

   b) Explain Common Bus System in detail.

SECTION – II

4. Attempt **any four** : **20**

   a) Write a short note on peripheral devices.

   b) Explain strobe control method of asynchronous data transfer.

   c) Using a proper diagram explain the working of a 128 × 8 RAM chip.

   d) Explain direct mapping.

   e) Write a note on processor with multiple functional units.

5. A) Explain DMA controller using a block diagram. **10**

   B) Illustrate address mapping using pages by taking an example. **10**

   OR

   B) What is pipelining ? Explain using an example. **10**

SLR-BD – 24

Seat No.	

S.Y.M.C.A. (Under Faculty of Engg.) (Part – I) (New) Examination, 2014
COMPUTER NETWORKS

Day and Date : Friday, 12-12-2014 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

1. MCQ/Objective type question paper : **20**

1) _____ performs modulation and demodulation.
a) fiber optics b) satellite c) coaxial cable d) modem

2) Layer one of the OSI model is _____
a) physical layer b) link layer
c) transport layer d) network layer

3) A network that needs human beings to manually route signals is called _____
a) Fiber Optic Network b) Bus Network
c) T-switched Network d) Ring Network

4) Devices on one network can communicate with devices on another network via a _____
a) File Server b) Utility Server c) Printer Server d) Gateway

5) A communication device that combines transmissions from several I/O devices into one line is a _____
a) Concentrator b) Modifier c) Multiplexer d) Full duplex file

6) Multiplexing is for _____ signals and time division multiplexing is for digital signals.
a) digital b) waves c) analog d) all of these

7) A group of computers and other devices connected together is called _____
a) Network b) Networking c) Intranet d) Both b) and c)

8) The _____ layer provides a well defined service interface to the network layer, determining how the bits of the physical layer are grouped into frames.
a) Data Link b) Physical c) Network d) Session

9) It is the mode of communication between two devices in which flow of data is bi-directional but not at the same time is called _____
a) Multiplexing b) Simplex c) Half-Duplex d) Full Duplex

10) Another name for Usenet is _____
a) Gopher b) Newsgroups c) Browser d) CERN

11) Which one of the following is not a function of network layer ?
a) routing b) inter-networking
c) congestion control d) none

12) A _____ is a TCP name for a transport service access point.
a) port b) pipe c) node d) none

13) Mechanism to protect private networks from outside attack is
a) Antivirus b) Firewall
c) Digital signature d) Formatting

14) SMTP is a
a) Protocol used for transferring message between end user and Mail server
b) Protocol used for smart card message interchange
c) Encryption standard
d) Networking Protocol

15) _____ is a packet routing method in which incoming packet is sent to every neighbor except where it came from.
a) Flooding b) Distance Vector
c) Hierarchical d) None

16) _____ defines where to deliver the IP-packets when the destination is not in the
a) SNMP b) Packet c) Routing table d) None

17) The UDP packet is called a _____
a) Packet b) User datagram
c) UDP data d) None

18) _____ is a message-oriented, reliable protocol that combines the good features of UDP and TCP.
a) SCTP b) SNMP c) TCP/IP d) None

19) A _____ qualified domain name is a domain name consisting of labels beginning with the host and going back through each level to the root node.
a) Fully b) Partially c) Mixed d) None

20) In an asymmetric-key cipher, the sender uses the _____ key ; the receiver uses the private key.
a) Private b) Public c) Both a) and b) d) None

SECTION – I

2. Write short note on **(any 4)** : **20**
   a) CSMA Protocol
   b) Network operating system
   c) Uses of computer network
   d) Communication satellites
   e) PSTN.

3. Answer the following : **20**
   a) Explain pure and slotted aloha in detail.
   b) Explain Ethernet in detail.

   OR

   b) Explain design issues of Data Link Layer.

SECTION – II

4. Write short note on (attempt **any 4**) : **(4×5=20)**
   1) Substitution Cipher
   2) Domain Name Space
   3) Internet Transport Protocol
   4) Firewall
   5) TCP Segment.

5. Write long answers :
   A) Explain Domain Name System in detail. **10**
   B) Differentiate between TCP and UDP. **10**

   OR

   B) What is Congestion ? Explain Closed-Loop Congestion Control in detail. **10**

———————

SLR-BD – 25

Seat No.	

S.Y.M.C.A. (Part – I) (New) (Under Faculty of Engg.) Examination, 2014
COMPUTER GRAPHICS

Day and Date : Monday, 15-12-2014 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

1. Multiple choice questions :

1) GIF stands for _____

a) Global Image format b) Graphics Interchange Format

c) Graphics Image Format d) None of the above

2) Interlaced refresh procedure is allowed in

a) LCD b) DVST

c) Raster scan display d) Random scan display

3) _____ function is used to set the basic fill style.

a) setFillStyle(fs) b) seFillStyleIndex(fs)

c) setInteriorStyle(fs) d) FillType(ft)

4) The translation distances (dx, dy) is called as

a) Translation vector b) Shift vector

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

5) The transformation in which the dimension of an object are changed relative to a specified fixed point is called

a) Rotation b) Reflection

c) Translation d) Scaling

6) Reflection of a point about x-axis, followed by a counter-clockwise rotation of 900, is equivalent to reflection about the line ?

a) $x = -y$ b) $x = 0$

c) $x = y$ d) $x + y = 1$

7) The process of mapping a world window in world coordinate system to viewport are called
   a) Transformation viewing
   b) Viewport
   c) Clipping window
   d) Screen coordinate system
8) 113. The region code of a point within the window is _____
   a) 1111
   b) 0000
   c) 1000
   d) 0001
9) 116. The result of logical AND operation with endpoint region codes is a nonzero value. Which of the following statement is true.
   a) The line is completely inside the window
   b) The line is completely outside the window
   c) Theline is partially inside the window
   d) The line is already clipped
10) 123. Sutherland Hodgeman algorithm works well for _____
   a) Concave polygon
   b) Convex polygon
   c) Smooth curves
   d) Line segment
11) In _____ technique deals with reducing the storage require to save an image.
   a) Compression
   b) Restoration
   c) Decompression
   d) Aquicision
12) The expression for log transformation is _____
   a) S = clog (1-r)
   b) S = clog(1 + r)
   c) S = clog(2 + r)
   d) S = clog(1-r)
13) Dpi stands for _____
   a) Dot per pixel
   b) Dot per inch
   c) Double per inch
   d) Dot pixel inch
14) In _____ technique of improving appearance it uses mathematical or probabilistic model.
   a) Image enhancement
   b) Restoration
   c) Both a) and b)
   d) Representation

15) Digitizing coordinate value is called _____

a) Quantization b) Amplitude

c) Sampling d) Variation

16) _____ is the process that expands the range of intensity level in an image so that it spans the full intensity range of display device.

a) Slicing b) Bit plane slicing

c) Contrast stretching d) All of the above

17) Mid level processing an image involves tasks such as _____

a) Reduction of noise b) Contrast enhancement

c) Color object d) Segmentation

18) While producing X-ray _____ is heated causing free electrons to be released.

a) Cathod b) Anode

c) X-Ray d) Gamma Rays

19) In log transformation the value or r is given as _____

a) r > = 0 b) r = 0

c) r < 0 d) r < = 0

20) _____ is an area which deals with improving appearance of an image.

a) Image enhancement b) Restoration

c) Both a) and b) d) Representation

SECTION – I

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

1) Video controller
2) Polygon filling
3) 2 D rotation
4) 2 D clipping
5) Applications of computer graphics and image processing.

3. A) Explain DDA line generation algorithm with its implementation. **10**

   B) Distinguish between random scan display and raster scan display in detail. **10**

   OR

   B) Explain midpoint subdivision line clipping algorithm in detail. **10**

SECTION – II

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

   1) 3D-translation
   2) Restoration and compression
   3) Sampling and quantization
   4) Image negatives and log transformation
   5) Gamma ray and x-ray imaging.

5. A) Components of image processing. **10**

   B) Explain different intensity transformation function. **10**

   OR

   B) Explain parallel projection with example.

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SLR-BD – 26

Seat No.	

S.Y.M.C.A. (Under faculty of Engg.) (Part – II) Examination, 2014
OPERATING SYSTEM

Day and Date : Saturday, 6-12-2014 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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

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

1) _____ contains a description of the disk layout of the file data.
a) Index node b) Inode c) Swap d) None of the above

2) The shell usually executes a command _____ waiting for the command to terminate before reading the next command line.
a) Synchronously b) Linearly
c) Serially d) None of these

3) In algorithm _____ the Kernel searches the hash queue that should contain the block but fails to find it there.
a) brelse b) breada c) inode d) getblk

4) The algorithm _____ returns a previously identified inode, possibly reading it from disk via the buffer cache.
a) iput b) inode c) iret d) iget

5) The _____ system call adjusts the value of the file table offset and changes the order in which a process reads or writes a file.
a) read b) write c) lseek d) bmap

6) Using algorithm _____, the Kernel assigns an inode for the new file.
a) ialloc b) alloc c) ialc d) none of these

7) The _____ system call proceeds according to the same algorithm as the open system call.
a) create b) crete c) creat d) none of these

8) Each _____ entry points to a region table entry and contains the starting virtual address of the region in the process.
a) region b) ptrreg c) pregion d) preg

P.T.O.

9) The _____ specifies the hardware status of the machine as it relates to the process.
   a) processor status register b) processor data register
   c) processor machine register d) processor hardware register

10) In the algorithm _____, the kernel simply turns off the signal indication for signals the process wants to ignore but notes the existence of signals it does not ignore.
   a) psig b) exec. c) brk d) issig

11) The Kernel releases all user memory by freeing the appropriate regions with algorithm _____ and changes the process state to zombie.
   a) freereg b) relreg c) detachreg d) freestat

12) If the sum of the working sets of all processes is greater than the physical memory on a machine, the fault handler will usually _____, because it can not allocate pages for a process.
   a) wait b) stop c) sleep d) commit

13) The _____ device is a block device in a configurable section of a disk.
   a) map b) swap c) ram d) conf

14) The _____ to driver interface is described by the block device switch table and the character device switch table.
   a) kernel b) user c) system call d) none of the above

15) A process severs its connection to an open device by _____ it.
   a) closing b) releasing c) opening d) option a or option b

16) Process tracing consists of _____ of the debugger process and the traced process and controlling the execution of the traced process.
   a) serialization b) linearization
   c) synchronization d) none of these

17) _____ is used to controlling processes.
   a) wait b) stat c) wc d) none of these

18) The _____ command, for instance, reads kernel data structures from physical memory to report process statistics.
   a) ps b) sp c) sd d) pd

19) A process uses the _____ system call to send a message.
   a) msgsnd b) mgsnd c) msgsend d) mgsend

20) _____ returns various statistics about the process.
   a) stat b) sta c) stasti d) statst

SECTION – I

2. Write short answer on (**any 4**) : **20**
   1) Architecture of unix system
   2) Advantages and disadvantages of buffer cache
   3) Write system call
   4) The U area
   5) Buffer pool structure.

