Sl. No. : 20000853

DME2/16

Register Number | | | | | | | | | |

2016

Paper II

[Comprising Three Subjects]

(Degree Standard)

Time Allowed : 3 Hours] **[Maximum Marks : 300**

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS

1. This Booklet has a cover (this page) which should not be opened till the invigilator gives signal to open it at the commencement of the examination. As soon as the signal is received you should tear the right side of the booklet cover carefully to open the booklet. Then proceed to answer the questions.
2. This Question Booklet contains **200** questions. Prior to attempting to answer the candidates are requested to check whether all the questions are there in series without any omission and ensure there are no blank pages in the question booklet. In case any defect in the Question Paper is noticed it shall be reported to the Invigilator within first 10 minutes.
3. Answer **all** questions. **All** questions carry equal marks.
4. You must write your Register Number in the space provided on the top right side of this page. Do not write anything else on the Question Booklet.
5. An Answer Sheet will be supplied to you separately by the Invigilator to mark the answers.
6. You will also encode your Register Number, Subject Code, Question Booklet Sl. No. etc. with Blue or Black ink Ball point pen in the space provided on the side 2 of the Answer Sheet. If you do not encode properly or fail to encode the above information, action will be taken as per commission's notification.
7. Each question comprises *four* responses (A), (B), (C) and (D). You are to select ONLY ONE correct response and mark in your Answer Sheet. In case you feel that there are more than one correct response, mark the response which you consider the best. In any case, choose ONLY ONE response for each question. Your total marks will depend on the number of correct responses marked by you in the Answer Sheet.
8. In the Answer Sheet there are **four** circles Ⓐ, Ⓑ, Ⓒ and Ⓓ against each question. To answer the questions you are to mark with Blue or Black ink Ball point pen ONLY ONE circle of your choice for each question. Select one response for each question in the Question Booklet and mark in the Answer Sheet. If you mark more than one answer for one question, the answer will be treated as wrong. *e.g.* If for any item, Ⓑ is the correct answer, you have to mark as follows :

Ⓐ ● Ⓒ Ⓓ

9. You should not remove or tear off any sheet from this Question Booklet. You are not allowed to take this Question Booklet and the Answer Sheet out of the Examination Hall during the examination. After the examination is concluded, you must hand over your Answer Sheet to the Invigilator. You are allowed to take the Question Booklet with you only after the Examination is over.
10. The sheet before the last page of the Question Booklet can be used for Rough Work.
11. Failure to comply with any of the above instructions will render you liable to such action or penalty as the Commission may decide at their discretion.
12. Do not tick-mark or mark the answers in the Question booklet.

SEAL

←

SPACE FOR ROUGH WORK

1. If a transaction T_i has obtained an exclusive-mode lock on a data Q then T_i can

(A) Both read and write
(B) Only read
(C) Only write
(D) Neither read nor write

2. The ———— policy restricts servicing to one direction only.

(A) SCAN
(B) C-SCAN
(C) N-Step SCAN
(D) Both (A) and (B)

3. The total time to prepare a disk drive mechanism for a block of data to be read from is its

(A) Access time
(B) Seek time
(C) Latency plus seek time
(D) Access time plus seek time plus transmission time

4. Block or buffer caches are used

(A) To improve disk performance
(B) To handle interrupts
(C) To increase the capacity of main memory
(D) To speed up main memory read operation

5. An OS uses Shortest Remaining Time first (SRT) process scheduling algorithm. Consider

Process	Execution time	Arrival time
P1	20	0
P2	25	15
P3	10	30
P4	15	45

What is the total waiting time for P2?

(A) 5
(B) 15
(C) 40
(D) 55

6. Which of these is a disadvantages of first come first serve?

(A) Convoy effect
(B) Small average by worst-case waiting times
(C) Simplicity
(D) Non preemptive

7. In the Pentium virtual memory, Local Descriptor Table (LDT) and Global Descriptor Table (GDT) are used

Which of the following is correct?

