PART A

Q.1 How many words of 3 distinct letter can be
formed from alphabet (a,b,g,z) = _____
A) 24
B) 36
C) 5
D) 4

Q.2 Enrollment from 1995-1999 is called as
A) Median
B) Mode
C) Statistic
D) None of the above

Q.3 The Mean 8, 11, 12, 9 is _____
A) 12
B) 10
C) 9
D) None of the above

Q.4 a regular graph of degree 3 is
called_____ graph
A) Even
B) Odd
C) Cubic
D) None of the above

Q.5 The probability of getting a head from a two
headed coin is
A) 0
B) 1/2
C) 1
D) None of the above

Q.6 If A B, then _____
A) P(> P(B)
B) P(A) < P(B)
C) Q P(A) >2P(B)
D) None of the above

Q.7 For Histogram we draw _____
A) Circles
B) Ellipses

C) Lines

D) Rectangles

Q.8 The square of the Standard Deviation is
known as _____
A) Covariance
B) Variance
C) Median
D) Population

Q.9 Enrollment in 1999 is called
A) Statistics
B) Probability
C) Mean
D) None of the above

Q.10 An application and its ___- are logically eqvivalent
A) Inverse
B) Converse
C) Contrapositive
D) contingency

Q.11 If (G, *) is a group of the fourth root of unity, then O(G)
A) 2
B) 3
C) 4
D) 1

Q.12 The Geometric Mean of 5 and 8 is
A) 5
B) 8
C) 40
D) None of the above

Q.13 An English logician John Vern invented Venn diagram in the years_____
A) 1834-1824
B) 1834-1823
C) 1856-1855
D) 1854-1823

Q.14 The Median of 16, 17, 13, 15, 32, 10 is _____
A) 15
B) 16
C) 32
D) None of the above

Q.15 A group (Z,*) is said to be abelian if:
A) a * b = b * a V a, b A
B) a * b Z b * a V a, b A
C) a * b = b * a, for some a, b A
D) None of the above

Q.16 Algebraic system < zn, * > satisfy all the 4 rules and also condition for abelian and hence it is an_____
A) Monoid
B) Semi group
C) Abelian group
D) Group

Q.17 If A = {x / x>0, x_____ elements
A) 5
B) 4
C) 6
D) None of the above

Q.18 The founder of Set theory is _____
A) Newton
B) Cauchy
C) Cantour
D) None of the above

Q.19 The set of data having smaller sd (\), then they have ____
A) No dispersion
B) More dispersion
C) Less dispersion
D) None of the above

Q.20 The harmonic Mean of 2 and 4 is
A) 1/2
B) 1/4
C) 1/8
D) 4/3

Q.21 If A = {1, 3, 5}. B = {1, 2, 4, 6}. Then A-B is _____
A) {2, 4, 6}
B) {3, 5}
C) {1, 3, 5}
D) None of the above

Q.22 If |A| = 5. |B| = 3 then A x B has _____ ordered pairs
A) 8

B) 5

C) 3

D) None of the above

Q.23 The fair die is rolled, the probability of getting an odd number up is

A) 1/6

B) 1/2

C) 2/6

D) None of the above

Q.24 Given n different objects, the number of ways of selecting at least one of them,

nC1 + nC2â€¦â€¦nCn = _____

A) 2n - 1

B) 2n-1

C) 2 n

D) None of the above

Q.25 is a * b = a + b + 3 then * is _____

A) associative

B) not associative

C) not commutative

D) none of the above

Q.26 A monoid which satisfy_____ rule becomes a group

A) First

B) Second

C) Third

D) Fourth

Q.27 For any event A, and the sample space S, then P(S/A) is _____

A) 1

B) 0

C) P (A)

D) None of the above

Q.28 The values 0 and 1 attached to the switches are called_____

A) Flow table

B) Truth table

C) Transmittance

D) Circuit

Q.29 If A has 5 elements. Then powerset of A contains _____ elements

A) 5

B) 8

C) 16

D) None of the above

Q.30 The complete graph kp is a regular of degree _____
A) 3p
B) p3
C) p-1
D) 1-p

Q.31 The founder of set theory is_____
A) Newton
B) Cantour
C) Cauchy
D) None of the above

Q.32 If x = (1,2,3,4) then the number of permutation of a taken three at a time is 4p3 =
A) 12
B) 24
C) 36
D) 4

Q.33 Mean-Mode =
A) mean- median
B) median- mean
C) 3 (mean-media)
D) 3 (mean-mode)

Q.34 If A= {1, 2, 3, 3), then A is called _____ set
A) Finite
B) Infinite
C) Set
D) Not a set

Q.35 For any switch, allowing current to pass is called_____
A) Open state
B) Off state
C) Closed state
D) On | off state

Q.36 If A has 5 elements, the power set of A contains _____ elements
A) 8
B) 16
C) 5
D) None of the above

PART B

Q.1 If is a group. Then it is monoid with _____
A) Inverse for each element
B) Identity element
C) Closed property
D) None of the above

Q.2 Every cubic graph has _____ number of points
A) Odd
B) Prime
C) Even
D) Any number

Q.3 The value of 4! Is
A) 4
B) 12
C) 24
D) None of the above

Q.4 How many arrangements can be made with the letters of the word ALLAHABAD?
A) 7566
B) 7560
C) 7650
D) 70650

Q.5 If G = {1, -1, i, -i), X the operation under consideration form a _____
A) Group
B) Abelian group
C) Comnutative group
D) All the above

Q.6 5 people can sit in a circle in _____ ways
A) 24
B) 12
C) 5
D) None of the above

Q.7 The median of 8, 5, 17, 16, 31, 25, 18, 15,_____
A) 18.5
B) 17.5
C) 17
D) 11.5

Q.8 In how many ways of 6 rings of different type can be worn in 3 fingers?
A) 730

B) 792
C) 729
D) None of above

Q.9 If the graph consists of loops and multiple lines, the resulting graph is called _____,
A) Null graph
B) complet graph
C) Multigraph
D) pseudograph

Q.10 from the above example find variance
A) 4.682
B) 4.868
C) 4.92
D) 4.28

Q.11 5 People can sit in the circle in ___ ways
A) 24
B) 12
C) 5
D) None of the above

Q.12 A population consists of 10 books of mathematics published by a company having numbers of chapels as follows 12,8,11,10,7,10,15,13,14,9.
Find population mean.
A) 9.1
B) 10
C) 10.9
D) None of above

Q.13 There are how many types of calendars for the month of February?
A) 15
B) 14
C) 17
D) 12

Q.14 If a*b = a + b + 3 then * is
A) Associative
B) Not associative
C) Not commutative
D) None of the above

Q.15 A card is drawn from a park. Find the probability that card is a diamond or a face card
A) 11/26
B) 26/11

C) 10/52

D) 52 10

PART C

Q.1 In a batch of 500 pens, 50 are found to be defective. A pen is selected at random from batch, find the probability that it is non- defective.

A) 10/11

B) 9/10

C) 3/10

D) 4/5

Q.2 One integer is chosen at random from the numbers 1,2…100. What is the probability that chosen number is divisible by 6 or 8?

A) 5/8

B) 1/5

C) 4/5

D) None of the above

Q.3 A card is drawn from a well-shuffled pack of 52 cards. Then probability of getting it is either clover or king is _____

A) 13/52

B) 4/52

C) 4/13

D) None of the above

Q.4 Four married couples have gathered in a room. Two persons are selected at random from amongst them. Find the probability that the selected persons are a gentleman and a lady but not a couple.

A) 4/7

B) 2/7

C) 3/7

D) 1/7

Q.5 The Standard Deviation of 12, 8, 11. 10, 7, 10, 15, 13, 14, 9 is _____

A) 2.88

B) 3.66

C) 2.01

D) None of the above

Q.6 Probability that a student A can solve a certain problem is 2/3 and B solve it is 1/3. If both try independently, what is the probability that it is solved

A) 9/7

B) 3/7

C) 1/6

D) 7/9

Q.7 In a class of 60 students, 50% students read marathi newspaper and20% read English newspaper. If 10% students read both, find the probability that a student selected at a random reads either marathi or English newspaper.

A) 5/3

B) 3/5

C) 1/5

D) 2/5

Q.8 A coin is tossed 4 times. What is the probability of getting more tails than heads obtained

A) 1/4

B) 5/16

C) 8/16

D) None of the above

Q.9 Two factories produce identical clocks. The product of first factory consists of 10000 clocks of which 100 are defective. The second factory produces 20000 clocks of which 300 are defective. What is probability that a particular defect

A) 0.2

B) 0.5

C) 0.25

D) 0.52

Q.10 In problem no: 68 what is the probability of getting at most one article good?

A) 5/8

B) 7/8

C) 3/8

D) None of the above

Q.11 Two unbiased dice are thrown. Find the probability that the same score on the first dice as on the second.

A) 5/6

B) 2/6

C) 1/6

D) None of the above

Q.12 Three persons A, B, C fire at a target simultaneously. The probabilities that A, B, C can hit the target are 1/3, Â¼, 1/5 respectively. Find the probability that exactly two of them hit the target.