3. A) Write and explain algorithm for conversion of byte offset to block number in file system. **10**

   B) How the kernel change the size of a region ? Explain in detail. **10**

   OR

   B) The algorithm iget and iput do not require processor execution level to be raised to block out interrupts. Explain what does this imply. **10**

SECTION – II

4. Write short answer on (**any 4**) : **20**
   1) Changing the size of process
   2) Functions of clock interrupt handler
   3) Clists
   4) Semaphores
   5) Stream analysis.

5. A) Write an algorithm for opening and closing device. **10**

   B) What is text region ? Write an algorithm for allocation of text region. **10**

   OR

   B) Explain fork in paging system. **10**

SLR-BD – 27

Seat No.	

S.Y.M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2014
DATA MINING

Day and Date : Tuesday, 9-12-2014 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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

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

1) Summarization is also called _____
   a) Characterization
   b) Generalization
   c) Characterization or generalization
   d) None of the above

2) _____ is the task of discovering groups and structures in the data that are in some way.
   a) Clustering b) Classification
   c) Discovery d) None of the above

3) _____ generates a function that maps inputs to desired outputs.
   a) supervised learning b) unsupervised learning
   c) reinforcement learning d) weighted class learning

4) _____ obtains a reduced representation of the data set that is much smaller in volume, yet produces the same analytical results.
   a) Data analysis b) Data producer
   c) Data reduction d) Data partition

5) A _____ is a measure that must be computed on the entire data set as a whole.
   a) Holistic measure b) Mean
   c) Median d) Both b) and c)

P.T.O.

6) A _____ says that each value of the given attribute must be different from all other values for that attribute.
   a) Consecutive rule b) Null rule
   c) Unique rule d) Field rule

7) _____ technique that adjusts weights in the NN by propagating weight changes backward from the sink to the source nodes.
   a) Propagation b) Back propagation
   c) Feed forward propagation d) Feed backward propagation

8) _____ is designed for clustering a large amount of metric data.
   a) BIRCH b) DBSCAN c) NN d) PAM

9) _____ are simple points with values much different from those of the remaining set of data.
   a) disjoints b) mean
   c) outliers d) none of the above

10) _____ improves on the time complexity of PAM by using samples of the data set.
   a) DBSCAN b) CLARANS
   c) CLARA d) BEA

11) _____ is query asking for objects that intersect a given region specified in the query.
   a) Nearest query b) Distance query
   c) Region query d) None of these

12) _____ signature is an example of lossy compression.
   a) Multi-feature composed b) Colour histogram base
   c) Wavelet bases d) None of these

13) _____ rules describe the data in spatial rules.
   a) Discriminate b) Characteristic
   c) Association d) None of these

14) A _____ tree is a tree where each internal node is labelled with a question.
   a) binary b) hash c) decision d) B+

15) Confidence measure the _____ of the rule.
a) Support b) Percentage
c) Strength d) All of these

16) _____ is a influential algorithms for mining frequent item sets for Boolean association rule.
a) Apriori b) Genetic c) Grid based d) Hierarchical

17) Speaker clustering technology used in _____ mining.
a) Video b) Audio c) Image d) All of these

18) The Apriori algorithm can be used to improve the efficiency of answering _____ queries.
a) DDL b) DML c) DCL d) Iceberg

19) _____ technique was designed to both increase the effectiveness of search engines and improve their efficiency.
a) Page rank b) Clever c) HITS d) None of these

20) _____ crawlers usually replace the entire index or a section thereof.
a) Incremental crawler b) Focused crawler
c) Periodic crawler d) Traditional crawler

SECTION – I

2. Write short answer on **(any 4)** : **20**
1) Bayesian classification
2) Data integration and transformation
3) KDD
4) Outliers
5) Nearest Neighbor algorithm for clustering.

3. A) Write and explain major issues in data mining. **10**

B) Explain 1R algorithm in detail. **10**

OR

B) What is clustering ? Explain any one partitional algorithm to show this concept. **10**

SECTION – II

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

   i) Spatial mining.

   ii) Sequences.

   iii) Modelling Temporal events.

   iv) Explain frequents item set.

   v) Support and confidence.

5. A) Explain system product and research prototype. **10**

   B) Explain web structure mining in detail. **10**

   OR

   B) Explain multimedia data mining in detail. **10**

SLR-BD – 28

Seat No.	

S.Y.M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2014
COMPUTER NETWORKS

Day and Date : Thursday, 11-12-2014 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

1. Choose correct alternative : **20**

1) A _____ completes a pattern within a measurable time frame.
   a) non periodic signal b) periodic signal
   c) harmonic signal d) non harmonic signal

2) _____ is the external energy that cancels a signal.
   a) Noise b) Interrupts c) Attenuation d) Distortion

3) _____ is the number of signal elements sent is 1^S form.
   a) Bit rate b) Signal rate c) Baud rate d) Both b) and c)

4) _____ is the device capable for creating temporary connection between two or more devices.
   a) Switch b) Hub c) Bridge d) Repeater

5) The _____ uses either space division switching or the time division switching.
   a) Message switching b) Packet switching
   c) Circuit switching d) Code switching

6) In _____ there is no tear down phase.
   a) Virtual circuit b) Data gram subnet
   c) Switch d) Concatenated circuit

7) Random access method is also known as _____ method.
   a) Contention b) Back off c) Tear down d) Take off

8) Many low speed channels are interwoven into one high speed transmission by
   a) Time division multiplexing b) Frequency division
   c) Both a) and b) d) None of these

9) Which sublayer of the data link layer communicates directly with the network interface cord ?
   a) Logical link control b) Logical access control
   c) Media access control d) Data access control

10) In an Ethernet Network what method is used to access the media ?
   a) Polling b) ALOHA c) CSMA/CD d) CSMA/CA

P.T.O.

11) Which of the following operates at all of the upper layers of the OSI model ?
a) Gateway b) Brouter c) Repeater d) Bridge

12) T1 carriers are widely used to connect LANs to from WANs what is the transmission speed of T1.
a) 128 Kbps b) 255 Kbps c) 1.544 Mbps d) 64 Mbps

13) Connection oriented network communication is best described by
a) It is the fastest method b) It provides guaranteed delivery
c) All networks use this method d) None of the above

14) Which of the following transmission method is suitable for T.V. transmission ?
a) Synchronous b) Asynchronous c) Isochronous d) None of the above

15) Which of the following layer of the OSI model is responsible for compression and decompression of data ?
a) Physical b) Network c) Data link d) Presentation

16) Coaxial cable has conductors with
a) Different twist lengths b) Same diameter
c) A common axis d) None of the above

17) A connection on the computer to which peripheral devices are attached is a
a) Node b) Port c) Gateway d) None of the above

18) Which of the following is not true ?
a) Simplex is used in radio stations
b) Simplex is used in television broadcasting
c) Non return to zero contains self clocking code
d) Return to zero contain self clocking code

19) The range of useful frequencies that can be carried by a communication channel is called _____
a) Modulation b) Band c) Carrier d) None of these

20) Which of the following is not a class C address ?
a) 192.1.1.1 b) 224.0.1.0
c) 223.254.254.254 d) 200.10.1.1

SECTION – I

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

a) Poissons ratio for pure and slotted ALOHA.

b) IEEE 802.3 and 802.4.

c) Applications of synchronous and asynchronous transmission.

d) Magnetic media.

e) Theory of communication.

3. Answer the following :

a) Explain procedure of CSMA/CD and draw flow diagram for CSMA/CD. **10**

b) Define the following terms : **10**

1) Band width
2) Frequency
3) Through put
4) Attenuation
5) Capacity of a channel.

OR

b) Define the following terms : **10**

1) Modulator and demodulator.
2) Encoder and decoder.
3) Band rate.
4) Bit rate.
5) Periodic and non periodic signals.

SECTION – II

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

a) Flow control.
b) Concatenate virtual circuit.
c) Design issues of data link layer.
d) Link state routing.
e) Cryptography techniques.

5. Answer the following :

a) Explain traffis shopping techniques with the help of diagram. **10**

b) List out names of generic domain, country domain and inverse domain with their purpose. **10**

OR

b) Explain elementary data link protocol in detail. **10**

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SLR-BD – 29

Seat No.	

S.Y. M.C.A. (Part – II) (Under Faculty of Engineering) Examination, 2014
ARTIFICIAL INTELLIGENCE

Day and Date : Saturday, 13-12-2014 Max. 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.*
3) ***Draw*** *diagram* ***if necessary****.*

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

1) _____ includes reasoning about physical objects and their relationships to each other.
   a) commonsense reasoning b) statistical reasoning
   c) abductive reasoning d) monotonic reasoning

2) Financial planning task come under _____ tasks.
   a) mundane b) formal
   c) expert d) none of these

3) _____ is a program that analyzes organic compounds to determine their structure.
   a) dendral b) axom
   c) both a) or b) d) neither a) nor b)

4) The _____ allows for a formal definition of a problem as the need to convert some given situation into some desired situation using a set of permissible operations.
   a) search space b) state space
   c) problem space d) none of these

5) A partially _____ production system is a production system with the property that if the application of a particular sequence of rules transforms state x into state y, then any permutation of those rules that is allowable also transforms state x into state y.
   a) commutative b) monotonic
   c) non-monotonic d) heuristic

6) A _____ is a flat area of the search space in which a whole set of neighboring states have the same value.
   a) foothills b) ridge
   c) maximum d) plateau

7) The kind of backward chaining in which operators are selected and then subgoals are set up to establish the preconditions of the operators is called _____
   a) means-ends analysis b) operator subgoaling
   c) general problem analysis d) none of these

8) Prenex normal form consists of a prefix of quantifiers followed by a _____, which is quantifier-free.
   a) derivation b) integration
   c) matrix d) mean

9) Resolution produces proofs by _____
   a) refutations b) repetitions
   c) refutions d) none of these

10) _____ in which we follow a single, most likely path until come new piece of information comes in that forces us to give up this path and find another.
   a) Breadth-first b) Depth-first
   c) either a) or b) d) neither a) nor b)

11) A _____ allows assertions to be connected, via a spreadsheet like network of dependencies.
   a) TSM b) TMS
   c) TNS d) TSN

12) The _____ procedure uses substructure's list so that it can explore only a fairly limited set of structures.
   a) plan-generate-test b) generate-and-test
   c) plan-and-test d) backtracking

13) Making programs that can themselves produce formal descriptions from informal ones, this Process is called _____
   a) operation b) operationalization
   c) optimization d) none of these

14) _____ are a natural way to represent relationships that would appear as ground instances of binary predicates in predicate logic.
   a) Semantic nets b) Frames
   c) Conceptual dependencies d) Scripts

15) Finding relationships among objects by spreading activation out from each of two nodes and seeing where the activation met, this process is called _____
   a) intersection search b) binary search
   c) unary search d) interleaved search

16) The idea of _____ is to avoid planning altogether, and instead use the observable situation as a clue to which one can simply react.
   a) reactive systems b) active systems
   c) active methods d) reactive methods

17) In _____ analysis, the structure representing what was said is reinterpreted to determine what was actually meant.
   a) semantic b) syntactic
   c) pragmatic d) morphological

18) Parsing using a case grammar is usually _____
   a) expectation driven b) exception driven
   c) parse driven d) none of these

19) The minimax search procedure is a _____ search procedure.
   a) breadth-first b) depth-first
   c) both a) and b) d) neither a) nor b)

20) The _____ procedure does not need to treat maximizing and minimizing levels differently since it simply negates evaluations each time it changes levels.
   a) MINIMAX-A-B b) MINIMAX
   c) A^* d) Iterative-Deepening-A^*

SECTION – I

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

1) Heuristic Search
2) Production system characteristics
3) Steepest-Ascent Hill Climbing Algorithm
4) Inheritable knowledge
5) AI technique.