(i) There is a LDT for each program and a single GDT shared by all programs in the computer

(ii) LDT describes system segments, GDT describes segments of program

(A) (i) is true, (ii) is true

(B) (i) is true, (ii) is false

(C) (i) is false (ii) is true

(D) (i) is false (ii) is false

8. Thrashing causes

(A) Decrease in degree of multi programming

(B) Increase in page fault rate

(C) Decrease in page fault rate

(D) Increase in CPU utilization

9. In which of the paging scheme only one page table is maintained for all the processes?

(A) Hierarchical page table

(B) Clustered page table

(C) Inverted page table

(D) Hashed page table

10. The address of a page table in memory is pointed by

(A) Stack pointer

(B) Page table base register

(C) Page register

(D) Program counter

11. The purpose of a TLB is

(A) To cache page translation information

(B) To cache frequently used data

(C) To hold register values while a process is waiting to be run

(D) To hold the start and length of page table

12. Which of the following statements is/are typically true?

I. Shortest remaining time first scheduling may cause starvation

II. Preemptive scheduling may cause starvation

III. Round Robin is better than FCFS in terms of response time

(A) I only

(B) I and III only

(C) II and III only

(D) I, II and III

13. Which of the following scheduling algorithm discriminate favorably toward short jobs?

(A) First Come First Served
(B) Round Robin
(C) Priority Based
(D) Multilevel Feedback queues

14. A user is creating 3 different documents for processing results of 3 different classes using word processing package means,

(A) 3 different programs are running
(B) 3 different processes are running
(C) 3 different procedures are running
(D) 3 different functions are running

15. Match the following mechanisms for interrupting the execution of a process and their uses

(1)	Interrupt	a.	Call to an operating system function
(2)	Trap	b.	Reaction to an asynchronous external even
(3)	Supervisor call	c.	Handling of an error or an exception condition

(A) 1 – b, 2 – c, 3 – a
(B) 1 – a, 2 – b, 3 – c
(C) 1 – a, 2 – c, 3 – b
(D) 1 – c, 2 – b, 3 – a

16. Contents of which fields of Program Status Word (PSW) define the subsequent actions of the CPU

(A) Condition code, privileged mode, program counter
(B) Condition code, privileged mode, interrupt mask
(C) Privileged mode, interrupt mask, interrupt code
(D) Privileged mode, interrupt mask, program counter

17. A computer system has 6 tape drives, with 'n' processes competing for then. Each process may need 3 tape drives. The maximum value of 'n' for which the system is guaranteed to be deadlock free is

(A) 4
(B) 3
(C) 2
(D) 1

18. For mutual exclusion to prevail in the system,

(A) Atleast one resource must be held in a non-sharable mode
(B) The processor must be a uniprocessor rather than a multiprocessor
(C) There must be atleast one resource in a sharable mode
(D) All of the above must be true

19. In a tightly coupled symmetric multiprocessor system, processes communicate of each other by means of

(A) Message passing
(B) Shared memory
(C) Distributed memory
(D) Cache memory

20. Which of these is incorrect in context of real time operating system?

(A) Permits creation of multiple processes within application

(B) Permits principles to be assigned to the processes

(C) Doesn't allow programmer to define interrupts in interrupt processing routines

(D) Provides fault tolerance and graceful degradation capabilities

21. An operating system contains 3 user processes each requiring 2 units of resource R. The minimum number of units of R such that no deadlock will ever arise is

(A) 4 (B) 3

(C) 5 (D) 6

22. ———— are benefited by cloud computing facility in market oriented cloud architecture.

(A) Cloud service provider only

(B) Cloud users and brokers only

(C) Cloud service providers, cloud users and brokers

(D) Cloud service providers, authentication server and brokers

23. Which directory implementation supports sharing of files?

(A) Single level directory structure (B) Two level directory structure

(C) Tree directory structure (D) Acyclic directory structure

24. A process control block does not contain

(A) Program counter (B) Interrupt vector

(C) Stack pointer (D) Accounting information

25. For each attribute of a relations there is a set of permitted values, called the ———— of that attribute.

(A) Domain (B) Relation

(C) Set (D) Schema

26. Table in second normal form (2NF)

(A) Eliminates all hidden dependencing

(B) Eliminates the possibility of a insertion anomalies

(C) Has a composite key

(D) Has all non key field, depends on the whole primary key

27. Domain constraints, functional dependency and referential integrity are special terms of

(A) Foreign key

(B) Primary key

(C) Assertion

(D) Referential constraint

28. Selection operations are ———— and natural join operations are ————.

(A) Commutative, Associative

(B) Associative, commutative

(C) Associative, associative

(D) Commutative, commutative

29. ———— is the keyword used to eliminate duplicate rows from the query result

(A) No duplicate

(B) Unique

(C) Distinct

(D) Primary

30. Which of the following query processing method is more efficient

(A) Materialization

(B) Tunneling

(C) Serialization

(D) Pipelining

31. The number of processes completed by per unit time is known as

(A) Output

(B) Throughput

(C) Efficiency

(D) Capacity

32. OLAP stands for

(A) Online Analysis and Processing

(B) Online Analytical Processing

(C) One Time Analysis and Processing

(D) One Time Analytical Processing

33. Data warehouse is a repository of information gathered from ———— source(s), stored under a ———— schema, at ———— site(s)

(A) A single, unified, a single

(B) Multiple, unified, a single

(C) Multiple, unified, multiple

(D) A single, uniform, multiple

34. Which delivery mode is an example of a cloud computing environment that provides users with a web based e-mail service?