A) 20/3

B) 3/20

C) 11/20

D) 7/9

Q.13 Find the probability that a leap year selected at a random will have 53 Sundays
A) 7/2
B) 2/7
C) 19/17
D) 4/7

Q.14 An office has 4 secretaries handling 20%, 60%, 15%, 5% of the files of all Government reports. The probability that they miss-file such reports are respectively 0.05, 0.1, 0.1, 0.05. Find the probability that a misfiled report can be p
A) 11
B) 10.43
C) 0.1143
D) 0

Q.15 How many different seven-person committees can be formed each containing three female members from an available set of 20 females and four male members from a set of 30 males?
A) 1140
B) 27405
C) 230114
D) None of the above

Q.16 The chances of winning, of two horses race are 1/3 and 1/6 respectively. What is the probability of winning at least one when horses running in different races?
A) 8/18
B) 12/18
C) 6/18
D) None of the above

Q.17 The letters of the word EQUATION are arranged in a row. Find the probability that the all vowels are together.
A) 1/14
B) 2/6
C) 4/7
D) None of the above

Q.18 A lot contains 10 good articles. 4 with minor defects. 2 with major defects. If two articles are randomly chosen what is the probability that at least one is good?
A) 3/8
B) 5/8
C) 7/8
D) None of the above

Subject Name: Operating System

Credits: 4 Marks: 140

Part A (One mark questions)

1. Which of the followings are the Basic architectures for multiprocessor interconnections?
a. Bus-Oriented systems
b. Crossbar-connected systems
c. both a and b
d. Uniform memory access (UMA)

2. Spooling is an acronym for _____
a. Simultaneous Peripheral Operating system On Line
b. Similar Peripheral Operation On Line
c. Simultaneous Peripheral Operation On Line.
d. Simultaneous Project Operating system On Line

3. Multiprogramming increases_____by organizing jobs
a. memory utilization
b. CPU utilization
c. H/W utilization
d. both a and b

4. CPU scheduling and multi-programming provide each user_____ in a time-shared system.
a. multiple time slice
b. multiple jobs
c. multiple opening
d. one time slice (slot)

5. The PCB contains information that makes the process_____ entity
a. dynamic
b. passive
c.an active
d. static

6. The ready queue is nothing but a list of _____ implemented as a linked list
a. processor
b. Processes
c. PCBs
d. Both a and b

7. The operating system scheduler schedules processes from the_____ for execution by the CPU
a. ready queue

b. Waiting queue

c. running queue

d. Both a and b

8. CPU switching from one process to another requires saving the state of the current process and loading the latest state of the next process, is known as_____.

a. Context Switch

b. packet switch

c. process switch

d. processor switch

9. The short-term scheduler (or CPU scheduler) carries out the _____.

a. selection process

b. termination process

c. starter process

d. execution process

10. Module that gives control of the CPU to the process selected by the short-term scheduler is known as _____.

a. dispatcher

b. scheduler

C. manager

d. Connector

11. Number of processes completed per time unit is called_____.

a. throughput.

b. CPU utilization

c. Turnaround time

d. Response time

12. The FCFS algorithm is implemented by using a _____queue structure for the ready queue.

a. first-in-first-out (FIFO)

b. LILO

c. LIFO

d. FILO

13. If process pi is executing in its critical-section, then no other processes can be executing in their critical-sections. Technique is called_____.

a. Mutual Exclusion

b. Bounded Waiting

c. Progress

d. both a and b

14. An algorithm developed for solving the critical-section problem for n processes is also called _____.

a. Scheduling algorithm

b. Bakery algorithm,

C. queuing algorithm

d. Both a and b

15. Semaphores are the classic method for _____to shared resources (e.g. storage) in a multi-processing environment

a. restricting access

b. Allowing access

c. check

d. both b and c

16. A _____is a collection of procedures, variables and data structures grouped together

a. monitor

b. Semaphores

c. detector

d. both a and b

17. The situation where we have a set of processes each holding some resources, each requesting some resources, and none of them is able to obtain what it needs. Such situation is called_____.

a. Deadlock

b. reusable

c. Mutual exclusion

D. both b and c

18. Dead-lock avoidance scheme requires the operating system to know _____, the resources needed by a process for its entire lifetime.

a. in advance

b. Everything

c. processor requirements

d. a and b both

19. Prevention of deadlock is possible by ensuring that at least one of the four conditions_____ hold.

a. Must

b. Cannot

c. may or may not

d. reverse to

20. A system is said to be in a safe state if it can allocate resources up to the _____ and is not in a state of deadlock

a. maximum available

b. lowest level

c. moderate level

d. both b and c

21. An address generated by the CPU is referred to as a _____.
a. logical address
b. physical address
c. variable address
d. both a and b

22. If binding is done at load time then swap in has to be at the _____ as before
a. variable address
b. different location
c. same location
d. both b and c

23. A situation where the total size of hole is divided into a set of smaller holes is large enough to hold another process for execution but the process cannot be loaded, as the hole is not contiguous. This is known as _____.
a. external fragmentation
b. Internal fragmentation
C. both a and b
d. reallocation

24. Physical memory is divided into fixed sized blocks called _____.
a. frames
b. blocks
c .box
d. both a and c

25. Demand paging is similar to paging with _____.
a. swapping
b. debugger
c. secondary memory
d. both a and b

26. In first-in-first-out page replacement algorithm when a page replacement is required the _____in memory is the victim.
a. dead page
b. Recent page
c. oldest page
d. Both a and b

27. An optimal page replacement algorithm produces the _____rate of all algorithms
a. lowest page fault
b. Highest page fault
c. both a and b
d. fragmentation

28. Which of the following storage media user can use for storage?
a. magnetic disks
b. tapes
c. optical disks
d .all above

29. The extension which is separated by dot, is the part of a file name that identifies the _____of the file.
a. storage
b. Size
c. type
d. Both b and c

30. Which of the following extension we have for C source code file?
a. .c
b. .cob
c. .txt
d. both a and b

31. Distributed applications mean different programs on _____.
a. different computers.
b .same computers
c. single computer
d. both a and b

32. In vertical or hierarchical distribution, functionality is distributed among various _____.
a. directions
b. Levels
c hierarchy
d. Both a and b

33. In centralized data, data resides only at _____that can be accessed or shared by all other computers in the network
a. one central computer
b. Distributed computers
c. lower level
d. both a and b

34. Network Operating System (NOSs) are available on _____.
a. MANs
b. WANs
c. LANs
d. both a and b

35. Deliberately written program or part of it intended to create mischief is called as _____.
a. Computer worm
b. application program
c. computer virus
d. both c and b

36. Which of the followings are the types of virus?
a. Memory resident infectors
b. General purpose infectors
c. both a and b
d. None of above

37. Worm is a complete program by itself and can execute _____.
a. Independently
b. With other program
c. Both a and b
d. with help of boot program

38. SIMD stands for _____.
a. Single Instruction Stream, Multiple Data Stream
b. Single Instruction Stream, mutual Data Stream
c. simple instruction Stream, Multiple Data Stream
d .Single Instruction solution, mutual Data Stream

39. IPC stands for_____.
a. intellectual process community
b. Inter-personal communication
c. Inter-processor communication
d. Inter-personal community

40. The nature of multiprocessor interconnections has an affect on the _____ for communication
a. bandwidth
b. Frequency
c. Range
d. both a and b

Part B (Two mark questions)

41. BIOS (Basic Input Output system) which is stored in _____where as DOS (Disk Operating System) is stored in a _____.
a. EEPROM, EPROM
b. ROM (Read Only Memory), floppy disk or a hard disk
c. EEPROM, floppy disk
d. ROM, EPROM

42. These systems are also called_____ systems because the processors share the_____.
a. tightly coupled, memory or a clock
b. Loosely coupled, memory or a clock
c. tightly coupled, hardware
d. tightly coupled, software

43. State true /false
When a process creates a new process, two possibilities exit in terms of execution
A. The parent continues to execute concurrently with its children
B. The parent waits until some or all of its children have terminated
a. A-T, B-T
b. A-F, B-F
c. A-T, B-F
d. A-F, B-T

44. A process terminates when it finishes executing its _____and asks the operating system to delete it by using the _____.
a. First statement, delete command
b. First statement, exit system call
c. last statement , exit system call
d. last statement, delete command

45. State true/ false
Scheduling under one of the following condition is said to be non-preemptive:
A. switches from running state to waiting (an I/O request).
B. switches from waiting to ready state (completion of an I/O).
a. A-T, B-F
b. A-T, B-T
c. A-F, B-F
d. A-F, B-T

46. The round-robin CPU scheduling algorithm is basically a _____scheduling algorithm designed for _____ systems.
a. non-preemptive, time-sharing
b. non-preemptive, multi- processor
c. preemptive, resource-sharing
d. preemptive , time-sharing

47. In the direct-communication discipline, each process that wants to communicate must _____name the_____of the communication
a. explicitly , recipient or sender
b. implicitly, recipient or sender
c. explicitly , recipient and sender

d. implicitly, recipient and sender

48. A mailbox can be viewed abstractly as an object into which messages can be placed by
_____ and from which messages can be _____.
a. Scheduler, attached
b. processes, attached
c. processes, removed.
d. Scheduler, removed.