3. A) Write production rules and solution for water jug problem. **10**

   B) Explain MEANS-ENDS analysis in detail. **10**

   OR

   B) Explain issues in knowledge representation. **10**

SECTION – II

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

   1) Resolution
   2) Semantic nets
   3) Hierarchical planning
   4) Grammars and Parsers
   5) Waiting for Quiescence.

5. A) Explain conceptual parsing in detail. **10**

   B) How are expert systems built ? Explain knowledge acquisition. **10**

   OR

   B) Explain issues in knowledge representation in detail. **10**

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SLR-BD – 3

Seat No.	

F.Y.M.C.A. Part – I (Under Faculty of Engg.) Examination, 2014
DIGITAL ELECTRONICS

Day and Date : Wednesday, 10-12-2014 Max. Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

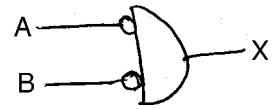
1. Multiple choice questions : **20**

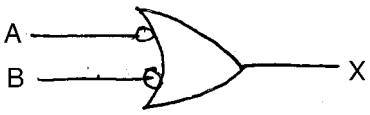
1) The decimal equivalent of octal number 56 is _____
   a) 46 b) 66 c) 53 d) 49

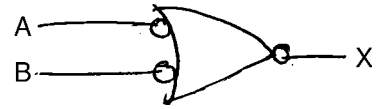
2) For a code to be self complementing, the sum of all its weights must be _____
   a) 6 b) 9 c) 10 d) 12

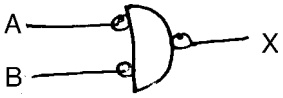
3) 1001 binary code is equivalent to _____ gray code.
   a) 1101 b) 0010 c) 1010 d) 0001

4) Which of the gate shown in figure is an AND gate ?

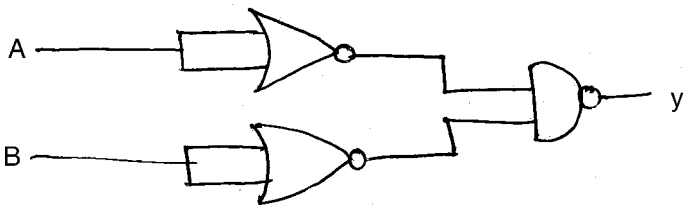
a) 

b) 

c) 

d) 

5) Which logic function does this circuit generates ?



a) AND b) OR c) $\overline{A}\overline{B} + AB$ d) $A\overline{B} + \overline{A}B$

6) The output of two input gate is low (0) if and only if its both inputs are equal, it is true for _____ gate.

a) AND b) OR c) X-OR d) X-NOR

7) The boolean expression $\overline{A}B + A\overline{B} + AB$ is equivalent to _____

a) A+B b) $\overline{A}B$ c) $\overline{A+B}$ d) AB

8) In K-map the input values are ordered by _____ sequence.

a) Binary code b) Gray code

c) BCD code d) Decimal code

9) The terms of canonical SOP is called _____

a) max b) maxterm

c) minterm d) min

10) Which is the minimised equation for following K-map ?

AB \ CD				
	1	1	1	1
	1			1
	1			1
	1	1	1	1

a) $\overline{B} + \overline{D}$ b) $\overline{B} + D$ c) B+D d) $B + \overline{D}$

11) Parallel adders are

a) Combinational logic circuits

b) Sequential logic circuits

c) Both of these

d) None of these

12) A universal register

a) Accepts serial input

b) Accepts parallel output

c) Gives serial and parallel outputs

d) All of the above

13) A binary-to-octal decoder is
   a) 3-line to 8-line decoder
   b) 1-line to 8-line decoder
   c) 4-line to 8-line decoder
   d) 6-line to 8-line decoder

14) A multiplexer with four select bits is a
   a) 4 : 1 multiplexer
   b) 8 : 1 multiplexer
   c) 16 : 1 multiplexer
   d) 32 : 1 multiplexer

15) The basic memory element in a digital circuit
   a) Consists of a NAND gate
   b) Consists of a NOR gate
   c) Is a flip-flop
   d) Is a shift register

16) Which of the following input combinations is not allowed in an S-R flip-flop ?
   a) S = 0, R = 0 b) S = 0, R = 1 c) S = 1, R = 0 d) S = 1, R = 1

17) A flip-flop can store
   a) 1 bit of data
   b) 2 bits of data
   c) 3 bits of data
   d) Any number of bits of data

18) When an inverter is placed between the inputs of an S-R flip-flop, the resulting flip-flop is
   a) J-K flip-flop
   b) Master-slave flip-flop
   c) T flip-flop
   d) D flip-flop

19) The registers which are used to only store the data are called
   a) Buffer registers
   b) Shift register
   c) Universal shift register
   d) None of these

20) The number of states through which the counter passes before returning to the starting state is called as the _____ of the counter.
   a) Start
   b) End
   c) Modulus
   d) None of these

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

   1) Simplify following expression using K-map,

   $y = AB\overline{C}\,\overline{D} + \overline{A}\,\overline{B}\,\overline{C}D + \overline{A}B\overline{C}D + AB\overline{C}D + A\overline{B}\,\overline{C}D + \overline{A}\,\overline{B}CD + A\overline{B}CD$

   2) Perform following binary arithmetic operation.
      1) 41/2
      2) 161 – 173 using 2's complement.

   3) Weighted and unweighted code with suitable example.

   4) State and prove demorgan's law.

   5) $\sum$ m (0, 1, 2, 4, 5, 10, 13, 15), simplify with K-map and draw AOI logic.

3. A) Realize Ex-OR gate from universal gates with minimum number of gates. **10**

   B) What is hamming code ? Explain its working with 9-bit hamming code. **10**

   OR

   B) Minimize and implement the following multiple output functions. **10**

   f_1 = &m (1, 2, 3, 6, 8, 12, 14, 15)

   $f_2 = \prod$ M (0, 4, 9, 10, 11, 14, 15)

4. Attempt **any four** : **20**

   a) Explain binary parallel adder.

   b) Explain odd parity generator.

   c) Write a short note on 1-line to 4-line demultiplexer.

   d) Write a note on edge-triggered flip-flops.

   e) Explain D flip-flop.

5. A) Explain 2-bit ripple up-down counter using positive edge-triggered flip-flops. **10**

   B) Explain universal shift register along with a proper diagram. **10**

   OR

   B) Explain controlled buffer register in detail. **10**

SLR-BD – 31

Seat No.	

S.Y.M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2014
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Tuesday, 16-12-2014 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

1. Choose correct alternatives : **20**

1) Project Risk affects the schedule or _____
   A) Data B) Resources C) Product D) None

2) Optimization, defect prevention and quality control its comes under the _____
   A) CMM Level 2 B) CMM Level 3
   C) CMM Level 4 D) CMM Level 5

3) RAD stand for _____
   A) Rapid Application Development
   B) Reverse Application Data
   C) Rapid Action Development
   D) Rapid Application Data

4) Boundary value analysis belongs to which testing method ?
   A) Black Box Testing B) White Box Testing
   C) Grey Box Testing D) Both A) and B)

5) All of the following might be done during unit testing except _____
   A) Desk check B) Manual support testing
   C) Walk through D) Compiler based testing

6) Beta testing will be done at _____
   A) User place B) Developers place
   C) Testers place D) None

7) Purpose of process is to deliver software _____
   A) in time B) that is cost efficient
   C) with acceptable quality D) both A) and C)

8) Which is non-functional software testing ?
   A) Unit testing B) Black box testing
   C) Performance testing D) Integration testing
9) A non-functional software testing done to check if the user interface is easy to use and understand _____
   A) Usability testing B) Security testing
   C) Unit testing D) All of these
10) Quality control is validation technique whereas quality assurance is a _____
   A) Verification B) Process C) Both A) and B) D) None
11) Executing the same test cases on a modified build called as _____
   A) Regression testing B) Retesting
   C) AdHoc testing D) None
12) Testing is a process of executing a program with the intent of finding an _____
   A) Defects B) Bugs C) Anomalies D) Errors
13) Which of the following is not a level in CMM ?
   A) Managed B) AdHoc C) Predictable D) Optimized
14) The pareto analysis is most effective for _____
   A) Ranking items by importance
   B) Showing relationships between items
   C) Measuring the impact of identified items
   D) Ranking items by size/quantity
15) The testing which is done by going through the code is known as _____
   A) Unit testing B) White box testing
   C) Black box testing D) Grey box testing
16) AdHoc testing is part of _____
   A) Unit testing B) Regression testing
   C) Exploratory testing D) Performance testing
17) Are we building the product right is called _____
   A) Verification B) Validation C) Quality D) None
18) After delivery of the product that problems are called as _____
   A) Errors B) Bugs C) Anomalies D) Defects

19) Acceptance testing is known as _____
   A) Grey box testing B) Beta testing
   C) Test automation D) White box testing

20) A matrix used to measure the character of method, techniques, tools and code called as _____
   A) Process matrixs B) Product matrixs
   C) Test matrixs D) All of these

SECTION – I

2. Write short note on (**any 4**) : **20**
   1) Process improvement
   2) Reliability measure
   3) SQA activities
   4) Process and product quality
   5) Verification and validation.

3. A) Explain about software inspection. **10**
   B) Explain reliability model in detail. **10**

OR

   B) Explain about SQA planning and standards. **10**

SECTION – II

4. Write short note on (**any 4**) : **20**
   1) Unit testing
   2) Black box testing
   3) Static testing technique
   4) Testing objectives
   5) Regression testing.

5. A) Explain validation testing activities with example. **10**
   B) Explain CAST in detail. **10**

OR

   B) Explain static versus dynamic testing. **10**

SLR-BD – 33

Seat No.	

T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2014
MOBILE COMMUNICATIONS

Day and Date : Friday, 5-12-2014 Max. Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

1. Choose correct alternative : **20**

1) _____ offers tiny keyboard, color display and versions of programs.
   a) Mobile phones b) Personal digital assistant
   c) Note book d) Pocket computer

2) _____ has started demonstration of electromagnetic induction in 1831.
   a) James C. Maxwell b) Philip Reis
   c) Cladue Chappe d) None of these

3) _____ transmission is not only used in fiber optic but also for wireless communication.
   a) Optical transmission b) Digital transmission
   c) Digital audio transmission d) Directed microwave transmission

4) The Personal Digital Assistant (PDA) cellular formally known as _____
   a) CT1 b) CT2
   c) CT1+ d) None of these

5) The wireless LAN standards, HIPERLAN2 and IEEE 802.11 a operates in the _____ frequency range.
   a) 61 GHz b) 5 GHz c) 2.4 GHz d) 1920 MHz

6) Demand assigned multiple access is also known as
   a) Slotted ALOHA b) Classical ALOHA
   c) Reservation ALOHA d) Spread ALOHA

P.T.O.