(A) Software as a service
(B) Platform as a service
(C) Computing as a service
(D) Infrastructure as a service

35. In two-phase locking protocol, we have one of the following phase

(A) Slow phase
(B) Steady phase
(C) Sleeping phase
(D) Growing phase

36. Which of the following is the process by which the user's privileges are ascertained in database?

(A) Authentication
(B) Authorization
(C) Access control
(D) Login

37. ———— diagram of UML depicts the flow of tasks between various components of a system.

(A) Class
(B) Use case
(C) Activity
(D) Implementation

38. Which of the following statements is not correct with respect to secondary indices?

(A) A sequential scan in secondary key order is efficient
(B) Improve the performance of queries that use keys other than search key
(C) Secondary indices must be dense
(D) An extra level of indirection can be used to implement secondary indices

39. Which of the following is the limitation of extendable hashing?

(A) Performance
(B) Space requirement
(C) Bucket reservation
(D) Lookup operation

40. Which of the following is true? With respect to relational algebra.

(A) $A \cup B \neq B \cup A$
(B) $A \cap (B \cap C) \neq (A \cap B) \cap C$
(C) $A - B = B - A$
(D) $A - B \neq B - A$

41. The following functional dependencies hold for relations $R(a,b,c)$ and $S(b,d,e)$ $b \rightarrow a$ and $a \rightarrow c$

The relation R contains 200 tuples and the relation S contains 100 tuples. What is the maximum number tuples possible in the natural join $R \bowtie$ S?

(A) 100 (B) 200

(C) 300 (D) 2,000

42. Data mining refers to

(A) Retrieving a record from a large database

(B) Retrieving similar records from a large database

(C) To find out whether a particular pattern exists among the records

(D) Analyzing large databases to find useful patterns

43. Consider a relation in which all non-key attributes depend only on the primary key of table and all the attributes are automic valued attributes means, the relation is in

(A) Ist normal form (B) IInd normal form

(C) IIIrd normal form (D) Ist and IInd normal form

44. Goals for the design of the logical schema include

(A) Avoiding data inconsistency (B) Being able to construct queries easily

(C) Being able to access data efficiently (D) Decrease physical storage space

45. Minimal super key is

(A) Candidate key (B) Primary key

(C) Referential key (D) Foreign key

46. Which of the following conn's rule states that the RDBMS support insertion, updation and deletion at a table level

(A) High-level update rule (B) Guaranteed access rule

(C) Non-subversion rule (D) View updating rule

47. ———— contains metadata

(A) Table (B) Data dictionary

(C) Data directory (D) Database

48. Consider the following program

```
main ( ) {
 int P [2] ;
 pipe (p) ;
 fork ( ) ; }
```

Choose the correct statement

(A) The pipe will be recognized only by the parent process

(B) P[O] is the file descriptor of the write end of the pipe

(C) There will be two file descriptors in memory

(D) The pipe will be shared by both the parent and the child process

49. Which kind of mapping is provided to get logical data independence

(A) Conceptual to internal level

(B) External to conceptual level

(C) Conceptual to external

(D) Internal to conceptual

50. Java allows programmers to develop the following

(A) applets, applications and servlets

(B) applets and applications

(C) applets, applications, servlets, Java beans and distributed objects

(D) none of the above

51. Based on the following code, which of the following statement is correct?

```
Class A {
    B b;
}
Class B { }
```

(A) Class A and B represent IS-A relationship

(B) Class A and B represent HAS-A relationship

(C) No relation

(D) Class B is a member of A

52. One of the disadvantage of pass by reference is that the called function may in advertently corrupt the passed data. This is avoided by