49. State true/false
In case a deadlock occurs the system must-
A. Detect the deadlock
B. Recover from the deadlock
C. back up for all storage
a. A-T, B-T,C-T
b. A-T, B-F,C-T
c. A-T, B-T,C-F
d. A-F, B-T,C-T

50. State true/false
Safe State
A. A safe state is not a deadlock state
B. If a system is in a safe state it can stay away from an unsafe state and thus avoid deadlock.
a. A-T, B-T
b. A-F, B-T
c. A-T, B-F
d. A-F, B-F

51. State true/false
For external fragmentation.
A. Memory compaction is a solution to overcome external fragmentation.
B. if segments even though variable are small, external fragmentation is also less.
a. A-T, B-T
b. A-F, B-T
c. A-T, B-F
d. A-F, B-F

52. A logical address generated by the CPU consists of two parts: _____and _____.
a. page address, page offset
b. page address, page value
c. page offset, default page
d. Page number, page offset

53. State true/false
Demand paging uses two important algorithms

A. Page replacement algorithm.

B. Frame allocation algorithm

a. A-T, B-T

b. A-F, B-T

c. A-T, B-F

d. A-F, B-F

54. The main distinction between FIFO and optimal algorithm is that the FIFO algorithm uses the time when a page was brought into _____ whereas the optimal algorithm uses the time when a page is to be used in _____.

a. Memory, future

b. secondary memory, future

c. address space, past

d. secondary memory, past

55. When a file is created or a file grows requests for blocks of disk space are checked in the_____ list and then _____.

a. free-space, allocated

b. first , allocated

c. first , reallocated

d. Free-space, allocated

56. Hash function is the main problem that is dependent on the _____ and the solution to the problem is to allow for chained overflow with each hash entry being a _____.

a. records, linked list

b. hash table, linear list

c. hash table size, linear list

d .hash table size, linked list

57. Network Management Software It maintains a list of _____along with its location and _____.

a. hardware equipment , status.

b. interrupt, status

c. interrupt, timings

d. Hardware equipment, timings

58. State true/false

Encryption in a distributed environment can be of two forms :

A-End-to-end encryption

B-point-to-point encryption

a. A-T, B-T

b. A-F, B-T

c. A-T, B-F

d. A-F, B-F

59. Digital signature is like a _____ on paper. If a signed letter is sent by A to B, A cannot deny having sent it to B and B _____ having got it

a .human signature, cannot refuse

b. computer signature, can refuse

c. human signature, can refuse

d. Computer signature, cannot refuse

60. The crossbar switch is the only cause of delay between _____ and _____.

a. Primary memory, secondary memory

b. Processor, memory.

c. flash memory, cache memory

d. Input, output

Part C (Four mark questions)

61. Match the followings:

Part A

1). Hydra

2). IBM 370

3).THE operating system

Part B

A. Example of virtual machine

B. Example of kernel.

C. Example of layered approach.

a. 1. C, 2. A, 3. B

b. 1.C, 2.B, 3. A

c. 1. A, 2. C, 3. B

d. 1. B, 2.A, 3. C

62. State whether the following statement is true or false for Kernel Based Approach.

1) A kernel is a fundamental set of primitives that allows the dynamic creation and control of processes, as well as communication among them.

2). An operating system is an orderly growth of software over the kernel.

3). Including too much functionality in a kernel results in low flexibility at a higher level.

a. 1. True, 2. True, 3. True

b. 1. True, 2. False, 3. False

c. 1. False, 2. False, 3. False

d. 1. True, 2. True, 3. False

63. State whether the following statement is true or false for Schedulers

1). The long-term scheduler and short-term scheduler differ in the frequency of their execution.

2). A good selection of jobs by the long-term scheduler will give a good mix of both CPU bound and I/O bound processes.

3). A long-term scheduler executes very frequently since new processes are not created at the same pace at which processes need to be executed.

a. False, 2. True, 3. True
b. 1. True, 2.False, 3. False
c. 1. False, 2.False, 3. False
d. 1. True, 2.True, 3. False

64. State whether the following statement is true or false for Shortest-Job-First Scheduling.
1). The SJF algorithm produces the most optimal scheduling scheme.
2). The main disadvantage with the SJF algorithm lies in knowing the length of the next CPU burst.
3). SJF algorithm could be only preemptive
a. 1. True, 2.True, 3. True
b. 1. True, 2.False, 3. False
c. 1. False, 2.False, 3. False
d. 1. True, 2.True, 3. False

65. State whether the following statement is true or false for Semaphores
1) Semaphores are not provided by hardware
2) A semaphore is a protected variable
3) They were invented by Dijkstra and first used in T.H.E operating system
a. 1. True, 2.True, 3. True
b. 1. True, 2.False, 3. False
c. 1. False, 2.False, 3. False
d. 1. True, 2.True, 3. False

66. State whether the following statement is true or false for Recovery from Deadlock
1) Detection algorithm has to be invoked after terminating every process.
2) Rollback the process to a safe state to restart later
3) One or more processes involved in deadlock could be terminated to break the deadlock
a. 1. True, 2.True, 3. True
b. 1. True, 2.False, 3. False
c. 1. False, 2.False, 3. False
d. 1. True, 2.True, 3. False

67. Match the followings:
Part A
1).Allocate the largest hole available
2).Allocate the first hole that is big enough to hold the process
3). Allocate the smallest hole that is big enough to hold the process
Part B
A. First-fit
B. Best-fit
C. Worst-fit
a. 1. C, 2.A, 3. B
b. 1.C, 2.B, 3. A
c. 1. A, 2.C, 3. B
d. 1.B, 2.A, 3. C

68. state whether the following statement is true or false for LRU Page Replacement

1).LRU page replacement algorithm does not suffer from Beladys anomaly

2). The LRU page replacement algorithm with 12 page faults is worst than the FIFO algorithm with 15 faults

3). According to the LRU page replacement algorithm the least recently used page is the page with the smallest value in the variable associated with the clock.

a. 1. True, 2.False, 3. True

b. 1. True, 2.False, 3. False

c. 1. False, 2.False, 3. False

d. 1.False, 2.True, 3. True

69. State whether the following statement is true or false for Direct Access

1) Direct access is based on the disk that is a direct access device

2) Not all operating systems support direct access files.

3) Direct access of a sequential file is very much possible.

a. 1. True, 2.True, 3. True

b. 1. True, 2.False, 3. False

c. 1. False, 2.False, 3. False

d. 1. True, 2.True, 3. False

70. State whether the following statement is true or false for Remote Procedure Call.

1) RPC can be considered as a special case of a generalized remote message-passing scheme

2) It interfaces with processes running on the nodes using primitives like SEND and RECEIVE

3) In RPC call by reference is very difficult because it is difficult to let processors on different machines to share a common address space

a. 1. True, 2.True, 3. True

b. 1. True, 2.False, 3. True

c. 1. False, 2.False, 3. False

d. 1. True, 2.True, 3. False

71. State whether the following statement is true or false for Distribution of Data

1) Data could be distributed in a partitioned way.

2) In a distributed environment, part of the master database could be centralized and the rest distributed among the connecting computers.

3) Data can also be distributed similar to distribution of programs

a. 1. True, 2.True, 3. True

b. 1. True, 2.False, 3. False

c. 1. False, 2.False, 3. False

d. 1 .False, 2. True, 3. True

72. State whether the following statement is true or false for Security Design Principles

1) A security system should be a top most secret

2) A simple uniform security system built in layers, as an integral part of the system is preferred

3. Users should not have to spend a lot of effort to learn how to protect their files

a. 1. True, 2.True, 3. True

b. 1. True, 2.False, 3. False
c. 1. False, 2.False, 3. False
d. 1.false, 2.True, 3. True

73. Match the followings:
Part A
1). Single Instruction Stream, Single Data Stream
2). Multiple Instruction Streams, Multiple Data Stream
3).Multiple Instruction Streams, Single Data Stream
Part B
A. MISD
B. MIMD
C. SISD
a.. 1. C, 2.A, 3. B
b.. 1.C, 2.B, 3. A
c.. 1. A, 2.C, 3. B
d.. 1.B, 2.A, 3. C

74. State whether the following statement is true or false for Bus-Oriented systems
1) Shared bus organization usually supports only 2 processors
2) The bus and the memory being shared resources there is always a possibility of contention
3) Processors communicate with each other and the shared memory through the shared bus
a.. 1. True, 2.True, 3. True
b. 1. True, 2.False, 3. False
c.. 1. False, 2.False, 3. False
d. 1.false, 2.True, 3. True

75. Suppose process P sends a message to process Q and can continue its execution only after the message is received. Process P executes the sequence. Find out the missing sequence
send (Q, message)
-
Process Q executes
receive (P, message)
.
a. receive (P, message) send (P, "acknowledgment")
b. receive (Q, message) send (P, "acknowledgment")
c. receive (Q, message) send Q, "acknowledgment")
d. receive (P, message) send (Q, "acknowledgment")

Subject Name: Fundamentals of DBMS

Credits: 4 Marks: 140

Part A (One mark questions)

1. Which of the following is not true about traditional approach to information processing?
A) There is a common sharing of data among various applications
B) It is file oriented
C) Programs are dependent on files
D) It is inflexible

2. The way a particular application views the data from the database that the application uses is a _____
A) Module
B) Relational Model
C) Schema
D) Subschema

3. In _____ model all data is maintained in the form of tables consisting of rows and columns.
A) Relational
B) Network
C) Hierarchical
D) Schema

4. _____ defines the database schema, Interacts continuously with users, defines integrity and security checks, defines procedures for backup and recovery.
A) End User
B) Naïve User
C) DBA
D) None of the above.