7) _____ is used in many 3G systems because of its higher complexity and lowered expectations.
a) TDMA b) FDMA c) CDMA d) SDMA

8) The _____ mainly focuses on voice-oriented tele service.
a) GPRs b) FOMA c) DECT d) GSM

9) _____ has 900 nm wavelength.
a) Radiowaves b) Microwave
c) Electrical wave d) Infra Red

10) _____ is a wireless network do not need any infrastructure.
a) Bluetooth b) Infra Red c) Ad-hoc d) Radio

11) _____ management supports the association and reassociation of a station to an access point and roaming between different access point.
a) Medium access control b) Logical link control
c) PMD d) PLCP

12) In infra-red transmission quality and high data rates can be achieved by using _____
a) Direct connection b) Line of sight
c) Laser diode d) Both a) and b)

13) _____ is a function for joining a network, changing access points and scanning for access points.
a) Synchronization b) Access management
c) Roaming d) Asynchronous transfer mode

14) _____ provides a fixed point-to-point connection upto 155 mbit/s.
a) HIPERLAN1 b) HIPERLAN2
c) HIPERLINK d) HIPERACCESS

15) The main motivation behind _____ is the deregulation and privatization of the telecommunication sector in Europe.
a) ETSI b) BRAN c) EMA d) WMT

16) A _____ connects the local communication structure to the outside world and offers its services via interface D1.
a) Local network b) Global network
c) Home database d) GSM

17) DECT works at frequency range _____

a) 1880 – 1990 MHz b) 2500 – 3500 MHz

c) 128 – 512 GHz d) 8.4 – 9.4 GHz

18) _____ of the GSM system contains the necessary functions for network operation and maintenance.

a) OSS b) AUC c) EIR d) OMC

19) The _____ comprises all user equipment and software needed for communication with a GSM network.

a) Mobile station

b) Personal identification number

c) Location area identification

d) Mobile service switching center

20) The power of the received signal changes considerably over time, these quick changes in received power is called _____

a) Tuning sequence b) Doppler effect

c) Short term fadding d) Equilizer

SECTION – I

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

a) Market for mobile communication

b) Signals

c) Classical ALOHA

d) Mobile services in GSM

e) Multi-carrier modulation.

3. Answer the following (**any 2**) : **20**

a) Why there is a need of spread spectrum ? Explain different types of spread spectrum in detail.

b) Briefly explain History of Wireless Communication.

c) Explain DECT system and protocol architecture in detail.

SECTION – II

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

   a) Advantages of WLAN

   b) Mobile IP

   c) Bluetooth base piconet

   d) Components of WAP standards

   e) HIPERLAN1.

5. Answer the following (**any 2**) : **20**

   a) What is the importance of IEEE 802.11 ? Explain system architecture and protocol architecture of IEEE 802.11.

   b) Explain in detail the mechanism for packet delivery to and from mobile node.

   c) With the help of example explain Bluetooth protocol stack.

SLR-BD – 34

Seat No.	

T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2014
WEB DESIGN TECHNIQUES

Day and Date : Monday, 8-12-2014 Total. Marks : 100
Time :10.30 a.m. to 1.30 p.m.

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

1. Multiple choice questions : **20**

1) A / An _____ is a large image that contains numerous hotspots that can be selected, sending the user to a different anchor destination.
   a) Picture map b) Image map
   c) List map d) Hyperlink map

2) The default scripting language for_____ is JavaScript.
   a) Internet explorer b) Netscape Navigator
   c) Google Crome d) Mozilla Firefox

3) A _____ array is an array that has been created with each of its elements being assigned a specific value.
   a) Single dimension b) Multi dimension
   c) Dense d) Two dimension

4) _____ function returns the next integer greater than or equal to that number.
   a) ceil( ) b) floor( ) c) max( ) d) min()

5) JSSS stands for _____
   a) Java Script assisted Style Sheets
   b) Java Server assisted Style Sheets
   c) Java Script assisted Standard Sheets
   d) None of these

6) The _____ occupies the topmost slot in the DOM.
   a) Window b) Navigator c) Form d) Document

7) _____ is a non-interactive event handler.
   a) onClick b) onKeyUp c) onLoad d) onMouseMove

8) The_____statement allows you to create an exception.
   a) Try b) Catch c) Try-catch d) Throw

9) In India,_____a government body, is authorized to issue permanent IP addresses.
   a) NCST b) InterNIC c) NASCOM d) None of these

10) Choose the correct HTML tag for the largest heading.
   a) <heading> b) <h6> c) <h1> d) <head>

11) Which is the correct to declare variable in VBScript ?
   a) Dim orderTotal As Currency b) Dim orderTotal
   c) Var orderTotal d) Int orderTotal

12) Legal ways to call function in VBScript
   a) Total=AddNum (10,20) b) Call AddNum(10,20)
   c) AddNum10,20 d) All of these

13) TypeName() function in VBScript is used _____
   a) to return numeric representation of data
   b) to return subtype of variable
   c) to define subtype of variable
   d) to convert variable subtype

14) XML is designed to _____
   a) Store and travel b) Load and display
   c) Transport and store d) Display and data

15) Which statement is true ?
   a) All XML elements must be properly closed
   b) All XML document must have DTD
   c) All XML elements must be lower case
   d) All statements are true

16) Is this well formed xml document ?

```
<?xml version=  "1.0"?>
<StudentInfo>
<Student>
<Rno>1</Rno>
<Name>Sachin</Name>
</Student>
<Rno>2</Rno>
<Name>Anand</Name>
</Student>
</StudentInfo>
```

a) Yes b) No c) Can't say d) None

17) The most popular way to show XML documents is to use

a) DTD b) XSLT c) HTML d) CSS

18) How do you get information from a form that is submitted using the "get" method ?

a) Request.queryString b) Request.form

c) Response.get d) Request.get

19) Which one of these events is standard Global.asa Event ?

a) Seesion_id b) Application_OnStart

c) Application_OnClick d) Sesseion_OnDeactivate

20) In ASP, if you want to set a timeout interval that is shorter or longer than the default, use the _____property.

a) Time Out b) TimeOut c) Abandon d) None of these

SECTION – I

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

a) InnerHTML

b) Classes in CSS

c) Advantages of JavaScript

d) Looping structure in JavaScript

e) Lists in HTML.

3. Long answer questions :

   a) Explain CSS and its types with example. **10**

   b) Explain HTML links (text, image and image mapping) in details. **10**

   OR

   b) Write a program in JavaScript to display a given number in reverse order. (Example : Reverse of 243 is 342) **10**

SECTION – II

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

   a) MsgBox( ) and InputBox( )

   b) Array in VBScript

   c) Document Type Definition

   d) ASP Global.asa

   e) Error Handling in VBScript.

5. Long answer questions :

   a) Design a HTML form to reserve an "Air Ticket" take a suitable fields. Using VBScript check validation for. **10**

      i) Compulsory field **Source** and **Destination** are two different cities

      ii) **Age** of person should not be greater than 90 and should not accept negative value.

      iii) **Name** should not be blank and not more than 25 characters.

   b) Write a ASP Program for Visitor Count of Web Site. **10**

   OR

   b) Explain features of XML in detail with example. **10**

———————

SLR-BD – 35

Seat No.	

T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2014
INTERNET TECHNOLOGY

Day and Date : Wednesday, 10-12-2014 Max. 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) The internet is based on a layered model called _____

a) TCP/IP b) HTTP c) IP d) TCP

2) There are _____ types of header for passing additional information to the webserver.

a) 2 b) 3 c) 4 d) 6

3) _____ is one of the main components of the service system which interacts with the web client as well as the backend system.

a) Web server b) Application server

c) Client server d) File system server

4) _____ e-business models include virtual malls which are websites that host many online merchants.

a) B2B b) B2C c) C2C d) C2B

5) _____ in the form of screen phones are becoming more prominent.

a) card readers b) smart card

c) data card d) smart readers

6) _____ makes sure that if the content of a message is altered, receiver can detect it.

a) authentication b) encryption

c) substitution d) integrity

P.T.O.

7) _____ protocol was developed by visa and mastered to provide security for credit-card based payment transactions on the internet.

a) SMET b) SET c) MSET d) MET

8) The servlet container calls the _____ method either during load time or at the first request.

a) init ( ) b) onload ( )

c) load ( ) d) none of these

9) _____ provide information regarding the sender of an e-document.

a) digital cards b) digital certificate

c) digital signs d) digital signature

10) The major difference between servlet and CGI is

a) Servlet execute slower than CGI

b) Servlets are thread based and CGI is process based

c) Servlet has no platform specific API where as CGI has

d) All of these

11) The <JSP : include> has _____ attribute.

a) file b) page c) both d) none of these

12) The types of error in JSP are

a) Scriplet syntax error b) Runtime error

c) Element syntax error d) All of above

13) To find out length of string variable we use

a) strcount ($ variable) b) strlen ($ variable)

c) count ($ variable) d) len ($ variable)

14) Which of the following is not true ?

a) PHP can be used to develop web application

b) PHP makes website dynamic

c) PHP application can not be compile

d) PHP can not embedded into HTML

15) <%= %>. is the _____ scripting element.

a) declaration b) expression

c) scriplet d) none of these

16) In page directive _____ specifies the URL of another JSP page that will be invoked to handle any uncaught exception.

a) language b) page

c) errorpage d) iserrorpage

17) A variable $ str is set to “Hello World”. Which method return in tittle case ?

a) echo ucwords ($ str)

b) echo ucfirst ($ str)

c) echo ucwords (strtolower ($ str))

d) echo ucfirst (strlower ( ))

18) In PHP to access Mysql database you will use

a) mysqlconnect ( ) b) mysql–connect ( )

c) sql–connect ( ) d) all of these

19) Which array function checks if the specified key exists in the array

a) array-key-exist ( ) b) array–key–exists ( )

c) array–key–find ( ) d) array–key–finds ( )

20) Which function count element in array ?

a) Count b) Array–size

c) Array–Count d) Array Count

SECTION – I

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

a) B2B transactions

b) SET protocol

c) HTTP request and response

d) Servlet API

e) Threadsate servlet.

3. A) Explain e-commerce with their advantages and disadvantages. **10**

   B) Explain cookies in detail. **10**

   OR

   B) Explain session tracking in servlet with example. **10**

SECTION – II

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

   a) PHP and webserver architecture

   b) JSP action element

   c) JSP directives

   d) Cookies in PHP

   e) File and directory access operations.

5. A) Explain error handling in JSP in detail. **10**

   B) Explain object oriented PHP with example. **10**

   OR

   B) Write a program to demonstration of login in PHP. **10**

SLR-BD – 36

Seat No.	

T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2014
NETWORK ADMINISTRATION

Day and Date : Friday, 12-12-2014 Max. 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**.*
3) Draw figure if necessary.