5. The _____ indexes are built based on the same key by which the data is ordered on the disk.
A) Non – Clustered
B) Clustered
C) Hashed
D) Primary

6. In designing the _____ level, the main objective is to optimize performance by minimizing the number of disk accesses during various database operations.
A) Physical
B) Logical
C) User
D) Index

7. Find out the method for making data retrieval faster.

A) Clustering

B) Indexing

C) Hashing

D) All of the above

8. Identify the data retrieval method from the following statement:

If records which are frequently used together are placed physically together, more records will be in the same page. Hence the number of pages to be retrieved will be less and this reduces the number of disk accesses which in turn gives a better performance.

a) Clustering

b) Indexing

c) Hashing

d) All of the above

9. The number of tuples in a relation is called _____ of a relation.

A) Cardinality

B) Degree

C) Tuple

D) Key

10. Delete/Update all the references successively or in a cascaded fashion and finally delete/update the parent record. The related concept is called _____

A) Deletion

B) Updation

C) Cascade Deletion

D) Cascade Insertion

11. A _____ key is all those set of attributes which can uniquely identify a row. However, any subset of these set of attributes would not identify a row uniquely.

A) Foreign

B) Candidate

C) Sub

D) Primary

12. The Join operation retrieves all rows from the left-side (of the join operator) table. If there are corresponding or related rows in the right-side table, the correspondence will be shown. Otherwise, columns of the right-side table will take null values.

The type of join discussed here corresponds to _____.

A) Inner Join

B) Outer Join

C) Right Outer Join

D) Left Outer Join

13. The _____ is the knowledge derived from data.

A) Database

B) Information

C) Table

D) Data Dictionary

14. The tables are called _____ because they store data about the relationships between the rows of data.

A) Integrated

B) Self Describing

C) Metadata

D) Knowledge Discovery

15. The client may communicate with a _____ (a web server, transaction processing monitor, or the like), which in turn uses a protocol to proxy the communication between the client and the DBMS.

A) File Server

B) Database Server

C) Middle-Tier Server

D) Proxy Server

16. The example given below corresponds to _____ view of a database system.

"A department head may only be interested in the departmental finances and student enrolments but not the library information".

A) Conceptual

B) External

C) Internal

D) None of the above

17. In this, user requirements are gathered together and a database is designed which meets these requirements as closely as possible.

This step called ____ level design is independent of an individual DBMS.

A) Information

B) Data

C) Logical

D) Physical

18. Any thing that may have an independent existence and about which we intend to collect data is called _____.

A) Entity Set

B) Data

C) Entity

D) Relation

19. Consider the following entities:

Doctor

Medicine

Prescription

Patient

The above entities form a _____ relationship type.
A) Binary
B) Tertiary
C) n-ary
D) None

20. The statement "Some employees are married to other employees" is an example of _____ relationship.
A) Recurrence binary
B) Recursive Binary
C) Relative Binary
D) Reference Binary

21. The _____ is an ORDBMS that combines relational and object database technologies from two previously existing products: Informix and Ilustra.
A) Informix universal server
B) Oracle database server
C) MS – Access Database
D) MySQL database server

22. . _____ can be applied to operational databases with individual transactions.
A) Data Division
B) Data Multiplexing
C) Data Mining
D) Data Warehousing

23. A transaction is logical unit of database processing that includes one or more data access operations include _____ operations.
A) Insertion
B) Retrieval
C) Retrieval but not insertion
D) Both insertion and retrieval

24. Cardinality of a relationship means the number of _____ in a relation.
A) record
B) attributes
C) tuples
D) column

25. The _____ relational algebra operator obtains all possible combination of tuples from two relations.
A) join
B) Project
C) Divide
D) Product

26. _____follows from the control or elimination of redundancy.
A) Integrity
B) Consistency
C) Security
D) Redundancy

27. The object of an _____rule is the set of database entities which can be updated by the subject, they may be individual fields or records or may even be the entire database.
A) Encryption
B) Subschemas or Views
C) Authorization
D) User-defined procedures

28. _____ refers to the right of an individual to have certain information concerning him kept confidential.
A) Encryption
B) Security
C) Integrity
D) Privacy

29. The _____of a relation is the attribute (column) or collection of attributes, which uniquely identifies a given tuple (row).
A) attribute
B) tuples
C) primary key
D) foreign key

30. _____ built in function returns largest value in a column for all rows satisfying WHERE clause.
A) SUM
B) MAX
C) MIN
D) AVG

31. One method of accessing data from more than one table is to _____the tables.
A) join
B) sum
C) project
D) view

32. _____ command in relational algebra takes a vertical subset of a relation. It causes only certain columns to be included in the new relation.
A) SELECT
B) PROJECT
C) JOIN

D) VIEW

33. DDL stands for_____
A) data derivative language
B) data division language
C) data definition language
D) data definite language

34. ANSI stands for _____
A) American National Standards formation
B) American National Security Information
C) American National Security Institute
D) American National Standards Institute

35. SQL is an ANSI standard computer language for _____ database systems.
A) accessing
B) manipulating
C) creating
D) accessing and manipulating

36. A _____is a column in a table where that column is a primary key of another table.
A) row
B) column
C) attribute
D) foreign key

37. _____ issues of database security is associated with the right to access certain information.
A) Legal and ethical
B) Policy
C) System-related
D) Classification

38. Database _____refers to the protection of data from unauthorized disclosure.
A) Integrity
B) Availability
C) Confidentiality
D) Security

39. KDD stands for_____
A) Knowledge Data mining in Databases
B) Knowledge Definition in Databases
C) Knowledge Distribution in Databases
D) Knowledge Discovery in Databases

40. _____is a technique derived from artificial intelligence research that uses generalized regression and provides an iterative method to carry it out.
A) Regression network
B) Neural network
C) Private network
D) Public network

Part B (Two mark questions)

41. The _____ contains the data definition of the application the _____ evaluates the different implementations of a query and chooses the best among them.
A) Data Definition, Data Manipulation
B) Data Manipulation, Data Integrity
C) Data Recovery, Data Concurrency
D) Data Dictionary, Query Optimizer

42. The database administrator is in effect the coordinator between the _____ and the _____
a) DBMS database
b) Application programs database
c) Database users
d) Application programs users

43.. _____ involves forming a two-dimensional matrix completely independent of the table on which the index is being created For every data value held in the index the Oracle engine inserts a unique _____ value.
A) Hashing, number
B) Indexing, Hash
C) Indexing, ROWID
D) Hashing, ROWID

44. In _____ clustering method, clustered records belong to the same file In _____ clustering method, clustered records belong to different files.
A) Intra-File, Inter-File
B) Inter-File, Intra-File
C) Inter-File, Inter-File
D) Intra-File, Intra-File

45. The following query is an example of _____ join.
SELECT e1.employee_id, e1.manager_id, e2.employee_id
FROM employees e1, employees e2
WHERE e1.manager_id(+) = e2.employee_id
A) Equi
B) Non – Equi
C) Self
D) Outer

46. The example "Every project must be managed by a single department" is an example of _____ existence and the example "Employees may be assigned to work on projects" is an example of _____ existence.
A) Mandatory, optional
B) Optional, Mandatory
C) Mandatory, Mandatory
D) Optional, Optional

47. If any tampering with the database is suspected, a database audit is performed, which consists of reviewing the log to examine all _____ and _____ are applied to the database during a certain time period.
A) operations validations
B) accesses operations
C) permissions relations
D) grants revokes

48. _____ knowledge deduces new information based on applying pre-specified logical rules of deduction on the given data. Data mining addresses _____ knowledge, which discovers new rules and patterns from the supplied data.
A) Deductive, Inductive
B) Inductive, Deductive
C) Responsive, Deductive
D) Erroneous, Deductive

49. The goal of _____ is to place records into groups, such that records in a group are similar to each other and dissimilar to records in other groups. The groups are usually _____.
A) Classification, Grouping
B) Grouping, Classification
C) Clustering, Classification
D) Clustering, Disjoint

50. Identify the integrity rules integrity rules to be satisfied by any relation:
a) No Component of the Primary Key can be null.
b) The Database must not contain any unmatched Foreign Key values. This is called the referential integrity rule.
c) The order of rows in a relation is immaterial.
A) a, b, c
B) a, c
C) a, b
D) b, c

51. State whether the following statements are true/ false:
1) PROJECT- To retrieve specific tuples/rows from a relation.
2) SELECT- To retrieve specific attributes/columns from a relation.
A) 1. True, 2.True
B) 1. True, 2. False
C) 1. False, 2. True

D) 1. False, 2. False

52. State whether the following statements are true/ false:
1) Encryption refers to the storing of data in an encrypted format.
2) A user defined procedure is a procedure written by the developers.
A) 1. True, 2.True
B) 1. True, 2. False
C) 1. False, 2. True
D) 1. False, 2. False

53. State whether the following statements are true/ false:
1. Logical and Physical Characteristics of the database are together.
2. Relational model system are much easier to use and more flexible.
A) 1. True, 2.True
B) 1. True, 2. False
C) 1. False, 2. True
D) 1. False, 2. False

54. Identify the restriction for the names of tables and columns as per relational database standards:
1. The name should contain more than 18 characters
2. The name must start with a letter.
3. The name can contain letters, numbers and underscores.
4. The name should not contain spaces.
A) 1,2,3,4
B) 1,2,3
C) 1,3,4
D) 2,3,4