1. Choose correct alternatives : **20**

1) The top sublayer is the _____ protocol layer that interfaces to the transport layer.
   a) Subnetwork – independent Convergence
   b) Subnetwork – Dependent Convergence
   c) Subnetwork – Dependent Adapter
   d) Subnet work – independent Adapter

2) An optical fiber medium can be used to carry multiplexed lower bandwidth signals implementing SDH. This mode of transmission is known as _____
   a) ADM b) SONET c) CBR d) UBR

3) _____ packets belonging to the same class are grouped at each hop and then prioritized
   a) Intser V b) diffser v c) intser v d) Diffser V

4) The technology uses the existing _____ wire that carries the analog voice to transmit data in addition to voice.
   a) Shielded twisted pair b) Unshielded twisted pair
   c) Optical fibre medium d) None of these

5) The managed elements have a management process running in them called an _____
   a) Item b) Element c) Agent d) Unit

6) The _____ is a real database and contain the measured or administratively configured value of the elements of the network.
   a) IDB b) MIB c) SMI d) MDB

P.T.O.

7) The _____ characteristic of the internet is part of OSI attributes.
   a) Syntax b) Behaviour c) Notification d) Both b) and c)
8) Encoding is done using _____
   a) REB b) EBR c) BER d) ERB
9) The _____ message is generated by the management process requesting the value of an object.
   a) get-request b) set-request c) get-req d) getreq
10) _____ are established to measure the usage of resources and services provided.
   a) Cost b) Metrics
   c) Resource management d) None of the above
11) Two new data types that are defined in RMON 1 textual conventions are _____ and _____
   a) int and varchar b) ownerstring and entrystatus
   c) atmstatscontrol and atmstats d) bing the ping
12) Instead of packets or frames ATM RMON measures _____
   a) Packets b) String c) Cells d) Frames
13) _____ command checks the status of node/host.
   a) ping b) bing c) host d) arp
14) To measure point-to-point bandwidth of a link _____ command is used.
   a) arp b) rarp c) tracert d) bing
15) _____ tool displays and modifies the internet-to-Ethernet address translation tables (ARP Cache) used by ARP.
   a) netstat b) arp c) rarp d) traceroute
16) When an IP packet is received by a node with a _____ value of 0, an ICMP packet is sent to soruce.
   a) TTL b) TDL c) DIV d) TCL
17) The _____ command sends the SNMP set request message and receives the get response command.
   a) SNMP Get b) SNMP Sniff c) SNMP Trap d) SNMP Set
18) Traffic load monitoring can be done based on the _____ , the _____ and the _____ pair.
   a) Sender, receiver, sender-receiver
   b) Source, destination, source-destination
   c) Class, object, class-object
   d) Admin, netadmin, admin-netadmin

19) The throughput of server is measured in _____
   a) Requests/hour b) Bits/second
   c) Rates d) Transactions/second

20) In SMI transactions, to initiate a transaction the manager attempts to set _____ to true.
   a) clock b) aLock c) block d) cell

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

   1) Comparison of OSI and internet protocol layer models.
   2) Telephone Network Model.
   3) MACROS.
   4) Management information tree
   5) Interface sublayers.

3. A) Explain organization model in detail. **10**

   B) Explain communication between end systems. **10**

   OR

   B) Explain MIB in detail. **10**

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

   1) SNMP Community.
   2) RMON MIB.
   3) Network traffic-monitoring tools.
   4) Encryption Protocol in SNMP V3.
   5) SNMP V3 management information base.

5. A) What is remote monitoring ? **10**

   B) Explain RMON1 Textual Conventions. **10**

   OR

   B) Explain Object Oriented approach to MIB Engineering. **10**

_____

SLR-BD – 37

Seat No.	

T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2014
DISTRIBUTED DATABASES (Elective – II)

Day and Date : Monday, 15-12-2014 Max. Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

***Instruction** : Q. **3. a**) and Q. **5. a**) are **compulsory**.*

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

1) A _____ join is a join between horizontally fragmented relations.
   a) Combined b) Collective
   c) Distributed d) Isolated

2) Data redundancy _____ in distributed databases.
   a) Exists b) Doesn't exists
   c) Can't say d) None

3) UR $\leftrightarrow$ U_1 U_2 R is called _____ of unary operations.
   a) Commutativity b) Associativity
   c) Idempotence d) Distributivity

4) Each global relations can be split into several non-overlapping portions which are called as _____
   a) Divisions b) Regions
   c) Collections d) Fragments

5) A distributed database is a collection of data which belongs _____ to the same system.
   a) Logically b) Physically
   c) Both d) None

6) Pushing the unary operations PJ and SL down in the tree is stated in criterion _____
   a) 1 b) 2 c) 3 d) 4

P.T.O.

7) In _____ the set of attributes must be disjoint.
   a) Vertical clustering
   b) Vertical partitioning
   c) Horizontal clustering
   d) Horizontal partitioning

8) A _____ predicate is a predicate of type attribute = value.
   a) Complex b) Compound
   c) Natural d) Simple

9) In the expression $[R : {}_{q}R]$, ${}_{q}R$ is a predicate called as _____
   a) Relation b) Reflection
   c) Qualification d) Query

10) The components of commercial DBMS are _____
   a) DC b) DB c) DD d) All

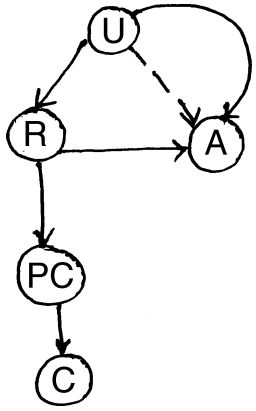
11) Which of the following capability rule exist between lock modes
   a) A transaction can lock a data item in shared mode if it is not locked at all or it is locked in shared mode by another transaction
   b) Redirecting the inquiry
   c) Spooling the command message
   d) Both b) and c)

12) Communication structure for commit protocol includes
   a) Centralized communication structure
   b) Hierarchical communication structure
   c) Linear protocol
   d) All of these

13) A non-preemptive method for deadlock prevention based on time stamp is the following
   a) Rule 1 b) Rule 2
   c) Rule 3 d) None of these

14) LWFG stands for
   a) Local write-for graph b) Logical wait-for graph
   c) Local wait-for graph d) Linked write for graph

15) Choose correct title of following diagram



a) Transaction including abnormal termination
b) State-diagram of 2-phase commitment protocol
c) Blocking protocol diagram
d) Transitions during normal commitment

16) The copies of the data item which are stored at sites of one group called _____ copies; the others are called _____ copies in correct approach to the detection of inconsistencies.
a) Master, isolated b) Master, slave
c) Main, sub d) Main, lower

17) The site of the root agent is called
a) Root agent b) control message
c) site of origin d) none of these

18) _____ are unique name given to each object in the system.
a) separator b) world wide name
c) system wide name d) object name

19) Global replication of a catalog is _____, since this would violate the possibility of autonomous data definition.
a) Acceptable b) Unacceptable
c) Completely acceptable d) None of these

20) The commitment of transactions is performed by a process called
a) Catalog management b) Connection management
c) Transmission management d) Transaction management

SECTION – I

2. Write short notes on (**any 4**) : **(4×5=20)**
   i) Simplification of horizontally fragmented relations
   ii) Canonical expression of a fragment query
   iii) Bottom up approach to the design of data distribution
   iv) Operator tree of a query
   v) Vertical fragmentation.

3. a) Explain the distributed database access primitives. **10**
   b) Explain equivalence transformation for queries. **10**

   OR

   b) Explain framework for distributed database design. **10**

SECTION – II

4. Write a short notes on (**any 4**) : **(4×5=20)**
   i) Reliability
   ii) Communication failure in distributed database
   iii) Distributed deadlock detection
   iv) Serializability in distributed database
   v) Distribution of catalog.

5. a) Explain detection and resolution of inconsistency. **10**
   b) Explain nonblocking commitment protocols. **10**

   OR

   b) Explain authorization and protection.

SLR-BD – 4

Seat No.	

FYMCA (Under Faculty of Engg.) (Part – I) Examination, 2014
DISCRETE MATHEMATICAL STRUCTURE

Day and Date : Friday, 12-12-2014 Max. Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

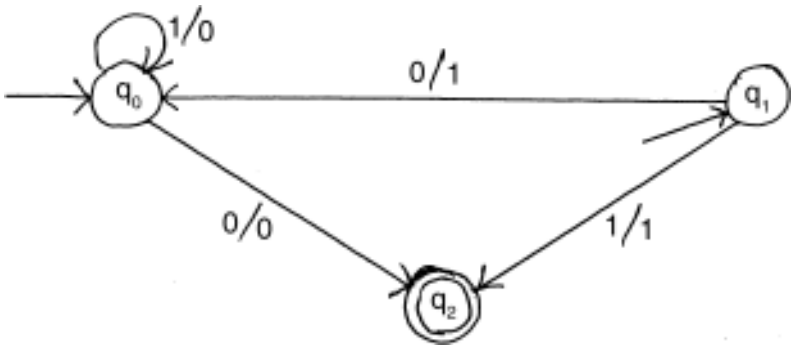
***Instructions** : 1) Draw diagram **wherever** necessary.*
*2) Figure to the **right** indicates **full** marks.*

1. Choose correct alternative : **20**

1) The graph G (V, E) is called a null graph if G does not have any _____
   a) edge b) vertex c) path d) none of these
2) A set may be viewed as an _____ collection of objects called as member of a set.
   a) unordered b) ordered c) both a) and b) d) none of these
3) Cartesian product of set is denoted by _____
   a) $\cup$ b) $\cap$ c) X d) none of these
4) A function is bijection if it is _____
   a) one to one b) onto c) both a) and b) d) none of these
5) Dual of $(a \cap b) \cup a = a \cap (b \cup a)$ is
   a) $(a \cup b) \cap a = a \cup (b \cap a)$ b) $(a \cup b)$
   c) $(a \cap b)$ d) none of these
6) The inverse of R is denoted by _____
   a) R^1 b) R^{-1} c) R_{-1} d) none of these
7) A relation R on a set A is _____ if a R a for every $a \varepsilon A$.
   a) reflexive b) irreflexive c) both a) and b) d) none of these
8) Graph is collection of _____
   a) vertices b) edges c) both a) and b) d) none of these
9) A multigraph is said to be _____
   a) finite b) infinite c) both a) and b) d) none of these
10) A vertex is _____ if and only if it has degree 1.
   a) pendent b) cycle c) both a) and b) d) none of these

P.T.O.

11) The initial states of the given Transition system is/are _____



a) q_0 and q_1 b) q_0 c) q_1 d) none of these

12) Pumping Lemma can be used to show that certain sets are _____

a) regular b) regular expression

c) not regular d) all of these

13) If L is regular than L^T is _____

a) not regular b) also regular

c) regular expression d) regular grammar

14) Any set represented by a regular expression is called a _____

a) set b) regular set

c) regular grammar d) regular expression

15) Any set L accepted by a finite automaton M is represented by a _____

a) not regular b) regular

c) regular expression d) regular grammar

16) A finite automaton can be represented by a _____

a) five-tuple $(F, \Omega, \Lambda, \gamma, \mho)$ b) six-tuple $(\pi, \Omega, \Lambda, \delta, F, q_0)$

c) 5-tuple $(Q, \Sigma, \delta, q_0, F)$ d) None of the above

17) If q_1 and q_2 are (K + 1) – equivalent, then they are _____

a) k-equivalent b) equivalent

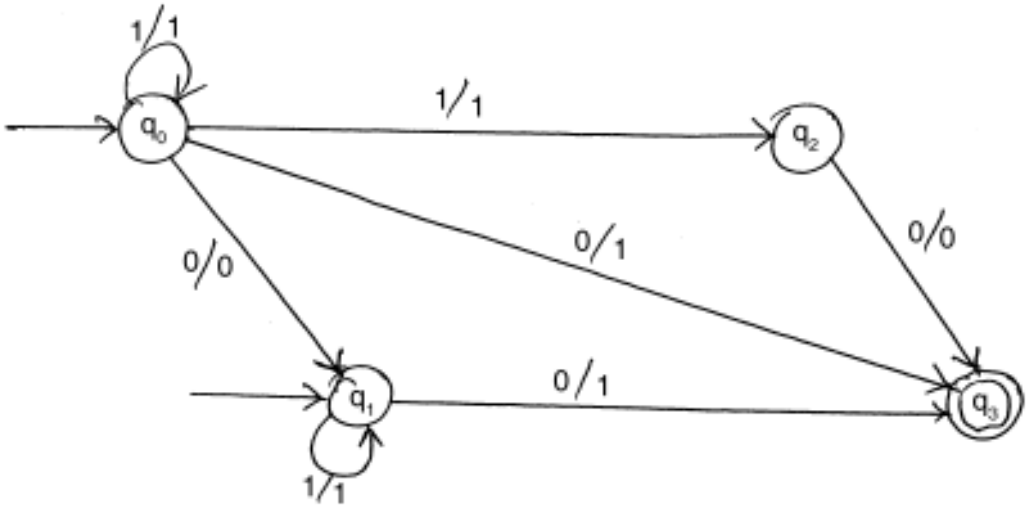
c) k + 1 equivalent d) q_1 and q_2 equivalent

18) Context-free languages are applied in _____

a) parser design b) describing block

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

19) _____ is/are the final states of the following Transition System.



a) q_1 b) q_3 c) q_2 and q_3 d) q_0 and q_1

20) _____ defines a Moore machine.

a) five-tuple $(\pi, \Omega, \Lambda, \gamma, \mho)$ b) six-tuple $(\pi, \Omega, \Lambda, \delta, \lambda, q_0)$

c) six-tuple $(Q, \Sigma, \Delta, \delta, \lambda, q_0)$ d) None of the above

SECTION – I

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

A) Explain null and complete graph with an example.

B) Explain operations on graph.

C) Explain inverse function.

D) Explain gray code and polish notation.

E) Explain spanning tree with an example.

3. A) What is set ? Explain basic operations on set with an example. **10**

B) What is tree ? Explain inorder, postorder and preorder with an example. **10**

OR

B) Explain properties of lattice and complemented lattice. **10**

SECTION – II

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

A) Explain Finite Automation with neat diagram and its components.

B) Explain the properties of Transition Functions.

C) Construct a Mealy Machine which is equivalent to the Moore Machine given below :

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

D) Write a short note on Pumping Lemma for Regular Sets.

E) Find the regular expression representing the set of all strings of the form

a) $a^m b^n c^p$ where m, n, p >= 1

b) $a^m b^{2n} c^{3p}$ where m, n, p >= 1

c) $a^n ba^{2m} b^2$ where m >= 0, n >= 1.

5. A) Write long answer on automaton with a neat diagram. Explain its characteristics. **10**

B) Describe the following sets by regular expressions :

a) {101}

b) {abba}

c) {01, 10}

d) {$\wedge$, ab}

e) {abb, a, b, bba}

f) {$\wedge$, 0, 00, 000, ...}

g) {1, 11, 111, ...}

OR

B) Explain in detail Deviation tree. **10**

SLR-BD – 40

Seat No.	

M.C.A. (Engg.) Direct 2nd Year Students (Bridge Course) Examination, 2014
DISCRETE MATHEMATICAL STRUCTURE (Paper – I)

Day and Date : Monday, 17-12-2014 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

***Instructions** : 1) Draw diagram **wherever** necessary.*
*2) Figure to the **right** indicates **full** marks.*
*3) **Each** question from Q. **2** to Q. **7** carries **14** marks.*
*4) Solve **any 3 (three)** questions from Q. **2** to Q. **6**. Q. **7** is **compulsory**.*

1. Choose correct alternative : **14**

1) A _____ of a set of distinct objects is an ordered arrangement of these objects.
a) Combination b) Permutation c) Discrete structure d) None of these

2) If n and r are integers with 0 <= r<= n, then P(n, r) = _____
a) $\frac{n!}{r!\,(n-r)!}$ b) $\frac{n!}{(n-r)!}$ c) n^3 d) n(n +1) (n + 2) ...(n+r)

3) Find the value of the quantity C(10, 5).
a) 126 b) 502 c) 42 d) 252

4) _____ is the study of arrangements of objects.
a) Enumeration b) Permutation
c) Combinatorics d) None of these

5) _____is the arrangement of data in a two-dimensional array.
a) Matrix b) List
c) Vector d) Both b) and c)

P.T.O.

6) Matrix with only one column is called a _____
   a) Column matrix b) Row matrix
   c) Row vector d) None of these

7) The determinant of a matrix A is denoted by _____
   a) A^T b) A_T c) $|A|$ d) $-A$

8) From the following find the one which is not a statement.
   i) Jill went up the hill ii) Violets are blue
   iii) 9 – 10 = 19 iv) This statement is false
   a) i) b) ii) c) iii) d) iv)

9) A product of the variables and their negations in a formula is called an _____
   a) Elementary product b) Elementary sum
   c) Element d) Normal form

10) In the following two statements, the part "is a dancer" is called _____
   i) Smith is a dancer ii) Sam is a dancer
   a) A calculus b) A predicate logic
   c) A predicate formula d) A predicate

11) Consider two arbitrary sets A and B, then $A \times B$ is called the_____
   a) Sum b) Cartesian product
   c) Power set d) None of these

12) In the function given below, the set B is called the _____
   $f : A \rightarrow B$
   a) Codomain b) Function c) Subset d) Domain

13) _____ in a graph is equal to the number of edges in graph which are incident on that vertex.
   a) Length of a vertex b) Degree of a vertex
   c) Both a) and b) d) None of these

14) A graph of multigraph which can be drawn in the plane so that its edges do not cross is said to be_____
   a) Central graph b) Diameter of a graph
   c) Tree d) Planar graph

2. A) Write a short note on permutations with example. **7**

   B) Define combination. Explain the concept of generating combinations. **7**

3. A) Find A× B where ; $A = \begin{bmatrix} 1 & 3 \\ 2 & -1 \end{bmatrix}$ $B = \begin{bmatrix} 2 & 0 & -4 \\ 5 & -2 & 6 \end{bmatrix}$. **7**

   B) Explain Disjunctive Normal Form and obtain DNF for $P \wedge (P \rightarrow Q)$. **7**

4. A) What do you mean by relation ? Describe transitive relation with example. **7**

   B) Let $A = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$ **7**

   Find i) $A \vee B$ ii) $A \wedge B$ iii) $A \odot B$

5. A) What is set ? Explain various operations on set. **7**

   B) What is Lattices ? Explain its features. **7**

6. A) Explain function. What is one-to-one type of function ? **7**

   B) Explain Regular Graph, Bipartite Graph and Complete Graph with example. **7**

7. A) Explain what is graph ? Describe different types of graph. **7**

   B) Sets A and B are the subsets of the Universal Set U, where **7**

   U = { m, n, o, p, q, r, s, t, u, v}

   A = {n, o, p} and B = {q, t, v}

   Find :

   i) $A \times B$ ii) $A \oplus B$

   iii) $A - B$ iv) $\sim A$

   v) $\sim B$

SLR-BD – 41

Seat No.	

M.C.A. (Engg.) (Direct Second Year Students)
(Bridge Course) Examination, 2014
OPERATING SYSTEM (Paper – II)

Day and Date : Friday, 19-12-2014 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

Instructions *: 1) Q. No.* ***1*** *and* ***7*** *are* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q. No.* ***2, 3, 4, 5*** *and* ***6****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. Multiple choice questions : **14**

1) To access the services of operating system, the interface is provided by the
   a) Library b) API
   c) System calls d) Assembly instructions

2) The address of the next instruction to be executed by the current process is provided by the
   a) CPU registers b) Pipe
   c) Program counter d) Process stack

3) The state of a process is defined by
   a) The final activity of the process
   b) The activity just executed by the process
   c) The activity to be executed next by the process
   d) The current activity of the process

4) A set of processes is in deadlock state if
   a) Each process is blocked and will remain so forever
   b) Each process is terminated
   c) All processes are trying to kill each other
   d) None

5) Which of the following do not belong to the queues for processes ?
   a) Job queue b) Device queue
   c) PCB queue d) Ready queue

P.T.O.

6) The interval from the time of submission of a process to the time of completion is termed as
   a) Waiting time
   b) Response time
   c) Turnaround time
   d) Throughput

7) The most optimal scheduling algorithm is
   a) FCFS-First come First served
   b) SJF-Shortest Job First
   c) RR-Round Robin
   d) None of these

8) Program always deals with
   a) Absolute address
   b) Logical address
   c) Physical address
   d) Relative address

9) Effective access time is directly proportional to
   a) Memory access time
   b) Hit ratio
   c) Page-fault rate
   c) None

10) Which file is sequence of bytes organized into blocks understandable by the system's linker ?
   a) Executable file
   b) Source file
   c) Object file
   d) Text file

11) _____ is a unique tag, usually a number, identifies the file within the file system.
   a) File type
   b) File name
   c) File identifier
   d) None

12) To create a file
   a) Make an entry for new file in directory
   b) Allocate the space in file system
   c) Both a) and b)
   d) None

13) _____ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.
   a) Paging
   b) Swapping
   c) Segmentation
   d) Demand paging

14) The segment base contains the
   a) Starting logical address of the process
   b) Starting physical address of the segment in memory
   c) Segment length
   d) None

2. a) Define operating system and explain its structure in detail. **7**
   b) Explain services provided by an operating system in detail. **7**

3. a) Define inter process communication. Explain shared memory and message passing. **7**
   b) Explain PCB in detail. **7**

4. a) Explain Optimal page replacement using an example. **7**
   b) Explain the difference between internal and external fragmentation. **7**

5. a) Explain the concept of semaphores. **7**
   b) Differentiate between FCFS and priority scheduling. **7**

6. a) What is page fault ? Explain in detail the steps while handling a page fault. **7**
   b) Explain segmentation in detail. **7**

7. a) What is paging ? Explain demand paging ? **7**
   b) Explain FCFS and SSTF disk scheduling. **7**

SLR-BD – 5

Seat No.	