55. State whether the following statements are true/ false:
1) In natural join, the column on which the table is joined appears only once.
2) The JOIN command in relational algebra takes a horizontal subset of a relation.
A) 1. True, 2.True
B) 1. True, 2. False
C) 1. False, 2. True
D) 1. False, 2. False

56. _____ enforces policies and privileges based on the concept of roles and _____ prevents information from flowing in such a way that it reaches unauthorized users.
A) Role based security, flow control
B) Flow control, role based security
C) Statistical database security, inference control
D) Inference control, statistical database security

57. State whether the following statements are true/ false:
1) A DBMS typically includes a database security and authorization subsystem that is responsible for ensuring

the security of portions of a database against unauthorized access.
2) Flow control is used to protect sensitive data (such as credit card numbers) that is being transmitted via some type of communications network.
A) 1. True, 2.True
B) 1. True, 2. False
C) 1. False, 2. True
D) 1. False, 2. False

58. The _____ DBA privileged action consists of assigning user accounts to the appropriate security classification level and _____ action permits the DBA to cancel certain privileges that were previously given to certain accounts.
A) Security level assignment, Privilege revocation
B) Privilege revocation, Privilege granting
C) Privilege granting, Security level assignment
D) Privilege revocation, Security level assignment

59. Based on the following example identify the type information.
1) Whenever a customer buys video equipment, he or she also buys another electronic gadget.
2) A customer buys a camera, and within three months he or she buys photographic supplies, then within six months he is likely to buy an accessory item.
A) Classification trees, Association rules
B) Association rules, Sequential patterns
C) Sequential patterns, Association rules
D), Association rules, Classification trees

60. State whether the following statements are true/ false:
1) Deductive knowledge discovers new rules and patterns from the supplied data.
2) Association rules correlate the presence of a set of items with another range of values for another set of variables.
A) 1. True, 2.True
B) 1. True, 2. False
C) 1. False, 2. True
D) 1. False, 2. False

Part C (Four mark questions)

61. Match the following as drawback of File based system:
Set I Set II
1) Data redundancy a) In large multi-user systems the same file or
record may need to be accessed by multiple
users simultaneously. Handling this in a file-
based systems is difficult.
2) Concurrent Access Anomalies b) Since data resides in different private data files,
there are chances of drawback and resulting
inconsistency.

3) Security Problem c) Users should be given access only to
Required data and not the whole
database. In a file-based system, this can
be handled only by additional
programming in each application.
A) 1.a, 2.b, 3.c
B) 1.b, 2.a, 3.c
C) 1.c, 2.b, 3.a
D) 1.c, 2.a, 3.b

62. State whether the following statements are true/ False as a function of DBMS:
1) The DBMS provides functions to define the structure of the data in the application.
2) DBMS cant handle planned and unplanned data manipulation needs.
3) Optimizing the performance of the queries is not the function of a DBMS.
a) 1.False, 2.True, 3.False
b) 1. False, 2. False, 3.False
c) 1. False, 2.True, 3.True
d) 1.True, 2.False, 3.False

63 . Read the following statements:
1. While inserting a new record, it is found that the location at the hash address is already occupied,
2. Now search for the next free location available in the disk
3. Store the new record at the free location found in step 2.
4. A pointer from the first record at the original hash address is computed to locate the record.
The above statements point to _____ collision resolution scheme.
A) Linear Search
B) Collision Chain
C) Linear Hashing
D) Quadratic Probing

64. State whether the following statements are true/ false:
1) Clustered indexes are indexes that are built based on the different keys by which the data is ordered on disk.
2) Unclustered indexes are indexes that are built on a same key.
3) Clustered indexes usually store the actual records within the data structure and as a result can be much slower than unclustered indexes.
A) 1.True, 2.True, 3.True
B) 1.True, 2.False, 3.True
C) 1.False, 2.False, 3.True
D) 1.False, 2.False, 3.False

65. There can be a change in database structure without changing the programs accessing them. It is achieved through the use of external views. Each program accesses data through an external view. The change to the database structure should be such that a required field should not be removed from it.
All the above statements correspond to the concept of _____

A) Data Independence
B) Data Dependence
C) Self – Reference
D) Referential Integrity

66. Match the following access privileges:
Part – A
1. Account Level
2. Relation (or Table) Level
3. Select (Retrieval or Read)
4. Modify
Part – B A) At this level, the DBA specifies the particular privileges that each account holds independently of the relations in the database.
B) At this level, the DBA can control the privilege to access each individual relation or view in the database.
C) SELECT (retrieval or read) privilege on R: Gives the account retrieval privilege.
D) MODIFY privileges on R: This gives the account the capability to modify tuples of R.
A) 1 – A, 2 – B, 3 – C, 4 – D
B) 1- B, 2 – C, 3 – D, 4 – A
C) 1 – C, 2 – D, 3 – A, 4 – B
D) 1 – D, 2 – C, 3 – B, 4 - A

67. Match the following with respect to Knowledge discovery in Data Mining:
Part – A
1. Association rules
2. Classification hierarchies
3. Sequential patterns
4. Clustering
Part – B
A) A sequence of actions or events is sought.
B) A given population of events or items can be partitioned (segmented) into sets of "similar" elements.
C) These rules correlate the presence of a set of items with another range of values for another set of variables.
D) The goal is to work from an existing set of events or transactions to create a hierarchy of classes.
A) 1 – A, 2 – B, 3 – C, 4 – D
B) 1- B, 2 – C, 3 – D, 4 – A
C) 1 – C, 2 – D, 3 – A, 4 – B
D) 1 – D, 2 – C, 3 – B, 4 - A

68. Match the followings:
Part I:
1) UNION
2) INTERSECT
3) JOIN
Part II:
a) To retrieve tuples appearing in either or both the relations

b) To retrieve tuples appearing in both the relations

c) To retrieve combinations of tuples in two relations based on a common field in both the relations.

A) 1. a, 2. b, 3. c

B) 1. b, 2.a, 3.c

C) 1. c, 2.b, 3.a

D) 1.c, 2.a, 3.b

69. State whether the following statements are true/false:

1) A join can be formed between the multiple relations based on the common column

2) The left outer join retrieves all rows from the right-side (of the join operator) table.

3) The full outer join retrieves all rows from both the tables.

A) 1. True, 2. True, 3. True

B) 1. False, 2. False, 3. False

C) 1. False, 2. False, 3. True

D) 1. False, 2. True, 3. False

70 Match the followings:

Part I:

1) Conceptual view

2) External view

3) Internal view

Part II:

a) This view is often a restricted view of the database and the same database may provide a number of different views for different classes of users.

b) This is the information model of the enterprise and contains the view of the whole enterprise without any concern for the physical implementation.

c) is the view about the actual physical storage of data.

A) 1. a, 2. b, 3. c

B) 1. b, 2.c, 3.a

C) 1. b, 2.a, 3.c

D) 1.c, 2.a, 3.b

71. State whether the following statements are true/false:

1) An attribute in one relation.

2) A structure, which satisfies all the properties given above, is called a unnormalized relation.

3) SQL (structured Query Language) is the most important relational data manipulation language.

A) 1. True, 2. False, 3. True

B) 1. False, 2. False, 3. False

C) 1. False, 2. False, 3. True

D) 1. False, 2. True, 3. False

72. Match the followings:

Part I:

1) Data Control Language

2) Data Manipulation Language

3) Data Definition Language

Part II:

a) Consists of SQL statements for providing and revoking access permissions to users.

b) Creating, Modifying and Dropping tables, indexes, views etc.

c) Inserting, Modifying, Deleting and Retrieving Data

A) 1. a, 2. b, 3. c

B) 1. a, 2.c, 3.b

C) 1. b, 2.a, 3.c

D) 1.c, 2.a, 3.b

73. Match the followings:

Part I:

1) Database integrity

2) Database availability

3) Discretionary security mechanisms

Part II:

a) These are used to grant privileges to users, including the capability to access specific data files, records, or fields in a specified mode. b) It refers to making objects available to a human user or a program to which they have a legitimate right.

c) It refers to the requirement that information be protected from improper modification.

A) 1. a, 2. b, 3. c

B) 1. a, 2.c, 3.b

C) 1. b, 2.a, 3.c

D) 1.c, 2.b, 3.a

74. State whether the following statements are true/false:

1) A subject S is not allowed read access to an object O unless class (S) > class (O). This is known as the simple security property. 2) A subject S is not allowed read access to an object O unless class (S) < class (O). This is known as the simple security property. 3) A subject S is not allowed to write an object O unless class (S) < class (O). This is known as the star property (or *-property). 4) A subject S is not allowed to write an object O unless class (S) > class (O). This is known as the star property (or *-property).

A) 1. True, 2. False, 3. True, 4. False

B) 1. False, 2. False, 3. False, 4. False

C) 1. False, 2. False, 3. True, 4. False

D) 1. False, 2. True, 3. False, 4. True

75. Match the followings:

Part I:

1) Digital signature 2) Data Encryption standards 3) Public Key encryption

Part II:

a) This is a careful and complex combination of two of the fundamental building blocks of encryption: substitution and permutation (transposition).

b) It was proposed by Diffie and Hellman.

c) It is an example of using encryption techniques to provide authentication services in electronic commerce applications.