F.Y.M.C.A. (Under Faculty of Engg.) (Part – I) Examination, 2014
PRINCIPLES OF MANAGEMENT AND ORGANIZATIONAL BEHAVIOR

Day and Date : Monday, 15-12-2014 Total Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

1. Objective types questions. **(1×20=20)**

1) The effective executive was written by _____
   A) Peter F. Drucker B) Terry
   C) Louis Allan D) Hendry Fayol

2) The ability to work with the resources in a particular area of expertise _____
   A) technical skill B) human skill
   C) conceptual skill D) decision making skill

3) Management is what a manager does was suggested by _____
   A) Peter F. Drucker B) Terry
   C) Louis Allan D) Hendry Fayol

4) To manage is to forecast and plan to organize to compound to co-ordinate and to control. This definition was given by _____
   A) Peter F. Drucker B) Hendry Fayol
   C) Louis Allan D) Terry

5) The Era of Scientific management is _____
   A) 1880-1930 B) 1880-1931 C) 1880-1932 D) 1880-1933

6) Father of principles of management is _____
   A) Mary Parkett B) Lillian Gilberth
   C) Henry Fayol D) Elton Mayo

7) Management and administration are _____
   A) same
   B) different
   C) partly same and partly different
   D) same and different

P.T.O.

8) Henry Fayol laid down _____

A) 12 principles B) 13 principles

C) 14 principles D) 15 principles

9) Espirit de corps means _____

A) union is strength B) service is our motto

C) buyer beware D) product is our strength

10) F. W. Taylor is associated with _____

A) Scientific Management B) Future Management

C) Modern Management D) Principles of Management

11) Responsibility, Advancement etc. are example of

A) Motivators B) Hygiene factors

C) Improvement factors D) advance factors

12) Which of the following is not an example of Content Theory ?

A) Maslow Theory B) Herzberg's Theory

C) Expectancy Theory D) Alderfer's ERG Theory

13) Stereotyping generally affects the _____

A) Organization Structure B) Behavior

C) Interpersonal Relations D) Communication

14) Believes, attitudes, traditions and expectations which are shared by group members is called _____

A) Group norms B) Group communication

C) Group cohesiveness D) Group structure

15) _____ advocated that humans are essentially motivated by levels of needs.

A) A. Maslow B) Follet

C) Elton Mayo D) Ivon Pavlov

16) _____ refers to the basic changes in the content and responsibilities of job so as to satisfy higher motivational needs.

A) Job enrichment B) Job enlargement

C) Work relocation D) Process consultation

17) The job satisfaction of an employee is depend on the _____

A) Behavior B) Attitude C) Personality D) Employer

18) _____ leader is self confident and can attract followers by his great influence.

A) Charismatic B) Autocratic C) Laissez-faire D) Bureaucratic

19) Porter Lawler Model is an extension of _____

A) Maslow's Theory B) McClelland's Theory

C) Stacy Adams Theory D) Vroom's Theory

20) _____ theory emphasis that, unsatisfied need can influence the behavior satisfied one will not act as a motivator.

A) Alderfer's ERG Theory B) Herzberg's Theory

C) Expectancy Theory D) Maslow Theory

SECTION – I

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

1) Objects of Management
2) Industrial Management and its scope
3) Role of Manager
4) Committee Organization
5) Essentials of good plan and control.

3. Answer the following. **20**

a) Enumerate the steps in planning. **10**

b) What is organization ? Explain line and staff organization in detail. **10**

OR

b) Describe Henry Fayol's principles of Management. **10**

SECTION – II

4. Write short note on (**any 4**). **20**
   a) Techniques of Motivation
   b) Job Rotation
   c) Levels of organization behavior
   d) Personality
   e) Types of Leader.

5. Answer the following. **20**
   a) Explain comparison between Maslow and two factor theory in detail.
   b) Define organizational behaviour and explain factors affecting on individual behaviour.

   OR

   b) Define communication. Explain communication types in detail.

SLR-BD – 6

Seat No.	

F.Y. M.C.A. (Under Faculty of Engg.) (Part – II) Examination, 2014
COMPUTER ORIENTED OPERATION RESEARCH (Old)

Day and Date : Saturday, 6-12-2014 Max. Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

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

1) For maximization L.P. Model, the simplex method is terminated when all values

a) $Z_j - C_j \leq 0$ b) $Z_j - C_j \geq 0$ c) $Z_j - C_j = 0$ d) $Z_j \leq 0$

2) To formulate a problem for solution by the simplex method we must add artificial variable to

a) only equality constraints b) only 'greater than' constrains
c) both a) and b) d) none of the above

3) Which of the following characteristic apply to queueing system ?

a) Customer population b) Arrival process
c) Both a) and b) d) Neither a) nor b)

4) The part of the feasible solution space eliminated by plotting a cut contains

a) only one linear solution b) only integer solution
c) both a) and b) d) none of the above

5) The assignment problem _____

a) requires that only one activity be assigned to each resource
b) is a special case of T. P.
c) can be use to maximize resources
d) all of the above

6) If there were n workers and n jobs in A. P. there would be

a) n ! solutions b) (n – 1)! solutions
c) $(n !)^n$ solution d) n solutions

P.T.O.

7) The occurrence of degeneracy while solving a T. P. means that
   a) total supply equal to total demand
   b) the solution so obtain is not feasible
   c) the few allocation becomes negative
   d) none of the above

8) When the sum of gains of one player is equal to the sum of losses to another player is a game this situation is known as
   a) biased game b) zero sum game
   c) fair game d) all of the above

9) Games which involve more than two players are called
   a) conflicting games b) negotiable game
   c) n-person game d) all of the above

10) Which symbol describes the inter-arrival time distribution ?
   a) D b) M c) G d) All of the above

11) PERT stands _____
   a) Project evaluation and review technique
   b) Project review technique
   c) Project technique
   d) None

12) Activities that must be completed immediately prior to the start of another activities are called
   a) Predecessor b) Successor
   c) Concurrent d) All of them

13) In model II (a), allows
   a) shortages b) economic c) ordering d) none

14) If the unit cost rises, will optimal order quantity
   a) increase
   b) decrease
   c) either increase or decrease
   d) none of the above

15) If small orders are placed frequently, then total inventory cost is

a) increased b) reduced

c) either increased or deduced d) minimized

16) When more than one activity comes and joins an event, such event is known as _____

a) merge event b) burst event

c) merge and burst event d) none

17) In model II (C) the production lot size model with shortages, a minimum cost is given by

a) $\sqrt{\frac{C2\,RC1C2\,C3(1-R/K)}{C1+C2}}$ b) $\sqrt{\frac{(C1+C2)*R}{C1\,C2}}$

c) $\sqrt{\frac{(C1*R*C2\,C3(1-R)/K}{C2}}$ d) None

where C1 = holding cost

C2 = shortage cost

C3 = set up cost

R = demand

K = production rate

18) The objective of network analysis is to minimize total project cost, is _____

a) False b) True

c) Can't say d) None

19) Network model have advantages in terms of project

a) planning b) scheduling

c) controlling d) all of them

20) EOQ is

a) Economic Ordering Quantity b) Example of Quantity

c) Economic of Quantity d) None

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

a) Consider a self service store with one cashier. Assume Poisson arrivals and exponential service times suppose that 9 customers arrival on the average every 5 minutes and the cashier can serve 10 in 5 minutes find :

i) the probability of having more than 10 customer in the system

ii) the probability that a customer has to queue for more than 2 minutes.

b) Solve the LPP by simplex method :

Max $z = x_1 + x_2 + 3x_3$

Subject to $3x_1 + 2x_2 + x_3 \leq 3$; $2x_1 + x_2 + 2x_3 \leq 2$; $x_1, x_2, x_3 \geq 0$.

c) Solve the assignment problem to maximize production :

	A	B	C	D
1	62	78	50	101
2	71	84	61	73
3	87	92	111	71
4	48	64	87	77

d) Write an algorithm to solve IPP by using Gomory cutting plane method.

e) People arrive at a theater ticket booth in a Poisson distribution, arrival rate of 25 per hr. service time is constant at 2 minutes. Calculate :

i) The mean number in the waiting line

ii) The mean waiting time.

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

a) Using graphical method to reduce the following game and hence solve them :

		B				
		B_1	B_2	B_3	B_4	B_5
A	A_1	2	−4	6	−3	5
	A_2	−3	4	−4	1	0

b) Use two phase simplex method to solve the following LPP :

Minimize $Z = 15x_1 - 3x_2$

Subject to : $3x_1 - x_2 - x_3 \geq 3$

$x_1 - x_2 + x_3 \geq 2$

$x_1, x_2 \geq 0$

4. Find I.B.F.S. by : **10**

   i) Northwest corner method

   ii) Least cost method

   iii) VAM.

   of the following T. P. :

		To				
		A	**B**	**C**	**D**	**Available**
From	**I**	5	5	4	7	5
	II	6	5	1	2	5
	III	5	9	1	4	6
	IV	8	3	2	4	4
	V	6	5	3	1	6
	Required	5	8	3	10	

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

   a) Consider the following data :

   D = 1800 kg per year

   Co = Rs. 18 per order

   Ch = 1.25 per kg per year

   find :

   1) The optimal lot size Q*

   2) The optimal order cycle time t*.

   b) We have find 5 jobs, each of which must go through the machine A, B and C in the order ABC processing times (in hours) is as follows :

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

   Determine the sequence and calculate Idle time for each machine.

c) A newspaper boy buys papers for Rs. 1.30 each and sells them for Rs. 1.40 each. He cannot sold unsold newspapers. The daily demand has the following distribution :

No. of customers	23	24	25	26	27	28
Probability	0.01	0.03	0.06	0.10	0.20	0.25

No. of customers	29	30	31	32
Probability	0.15	0.10	0.05	0.05

If each day's demand is independent of the previous day's, how many papers should he order each day ?

d) An architect has awarded a contract to prepare plans for an urban renewal project. The job consists of the following activities and their estimated time :

Activity	**Immediate Predecessors**	**Time (days)**
A	–	2
B	–	1
C	A	3
D	A, B	2
E	C, D	1
F	B, D	3
G	E, F	1

construct PERT network and compute critical path and its duration.

e) We have five jobs, each of which must be processed on the two machines A and B, in order AB, processing times in hours is given the table below :

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

Determine a sequence for the five jobs that will minimize the elapsed time T.

6. Attempt the following : **10**

The cost of a machine is Rs. 6,100 and its scrap value is Rs. 100. The maintenance costs found from experience are as follows :

Year	1	2	3	4	5	6	7	8
Maintenance Cost Rs.	100	250	400	600	900	1200	1600	2000

When should the machine be replaced ?

7. Attempt the following :

a) A project has following activities : **10**

Activity	**Preceeding Activity**	**Time Estimates (Weeks)**		
		t_o	t_m	t_p
A	–	1	3	5
B	–	2	4	6
C	A	3	5	7
D	A	5	6	7
E	C	5	7	9
F	D	6	8	10
G	B	7	9	11
H	E, F, G	2	3	4

Determine the following :

a) Draw PERT network.

b) Find critical path and expected project length.

c) Find expected duration and variance for each activity.

d) Find total float and

e) Calculate variance and CD of the project length.

OR

a) A computer has a large no. of electronic tubes. They are subject to the following mortality rates :

Period	Age of failure (hrs.)	Probability of failure
1	0 – 200	0.10
2	201 – 400	0.26
3	401 – 600	0.35
4	601 – 800	0.22
5	801 – 1000	0.07

If the tubes are group replaced, the cost of replacement is Rs. 15 per tube. Replacement of individual tubes that fail in service, cost Rs. 60 per tube. How frequently should the tube be replaced ?