A) 1. a, 2. b, 3. c

B) 1. a, 2.c, 3.b
C) 1. c, 2.a, 3.b
D) 1.c, 2.b, 3.a

Subject Name: Object Oriented Programming Using C++

Credits: 4 Marks: 140

Part A (One mark questions)

1. High level languages like C, Fortran are also known as - .
a. procedural languages
b. Object oriented language
c. form based language
d.both a and b

2. one of the basic concept in Object Oriented Programming approach is bundling both data and functions into one unit known as .
a. Simple varriable
b. object
c. bundle
d.both a and b

3. which of the following shows the Operator overloading feature in C++
a. Polymorphism
b. inheritance
c. message passing
d. both a and b

4. One of the alternative to nested if is the -
a. break statement
b. Jump statement
c. switch statement
d. both a and b

5. In switch case statement , every case should have a statement as the last statement
a. Jump
b. break
c. exit
d. both a and b

6. Conditional operator (?:) is a handy operator which acts like a shortcut for
a. if else statement
b. switch statement
c. break statement
d. goto statement

7. Arrays are- data types .
a. Premitive

b. Non-primitive

c. user defined

d. both b and c

8. In two dimentional arrays, elements can be accessed by - indexes.

a. One

b. four

c. three

d. two

9. Strings are nothing but - arrays

a. character

b. integer

c. floating point

d. both c and b

10. If there is no value returned by the function, then function return type should be specified as-

a. void

b. Function name only

c. int

d. float

11. Every user-defined function should be declared in the program -.

a. after it is used

b. before it is used

c. at the time of its invocation

d. both a and b

12. More than one user defined functions can have same name and perform different operations. This is a powerful feature of C++ and is known as

a. inheritance

b.operator loading

c. function overloading

d. both c and b

13. Classes provide users a method to create -data types

a. characteR

b. Primitive

c. integer

d. user defined

14. Private data and functions can be accessed only by the- of the class

a. Member data

b. member functions

c. friend function

d.both a and b

15. Constructors are member functions of a class which have same name as the -
a. class name name
b.data member
c. class name
d. other class data member

16. When using operator overloading, the operator should perform only the -. Otherwise it will lead to more confusion.
a. most obvious function
b. Local function
c. global function
d. both b and c

17. Which of the following operator can not be overload?
a. Addition
b. scope resolution operator
c. multiplication
d. division

18. Operator overloading works similar to any - of a class
a. member function
b. friend function
c. data member
d. both b and c

19. The features of the base class are said to be inherited by the
a. constructor
b. Protected class
c. private class
d . derived class

20. The data members in a class are usually declared -
a. Protected
b. public
c. private
d. both a and c

21. Data members which will be inherited, will have to be declared as -
a. protected.
b. public
c. private
d. both b and c

22. Multiple Inheritance is the process of inheriting a class from class
a. single parent
b. more than one child
c. more than one parent
d . Only one child

23. For inheritance, parent class member functions are invoked using the operator
a. Dot
b. scope resolution
c. colon
d.->

24. Virtual functions are primarily used in -
a. inheritance
b. operator overloading
c. encapsulation
d. data binding

25. The header file is a header file containing the declarations of cin and cout classes
a. system.h
b. Stdio.h
c. iostream.h
d . process.h

26. The class istream is derived from which contains all the necessary functions for handling input
a. Base class
b. ios class
c. derived class
d.both a and c

27. The class fstream inherited from both iostream and fstreambase is used for files that will perform
a. only output
b.only input
c. both input and output
d.none of them

28. The function will return the last read character and will move the inside pointer, one with -1 char.
a) getline()
b) flush()
c) peek()
d) putback()

29. is an identifier that can be inserted into an output stream or extracted from an input stream in order to produce a desired effect.
a)Stream

b) Manipulator
c) this
d) Flag

30. A class generated from a class template is called
a) Inherited class
b) derived class
c) generated class
d) base class

31. When the compiler generates a class, function or static data members from a template, it is referred as -
a. template instantiation
b. template specialization
c. partial specialization
d. function specialization

32. What are the two basic models in the exception handling theory.
a. caught and uncaught
b. termination and resumption
c. try and block
d. none of these

33. which of these is/are the exception classes derived from logic_error
i) domain_error ii) out_of_range iii) bad_cast iv) bad_alloc
a. i),ii),iii) only
b. iv) only
c. i) and iv) only
d. iii) only

34. Stack is an example for structure.
a. SISO
b. FIFO
c. LIFO
d. LILO

35. The standard sequence containers include
i) vector ii) deque iii)list iv) stack
a. and ii) only
b. i),ii) and iii)
c. and iv) only
d. i),ii),iii) and iv)

36. - diagram shows the change of an object through time.
a. Activity

b. Collaboration

c. Use case

d. State

37. Which of these link is used to avoid repetition of scenarios in multiple use cases.

a. Include

b. Generalization

c. Extends

d. None of these

38. is a mechanism of reusing and extending existing classes without modifying them, thus producing hierarchical relationships between them.

a. Static Binding

b. Dynamic Binding

c. Inheritance

d. Virtual class

39. allows you to create a derived class that inherits properties from more than one base class.

a. Multilevel inheritance

b. Multiple inheritance

c. Hybrid Inheritance

d. Hierarchical Inheritance

40. pointers are not modifiable.

a. that

b. this

c. indirection

d. address

Part B (Two mark questions)

41. The - and statements which we were using for input from keyboard and output to display screen C++..

a. Cin, cout

b. scanf, printf

c.system.out.println, printwriter

d. cin, scanf

42. which of the following(s) is/are the correct syntex for for loop.

a. for(initialization statement,loop termination condition,statement to increment/decrement the loop variable)

b. for(initialization statementloop termination conditionstatement to increment/decrement the loop variable)

c.for(initialization statement:loop termination condition:statement to increment/decrement the loop variable)

d. for(initialization statementloop termination condition)statement to increment/decrement the loop variable

43. #include

```
#include
const int size=10
void main()
{
Char str[size]
Cout<<"enter a string"
Cin>>setw(size)>>str
}
```
for above program, maximum how many characters can be stored in array.

a. 11 character

b. 10 character

c. 9 character

d. 8 character

44. Every function can have orarguments

a. no , only one

b. one, maximum two

c.one, any number of

d. no, any number of

45. When object of any class, obj is created, automatically the constructor is and data is initialized to -.

a. Invoked, one

b. Invoked, zero

c.declare, default

d. declare, one

46. Operator overloading provides a flexible way to work with - and can make - look obvious

a. object, object

b. simple varriables, program code

c. Classes, program code

d. classes, assembly code

47. The functions of the derived class can access members of the base class but not the members of the base class.

a. public and protected, private

b. private and protected, public

c. private, protected

d. private, public and protected

48. A pure virtual function is an example of -which does not have .

a run time polymorphism , any function to operate.

b. polymorphism, any function to operate

c. run time polymorphism , any body

d. class, any body

49. Data in the program was created by and if more than one functions had to access data, were used
a. variables, local variable
b. Variables, global variables
c.program name, automatic variable
d. variable, register variable

50. which of these file open mode do you use to write into the file.
a. ios ::ate
b. ios ::in
c. ios::out
d. ios ::app

51. The current reading position, which is the index of the next byte that will be read from the file is called -.
a. get pointer
b. set pointer
c. curr pointer
d. put pointer

52. To perform identical operations for each type of data compactly and conveniently, we use -
a. Inline function
b. function templates.
c. this pointer
d. friend function

53. A static data member generated from a static data member template is called - static data member
a. inherited
b. base
c. generated
d. derived

54. Exceptions should not be used for-
a. asynchronous events
b. ordinary error condition
c. flow of control
d. all of the above

55. is the exception class derived from runtime_error.
a. range_error
b. lengh_error
c. bad_typeid
d. met_error

56. From the following list identify iterator adaptors ?
a. reverse iterator
b. insert iterator

c. raw storage iterator

d. all of these

57. When you wish to show the sequence of events on a broader scale , use

a. activity diagram

b. state diagram

c. both A) and B)

d. either A) or B)

58. State true or false

i) Attributes that are static only exist once for all instances of the class.

ii) If an attribute is declared final, its value can be changed.

a. true ,false

b. true , true

c. false , false

d. false, true

59. If a function is declared virtual in its base class, you can still access it directly using the -

a. Virtual Keyword

b. scope resolution Operator

c. Indirection Operator

d. Address Operator

60. - is the ability of objects belonging to different types to respond to method calls of methods of the same name, each one according to an appropriate type-specific behavior.

a. Inheritance

b. Virtuality

c. Polymorphism

d. None of these.

Part C (Four mark questions)

61. state whether the following statement is true or false for C++ Program and program structure.

1). Every statement in C++ ends with a semicolon (:). 2). Every C++ program should have a main() function 3). To create a variable, the variable should support an inbuilt datatype

a. 1. True, 2. true, 3. true

b. 1. true, 2. false, 3. false

c. 1. false, 2. false, 3. false

d. 1. false, 2. true, 3. true

62. # include

void main()

{

int number,fact=1

cout<< "enter a number"

```
cin>>number
for(int i=numberi>1i++)
fact=fact*i
cout<<<"Factorial of <<number<<"is"<<fact
}
```
for above code which of the following error will be seen generated by the compilor
a. logical error
b. syntex error
c. both a and b
d. non of them

63. state whether the following statement is true or false for C++ Strings
1). using cin statement, the compiler stops taking input from the user once it encounters space or linefeed
2).The strings cannot be also initialised as arrays.
3). One basic difference between other arrays and strings is that the compiler stores an extra null character ("/0?) for every string to mark the end of the string
a. 1. True, 2. false, 3. true
b. 1. true, 2. false, 3. false
c. 1. false, 2. false, 3. false
d. 1. false, 2. true, 3. true

64. state whether the following statement is true or false for Passing Data to Functions 1) Data can be passed to functions in two ways, either pass by value or pass by reference.
2) In passing by reference, no copy of the variable is created. 3) In pass by value, a copy of the variable is created during function call with the name specified in the function .
a. 1. True, 2. true, 3. true
b. 1. true, 2. false, 3. false
c. 1. false, 2. false, 3. false
d. 1. false, 2. true, 3. true

65. state whether the following statement is true or false for Static variables 1). Static data member of the class is one data member that is common for all the objects of the class and are accessible for the class. 2). Static data member is declared by prefixing the keyword static. 3). Static functions are special type of functions which can be invoked even without an object of the class
a. 1. false, 2. true, 3. true
b. 1. true, 2. false, 3. false
c. 1. false, 2. false, 3. false
d. 1. true, 2. true, 3. true

66. state whether the following statement is true or false
1). Operator overloading feature helps to change the functionality of operators with any datatype
2). It is necessary to overload operators for all classes 3). You can overload all operators in C++.
a. 1. True, 2. true, 3. true
b. 1. true, 2. false, 3. false
c. 1. false, 2. false, 3. false

d. 1. false, 2. true, 3. True

67. state whether the following statement is true or false for Objects and Pointers 1). To access the member functions through the pointer there is simple operator -> which is known as membership access operator 2). This pointer is a user defined pointer created for every object that points to the object in next class
3). Pointers can point to user defined objects as well.
a. 1. True, 2. true, 3. true
b. 1. true, 2. false, 3. true
c. 1. false, 2. false, 3. false
d. 1. false, 2. true, 3. True

68. state whether the following statement is true or false for Polymorphism 1).Operator overloading is, a type of polymorphism which allows the same operators to behave differently with different datatypes/operands 2). inheritence is an example of polymorphism 3). Virtual functions in C++ are important to implement the concept of polymorphism.
a. 1. True, 2. false, 3. true
b. 1. true, 2. true, 3. true
c. 1. false, 2. false, 3. false
d. 1. false, 2. true, 3. True

69. state whether the following statement is true or false for Command Line Arguments 1). Command line arguments are useful to pass arguments to the program while running the program
2). Command line arguments are used when invoking the program from DOS. 3).argc variable contains the argument count or number of arguments including the filename
a. 1. false, 2. true, 3. true
b. 1. true, 2. false, 3. true
c. 1. false, 2. false, 3. false
d. 1. true, 2. true, 3. True

70. Match the following
1. godbit i) End of file has been reached
2. eofbit ii) Fatal I/O error
3. failbit iii) non-fatal I/O error
4. badbit iv) no errors
a. 1- ii 2-iii 3-iv 4-I
b. 1-iv 2- i 3-iii 4-ii
c. 1-iii, 2-i 3-iv 4-ii
d. 1-ii, 2-iv, 3-iii, 4-i

71. Which of these is/are true about exception specification
i) the exception specification is like function specification
ii) it tells the use to write exception handling code and what exception to handle.
iii) It tells the compiler the exception that may come out of this function.
a. Only
b. i) and ii) only

c. i),ii) and iii)
d. i) and iii) only

72. Match the following
1. Stack i) associative container
2. Queue ii) sequence container
3. Vector iii) LIFO
4. multimap iv) FIFO
a. 1-ii, 2-iii, 3-iv, 4-I
b. 1-iii, 2-iv, 3-ii , 4- i
c. 1-iii, 2-iv , 3-i , 4-ii
d. 1-iv, 2-iii, 3-i, 4-ii

73. Match the following
1. Link i. scenarios
2. Actor ii. stereotypes
3. extensibility mechanism iii. roles
4. use case iv. Include
a. 1-ii 2-iii 3-iv 4-i
b. 1-iii 2-i 3-ii 4-iv
c. 1-iv 2-iii 3-ii 4- i
d. 1-iii 2-iv 3-i 4-ii

74. Match the following
Static binding i) abstract class
Dynamic binding ii) Derivation
virtual member function iii) compile time
Inheritance iv) run time
a. 1-iii , 2-iv , 3-i , 4-ii
b. 1-iv, 2-iii, 3-ii, 4-i
c. 1-ii, 2-i, 3-iv,4-iii
d. 1-ii , 2-iv,3-I, 4-iii

75. Match the following
1. this pointer i) virtual
2. non static member function ii) not transitive
3. friend function iii) not modifiable
4. Friend class iv) tightly coupled
a. 1-ii,2-I,3-iv,4-iii
b. 1-iii, 2-i, 3-ii, 4-iv
c. 1-iv,2-iii,3-I,4-ii
d. 1-iii,2-iv,3-I,4-ii</number<<"is"<<fact

Subject : Computer Organization & Architecture

PART A

Q.1 IN HOW MANY GROUPS DOES COMPUTER MEMORY SYSTEM CAN BE BROADLY CLASSIFIED
A) ONE
B) TWO
C) THREE
D) FOUR

Q.2 HOW MANY TYPES OF INTERRUPT ARE AVAILABLE
A) TWO
B) THREE
C) FOUR
D) NONE OF THE ABOVE

Q.3 A TEXT CHARACTER CAN ALSO BE REPRESENTED BY A STRING OF BITS CALLED
A) CHARACTER CODE
B) STRING CODE
C) ARRAY CODE
D) POINTER CODE

Q.4 WHICH OF THE FOLLOWING MEMORY IS A SMALL FAST ACTING BUFFER MEMORY BETWEEN THE
PROCESSOR AND THE MAIN MEMORY
A) INTERNAL MEMORY
B) PRIMARY MEMORY
C) SECONDARY MEMORY
D) CACHE MEMORY

Q.5 THE ALU IS A COMBINATION OF HOW MANY SUB UNITS
A) ONE
B) TWO
C) THREE
D) NONE OF THE ABOVE

Q.6 INFORMATION FED TO A COMPUTER CAN BE CATEGORIED AS EITHER
A) INSTRUCTIONS
B) DATA
C) BOTH A AND B
D) NONE OF THE ABOVE

Q.7 CPU ALWAYS FOLLOWS WHICH SEQUENCE
A) FETCH- DECODE- EXECUTE

B) DECODE- EXECUTE- FETCH

C) EXECUTE- DECODE- FETCH

D) FETCH- EXECUTE- DECODE

Q.8 THE TIME THAT ELAPSES BETWEEN THE INITIATION OF AN OPERATION AND COMPLETION OF THAT OPERATION IS CALLED

A) MEMORY ACCESS TIME

B) ACCESS MEMORY TIME

C) MEMORY TIME ACCESS

D) ACCESS TIME MEMORY

Q.9 WHICH OF THE FOLLOWING DEBUGGER USES INTERRUPTS TO PROVIDE IMPORTANT FACILITIES

A) TRACE

B) BREAK POINT

C) BOTH A AND B

D) NONE OF THE ABOVE

Q.10 WHICH OF THE FOLLOWING HELPS THE PROGRAMMER TO FIND ERRORS IN THE PROGRAM

A) DEBUGGING

B) RECOVERY

C) BOTH A AND B

D) NONE OF THE ABOVE

Q.11 WHICH ADDRESSING MODE HAS THE EFFECTIVE ADDRESS OF THE OPERAND AS THE CONTENTS OF THE REGISTER OR MEMORY LOCATION WHOSE ADDRESS APPEARS IN THE INSTRUCTIONS

A) DIRECT MODE

B) INDIRECT MODE

C) IMMEDIATE MODE

D) INDEX MODE

Q.12 A PROCESSOR REGISTER IS USED TO KEEP TRACK OF THE ADDRESS OF THE ELEMENT OF THE STACK THAT IS AT THE TOP AT ANY GIVEN TIME IS

A) SP

B) BP

C) PS

D) PB

Q.13 IN WHICH OF THE FOLLOWING MACHINE DOES LIFO OPERATION IS DONE

A) STACK MACHINE

B) ACCUMULATOR MACHINE

C) LOAD MACHINE

D) STORE MACHINE

Q.14 FLOPPY DISK, HARD DISK, CD-ROM ARE EXAMPLE OF

A) PRIMARY STORAGE DEVICE

B) SECONDARY STORAGE DEVICE

C) INTERNAL STORAGE DEVICE

D) CACHE STORAGE DEVICE

Q.15 A COLLECTION OF LINES THAT CONNECTS SEVERAL DEVICES IS CALLED

A) DATA BUS

B) CONTROL BUS

C) BUS

D) BOTH A AND B

Q.16 WHAT IS ACROYMN FOR ISA

A) INDUSTRY STANDARD ARCHITECTURE

B) INDUSTRIES STANDARD ARCHITECTURE

C) INDUSTRY STANDARD ARCHITECT

D) INDUSTRIES STANDARD ARCHITECT

Q.17 HOW MANY TYPES OF TECHNOLOGIES CAN BE USED TO STORE BITS IN SEMICONDUCTOR RAMs

A) ONE

B) TWO

C) THREE

D) FOUR

Q.18 WHICH ADDRESSING MODE HAS THE FOLLOWING ADDRESSING FUNCTION:EA=[Ri] + [Rj] ?