———————

SLR-BD – 7

Seat No.	

F.Y. M.C.A. (Part – II) (Old) (Under Faculty of Engg.) Examination, 2014
UNIFIED MODELLING LANGUAGE

Day and Date : Tuesday, 9-12-2014 Max. Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

1. Choose correct alternative : **20**

1) Which among the following are not the valid notations for package and component diagram ?
   a) Notes b) Box
   c) Extension Mechanisms d) Packages

2) Which of the following is false ?
   a) A note is dog-earned box connected to any model element by a dashed line
   b) The main way to extend UML is by constraints, properties etc
   c) A dependency relation holds between two entities D and I where change in I does not affect D
   d) All of the above

3) What does the component diagram consist of ?
   a) Their relationship to the environment
   b) Packages and dependency
   c) Internal structure
   d) a) and c)

4) A step of an activity is called _____
   a) Event b) State c) Action d) Interaction

5) Detailed design is further classified into which of the following _____
   a) Mid level design b) Low level design
   c) High level design d) a) and b)

P.T.O.

6) _____ among the following can be heuristic for use case diagram.
   a) Product can be made actor
   b) Never name actors with noun phrases
   c) Name use case with verb phases
   d) All of these

7) Which kind of UML diagram describes how code is arranged into directories ?
   a) Deployment b) Component c) State d) Package

8) Reliability can be measured as _____
   a) The frequency of failures
   b) The number of defects
   c) The frequency errors
   d) The percentage of time

9) UML interfaces are used to _____
   a) Define an API for all classes
   b) Program in Java, but not in C++
   c) Specify required services for types of objects
   d) None

10) An instance of an _____is a link.
   a) Dependency
   b) Association
   c) Generalization
   d) Realization

11) _____ is rendered as a rectangle with tabs
   a) Interaction b) Node c) Component d) State

12) A _____ extends the semantics of a UML building block, add the new rules or modify existing one.
   a) Constraints
   b) Stereotype
   c) Tagged value
   d) None of these

13) _____are the common notations for deployment diagrams.
   a) Artifacts and nodes
   b) Stereotype
   c) Components
   d) All of these

14) _____are the different interaction diagram notations does UML have.
   a) A sequence diagram
   b) A communication diagram
   c) An interaction overview diagram
   d) All of these

15) _____determines state diagram.
   a) The UML notation for specifying finite automata is the state diagram
   b) States are represented by rounded rectangles
   c) a) and b)
   d) None of these

16) What are prototypes ?
   a) Prototypes is a working model of part or all of a final product
   b) Prototypes does not represent any sort of models
   c) Prototype can never consist of full size
   d) All of these

17) What are the notations for use case diagrams ?
   a) Use case b) Actor c) Prototype d) a) and b)

18) The behaviour while in a state is defined by _____
   a) The set of incoming transitions b) The set of self transitions
   c) The set of outgoing transitions d) All of these

19) Which of the following diagram is an interaction diagram ?
   a) Class b) Object
   c) Sequence d) Statement

20) _____ things are the dynamic parts of UML models.
   a) Structure b) Behavioural
   c) Grouping d) Annotational

SECTION – I

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

   1) Classes, attributes and operations
   2) Association relationship
   3) Interfaces
   4) Packages
   5) Object diagram.

3. A) Explain UML architecture metal model. **10**

   B) Explain common mechanisms of UML in detail. **10**

   OR

   B) Draw and explain class diagram for Library Management System. **10**

SECTION – II

4. Attempt **any four** :

   1) Swimlane diagram. **2 1/2**

      Swimlane theory **2 1/2**

   2) Types of event : **5**

      1) Call event
      2) Time event
      3) Trigger event

   3) Transitions in state machine connection between states with proper messages. **3**

      Theoretical part. **2**

   4) Connections in deployment diagram. **3**

      Theory **2**

   5) Use cases diagrams. **3**

      Theory **2**

5. A) Neat labelled diagram with actions and activity nodes with connection between activity. **5**

      Theory and explanation **5**

   B) Interaction between objects and their links diagram. **5**

      Explanation of example. **5**

   OR

   B) Diagram with nodes and connection among nodes. **5**

      Example explanation **5**

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SLR-BD – 8

Seat No.	

F.Y.M.C.A. (Part – II) (Old) (Under Faculty of Engg.) Examination, 2014
DATA STRUCTURE – I

Day and Date : Thursday, 11-12-2014 Total Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

1. Multiple choice question : **20**

1) Dynamic structures are ones
   a) Which expand or shrink as required during the program execution
   b) Their associated memory location change
   c) Both a) and b)
   d) None of the above

2) 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 the above

3) The term 'node' is used to designate
   a) Unit of storage space b) Data
   c) An item d) None of the above

4) In linked list, we traverse the list in
   a) Only one direction b) Two direction
   c) Sometimes a) or b) d) None of these

5) 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

6) The most recently arrived data object is the
   a) First one to depart from a stack
   b) Last one to depart from stack
   c) Second one to depart from a stack
   d) Second last to depart from a stack

7) Queues are important in
   a) Simulation model b) Data model
   c) Trees d) Electric circuits

8) In _____ sort the number of passes is equal to the number of maximum digits contained in a given array.
   a) Radix sort b) Selection sort c) Insertion sort d) Merge sort

9) In _____ we use divide and conquer concept.
   a) Linear search b) Binary search
   c) Radix sort d) None of these

10) Queue performs _____ operation.
   a) FIFO b) FILO c) LIFO d) None of these

11) The Midsquare method gives good results because of
   a) Uniform distribution of the keys over the hash table is concerned
   b) Non uniform distribution of the keys over the hash table is concerned
   c) Both a) and b)
   d) All of the above

12) Collision in hashing
   a) Can be ignored b) Can not be ignored
   c) a) or b) d) None of these

13) Drawback of chaining method
   a) Maintaining linked list b) Extra storage space for link fields
   c) Both a) and b) d) Neither a) nor b)

14) A slight modification of indexing in B tree is called
   a) B–tree
   b) B+tree
   c) B+tree which allows redundant storage of key values
   d) All above

15) The best application of a tree indexing is called
   a) Retrieval operation of lexicographic words in dictionary
   b) Insertion operation of lexicographic words in dictionary
   c) a) or b)
   d) a) and b)

16) A length of a path is number of
   a) Branches on the path
   b) Trees on the graph
   c) Nodes on the graph
   d) All of the above

17) A set of tree if it has properties
   a) Graph
   b) Forest
   c) Nodes
   d) Sub trees

18) A graph is a trees is called a
   a) It is connected
   b) There are no cycles in the graph
   c) a) and b)
   d) None of these

19) In adjacency list representation, we store graph as
   a) Cross linked structure
   b) Linked structure
   c) a) and b)
   d) None

20) A graph traversal means
   a) Combining nodes of the graph
   b) Visiting all the nodes of the graph
   c) Joining nodes of the graph
   d) All of the above

SECTION – I

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

   1) Complexity of an algorithm.
   2) Convert following expression into postfix expression
      $A / B \wedge C + D * E - A * C$
   3) Implementation of binary search method
   4) Multilinked list
   5) Records.

3. A) Write a program to accept characters in single linked list and display it in reverse order. **10**

   OR

   A) "Insertion sort is better than selection sort". Explain in detail. **10**

   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**
   1) Threaded binary search
   2) Path length
   3) Heap sort
   4) B-tree
   5) Indexing.

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

   OR

   A) Write node deletion operation for binary search tree. **10**

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

SLR-BD – 9

Seat No.	

F.Y.M.C.A. (Part – II) (Old) (Under Faculty of Engg.) Examination, 2014
MICROPROCESSOR

Day and Date : Saturday, 13-12-2014 Max. Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

1. Multiple choice questions. **20**

1) The 8085 microprocessor operates on _____ frequency.
   a) 4 MHz b) 5 MHz c) 6 MHz d) 3 MHz

2) In 8085 program status word consists of
   a) accumulator contents b) flags
   c) both a) and b) d) status bits

3) MOV A, B instruction comes under _____ group.
   a) Data transfer b) Arithmetic c) Logical d) Branching

4) The register which keeps track of execution of program is
   a) stack pointer b) program counter
   c) PSW d) Stack counter

5) Maximum number of bytes for 8085 instruction is _____
   a) 1 byte b) 2 byte c) 3 byte d) 4 byte

6) Which interrupts has highest priority ?
   a) INTR b) TRAP c) RST 7.5 d) RST 6.5

7) What is SIM ?
   a) Select interrupt mask b) Sorting ,, ,,.
   c) Set ,, ,,. d) Softer ,, ,,

8) Which stack in 8085 ?
   a) FIFO b) LIFO c) FILO d) LILO

9) The addressing mode which does not required any operand is _____
   a) direct addressing b) register addressing
   c) indirect addressing d) implicit addressing

10) The machine cycle which is used to get code of the instruction is called _____
   a) memory read b) memory write
   c) opcode fetch d) operand fetch

11) _____ is a software interrupt in 8085.
   a) RST 0 b) RST 7.5 c) RST 1 d) a) and c)

12) In vectored interrupt, the address of ISR is
   a) in software b) hardwired c) ignored d) masked

13) To generate the starting address of TRAP ISR, 8085 executes the _____ instruction.
   a) RST 7.5 b) RST 6.5 c) RST 5.5 d) RST 4.5

14) In I/O mapped I/O method, 8085 can address up to _____ I/O devices.
   a) 128 b) 256 c) 512 d) 1024

15) In 8255, port _____ is divided into upper and lower ports.
   a) A b) B c) C d) None of these

16) The _____ signal in 8255 indicates that it has received data.
   a) IBF b) INTR c) INTE d) None of these

17) In memory mapped I/O method, _____ will be reduced.
   a) memory size b) T-states
   c) control signals d) none of these

18) 8251 is also known as
   a) PPI b) USART c) Receiver d) Transmitter

19) How many address lines are required for a 1K memory chip ?
   a) 10 b) 11 c) 12 d) 13

20) 74LS138 is a _____ IC.
   a) PPI b) USART c) decoder d) encoder

SECTION – I

2. Write short note on (**any 4**) : **20**
   1) Addressing modes of 8085
   2) Features of 8085 microprocessor
   3) Write a program for addition of two 16 bit numbers
   4) Draw timing diagram of opcode fetch operation
   5) Program counter and stack pointer.

3. A) Discuss with illustrative example the various addressing modes used in 8085 microprocessor. **10**

   B) Draw architecture of 8085 microprocessor and explain different flags. **10**

   OR

   B) Explain all rotate instructions with mathematical function. **10**

SECTION – II

4. Attempt **any four** : **20**

   a) Explain in detail format of RIM instruction.

   b) Using a proper diagram explain 8253.

   c) Explain I/O mode of 8255.

   d) Write a short note on maskable interrupts in 8085.

   e) Explain asynchronous serial communication format.

5. A) Draw and explain block diagram of 8251 USART. **10**

   B) Give in detail the differences between I/O mapped I/O and memory mapped I/O. **10**

   OR

   B) Explain 7-segment LED interfacing to 8085 using 8255. **10**

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