A) INDEX MODE

B) BASE WITH OFFSET

C) BASE WITH INDEX AND OFFSET

D) BASE WITH INDEX

Q.19 THE I/O DEVICES ARE CONNECTED TO SPECIAL INTERFACE LOGIC KNOWN AS

A) DMA

B) I/O CHANNEL

C) PPU

D) ALL OF THE ABOVE

Q.20 THE OPERAND IS GIVEN EXPLICITLY IN THE INSTRUCTION

A) REGISTER MODE

B) ABSOLUTE MODE

C) IMMEDIATE MODE

D) NONE OF THE ABOVE

Q.21 HOW MANY MAPPING FUNCTION DOES EXISTS

A) TWO

B) THREE

C) FOUR

D) FIVE

Q.22 WHICH OF THE FOLLOWING FIELDS DOES MAIN MEMORY ADDRESS CAN BE DIVIDED
A) TAG
B) BLOCK
C) WORD
D) ALL OF THE ABOVE

Q.23 THE ADDRESS SPECIFIED BY THE PROGRAM IS
A) LOGICAL ADDRESS
B) VIRTUAL ADDRESS
C) PHYSICAL ADDRESS
D) BOTH A AND B

Q.24 THE LIST OF INSTRUCTIONS IS CALLED AS
A) PROGRAM
B) MEMORY
C) DATA
D) NONE OF THE ABOVE

Q.25 WHICH OF THE FOLLOWING MEMORY CAN BE CALLED AS MAIN MEMORY
A) INTERNAL MEMORY
B) PRIMARY MEMORY
C) SECONDARY MEMORY
D) CACHE MEMORY

Q.26 HOW MANY TYPES OF DMA TRANSFER ARE AVAILABLE
A) ONE
B) TWO
C) THREE
D) FOUR

Q.27 IN WHICH MAPPING TECHNIQUE BLOCK K OF MAIN MEMORY CAN BE MAPPED TO ANY BLOCK IN THE CACHE
A) ASSOCIATIVE MAPPING
B) DIRECT MAPPING
C) BLOCK SET ASSOCIATIVE MAPPING
D) INDIRECT MAPPING

Q.28 NUMBER OF BITS IN EACH WORD IS CALLED
A) WORD LENGTH
B) WORD STRING
C) BOTH A AND B
D) NONE OF THE ABOVE

Q.29 WHICH OF THE FOLLOWING COMES UNDER TYPES OF INTERRUPTS

A) RECOVERY FROM ERRORS
B) DEBUGGING
C) COMMUNICATION BETWEEN PROGRAMS
D) ALL OF THE ABOVE

Q.30 MEMORY WORDS ARE GROUPED INTO SMALL PAGES CALLED
A) CACHE BLOCKS
B) TAG
C) LINES
D) BOTH A AND C

Q.31 THE ALU AND CONTROL UNIT TOGETHER CALLED AS A
A) CPU
B) PROCESSOR
C) BOTH A AND B
D) NONE OF THE ABOVE

Q.32 THE MEMORY CONTROL CIRCUITRY TRANSLATES THE ADDRESS SPECIFIED BY THE PROGRAM INTO AN ADDRESS THAT CAN BE USED TO ACCESS THE PHYSICAL MEMORY. THIS ADDRESS IS CALLED AS
A) LOGICAL ADDRESS
B) VIRTUAL ADDRESS
C) BOTH A AND B
D) NONE OF THE ABOVE

Q.33 THE REGISTER OR MEMORY LOCATION THAT CONATINS THE ADDRESS OF AN OPERAND IS CALLED
A) DATA
B) INDEX
C) POINTER
D) NONE OF THE ABOVE

Q.34 THE VARIOUS CIRCUITS USED TO EXECUTE DATA PROCESSING INSTRUCTIONS ARE USUALLY COMBINED IN A SINGLE CIRCUIT CALLED AS
A) ALU
B) MEMORY
C) INPUT UNIT
D) OUTPUT UNIT

Q.35 WHICH ASSIGNMENTS USES THE LOWER BYTE ADDRESSES FOR MORE SIGNIFICANT BYTES OF THE WORD
A) BIG ENDIAN ASSIGNMENT
B) LITTLE ENDIAN ASSIGNMENT
C) SMALL ENDIAN ASSIGMENT
D) NONE OF THE ABOVE

Q.36 WHICH IS AN INTERRUPT ISSUED BY THE CPU ITSELF WHEN IT DETECTS THAT SOMETHING IS WRONG
A) SOFTWARE INTERRUPT

B) HARDWARE INTERRUPT
C) TRAP
D) NONE OF THE ABOVE

Q.37 WHAT IS THE NAME FOR ASSEMBLER SYNTAX AS "X(Ri)"
A) REGISTER
B) INDIRECT
C) INDEX
D) RELATIVE

Q.38 WHAT IS THE ASSEMBLER SYNTAX FOR "BASE WITH INDEX"
A) (Ri,Rj)
B) X(Ri,Rj)
C) X(PC)
D) NONE OF THE ABOVE

Q.39 THE SMALLEST MACHINES ARE CALLED AS
A) MINICOMPUTERS
B) MICROCOMPUTERS
C) MAINFRAMES
D) SUPERCOMPUTERS

PART B

Q.1 A COMPUTER MUST HAVE INSTRUCTIONS CAPABLE OF PERFORMING WHICH OF THE FOLLOWING TYPES
OF OPERATIONS
1) DATA TRANSFERS BETWEEN THE MEMORY AND THE PROCESSOR REGISTERS
2) ARITHMETIC AND LOGIC OPERATIONS ON DATA
3) PROGRAM SEQUENCING AND CONTROL <b
A) 1,2,3
B) 1,2,4
C) 2,3,4
D) 1,2,3,4

Q.2 COMPUTER MEMORY SYSTEM CAN BE BROADLY CLASSIFIED INTO WHICH OF THE FOLLOWING GROUPS
1) INTERNAL MEMORY
2) PRIMARY MEMORY
3) SECONDARY MEMORY
4) CACHE MEMORY
A) 1,2,3
B) 3,4
C) 1,3
D) 1,2,3,4

Q.3 WHICH OF THE FOLLOWING ARE THE FUNCTIONAL UNITS
1) INPUT UNIT
2) OUTPUT UNIT
3) MEMORY
4) ARITHMETIC AND LOGIC UNIT
5) CONTROL UNIT
A) 1,2,3,4,5
B) 1,2,3,4
C) 1,2,4,5
D) 3,4,5

Q.4 WHICH OF THE FOLLOWING BASIC INFORMATION QUANTITIES TO DEAL WITH
1) BIT
2) BYTE
3) WORD
4) LENGTH
A) 1,2,3
B) 1,2,4
C) 2,3,4
D) 1,2,3,4

Q.5 WHICH OF THE FOLLOWING OPERATIONS DOES A COMPUTER MUST HAVE INSTRUCTIONS CAPABLE OF PERFORMING TYPES
1) DATA TRANSFERS BETWEEN THE MEMORY AND THE PROCESSOR REGISTERS
2) ARITHMETIC AND LOGIC OPERATIONS ON DATA
3) PROGRAM SEQUENCING AND CONTROL
A) 1,2,3,4
B) 1,2,3
C) 2,3
D) 2,3,4

Q.6 WHICH OF THE FOLLOWING FEATURES ARE TRUE FOR SRAM
1) REQUIRES MORE SPACE
2) FASTER THAN DRAM
3) REQUIRES LESS SPACE
4) REFRESHING IS REQUIRED
5) USED IN CACHE MEMORY
A) 1,2,3
B) 1,2,5
C) 1,2,4
D) 2,3,5

Q.7 WHICH OF THE FOLLOWING ARE THE POPULAR
COMPUTER ARCHITECTURES

1) THE STACK MACHINE
2) THE ACCUMULATOR MACHINE
3) THE LOAD MACHINE
4) THE STORE MACHINE
A) 1,2,3
B) 1,2,4
C) 1,2,3,4
D) NONE OF THE ABOVE

Q.8 WHICH OF THE FOLLOWING STATEMENTS IS TRUE
a) CPU GENERATES THE INTERRUPT SIGNAL
b) PERIPHERAL DEVICE GENERATES THE INTERRUPT SIGNAL
A) a
B) b
C) BOTH a AND b
D) NONE OF THE ABOVE

PART C

Q.1 MATCH THE FOLLOWING
A
1) IMMEDIATE
2) REGISTER
3) ABSOLUTE
4) INDEX
5) BASE WITH INDEX
6) RELATIVE
A) 1-i, 2-ii, 3-iii, 4-iv, 5-v, 6-vi
B) 1-i, 2-ii, 3-iii, 4-iv, 5-vi, 6-v
C) 1-i, 2-ii, 3-iv, 4-iii, 5-v, 6-vi
D) 1-ii, 2-i, 3-iii, 4-iv, 5-v, 6-vi

Q.2 MATCH THE FOLLOWING
PART1
1) INTERNAL MEMORY
2) MAIN MEMORY
3) SECONDARY MEMORY
4) CACHE MEMORY
PART2
a) SLOW AND HIGH CAPACITY
b) MADE UP OF EMICONDUCTOR DEVICES
c
A) 1-d, 2-a, 3-b, 4-c

B) 1-d, 2-a, 3-c, 4-b
C) 1-a, 2-d, 3-b, 4-c
D) 1-a, 2-d, 3-c, 4-b