(A) Passing pointers

(B) Declaring formal parameters with const keyword

(C) Declaring actual parameters with const keyword

(D) Using the keyword static

53. What is the output of following C program

```
main ( )
{
   extern int a;
   printf ("%d", a);
}
   int a = 20;
```

(A) 0

(B) 20

(C) Error

(D) Garbage value

54. Identify the pure object oriented language given below

(A) Small talk

(B) C++

(C) Objective C

(D) Java

55. Which of these interface is not a part of Java's collection framework?

(A) List

(B) Set

(C) Sorted map

(D) Sorted list

56. Which of the following cannot be handled by a catch all exception handler?

(A) Exceptions thrown by construction and destruction of global variables

(B) Exceptions thrown from static function

(C) Exceptions thrown during dynamic memory allocation

(D) Exceptions thrown during execution of a virtual function

57. Which operaters can not be overloaded?

(A) Binary operater

(B) Ternary operater

(C) Unary operater

(D) All can be overloaded

58. Which two of the following methods are defined in class thread?

1. start ( )
2. wait ( )
3. notify ( )
4. run ( )
5. terminate ( )

(A) 1 and 4 (B) 2 and 3

(C) 3 and 4 (D) 2 and 4

59. In Java program, what will happen if run ( ) is called directly without start ( )?

(A) Compilation error

(B) Run time error

(C) No difference in execution

(D) Thread will not be allocated a new call stack and start running in the current call stack

60. Given the following code

```
public interface Guard {
 void doyourjob ( ); }
abstract public class Dog implements Guard { }
```

Which of the following statements is correct?

(A) This code will not compile, because method doyourjob ( ) in interface Guard must be defined abstract

(B) This code will not compile because class Dog must implement method doyourjob ( ) from interface Guard

(C) This code will not compile, because declaration of class Dog must use the keyword extends instead of implements

(D) This code will compile without any errors

61. Which of the following is / are true?

I. In a non-static member function, the keyword this is a pointer to the object for which the function was invoked.

II. In a non-const member function of class X, the type of this is 'X const'.

(A) Both I and II are true (B) Both I and II are false

(C) Only I is true (D) Only II is true

62. The derived class constructor

(A) never passes any values to base class constructor

(B) can pass arguments only to one base class constructor function

(C) is responsible for passing the entire test of arguments needed by base class constructors

(D) none of the above

63. Collection in java is

(A) a group of objects

(B) a group of classes

(C) a group of interfaces

(D) a group of packages

64. If an array element is altered within the function, then

(A) The alteration will not affect the entire scope of the array

(B) There will be no change in array values in the calling function

(C) The alteration will be recognized in the calling function of the program

(D) Compilation / Runtime error may occur if alteration is made

65. In case of overloading a binary operator with member function, which of following is correct?

(A) Second operand must be object

(B) First operand must be object

(C) Both operands must be objects

(D) Both operands need not be objects

66. What is the output of the following code?

```
int a = 128, b = 122;

printf ("%d", a+b);
```

(A) 250

(B) 128

(C) 256

(D) 000

67. What is the purpose of abstract class?

(A) to provide help with database connectivity

(B) to provide data input to other class

(C) to provide security to other classes

(D) to provide an appropriate base class from which other classes can inherit

68. Mechanism of deriving a class from another derived class is known as

(A) Polymorphism

(B) Encapsulation

(C) Inheritance

(D) Message passing

69. Which class is a base class for all exceptions in Java?

(A) String
(B) Error
(C) Throwable
(D) Runtime Exception

70. A C program contains the following declaration

static int x[8] = {10, 20, 30, 40, 50, 60, 70, 80};

What is the value of (* x + 2) and *(x + 2)?

(A) 10, 30
(B) 10, 12
(C) 30, 12
(D) 12, 30

71. Which of the following statement is correct about the program?

```
# include <stdio.h>
int main ( )
{ FILE *fp;
 Char ch;
 int i = 1;
 fp = fopen ("myfile. C", "r");
 while ((ch = getc (fp)) ! = EOF)
{ if (ch = = '\n') i++;} fclose (fp); return 0;}
```

(A) The code counts the number of characters in the file
(B) The code counts the number of words in the file
(C) The code counts the number of blank lines in the file
(D) The code counts the number of lines in the file

72. What will be the output of the following code snippet?

```
int a [ ] = {21, 30, 35, 24};
printf ("%d", *(a+2) – 1);
```

(A) 22
(B) 34
(C) 23
(D) 29

73. Which of these is a correct way of defining generic method?

(A) name (T_1, T_2, ... , T_n) {/*.../*}

(B) public name { /*...*/}

(C) class name [T_1, T_2, ... , T_n] {/*...*/}

(D) name {T_1, T_2, ... ,T_n} {/*...*/}

74. Which line in the following code snippet will result in a compilation error?

```
int a = 10, *pt1, *pt2;
*pt1 = 15
*pt2 = &a;
*pt1 = '\0';
```

(A) int a = 10, *pt1, *pt2;

(B) *pt1 = 15;

(C) *pt2 = & a;

(D) *pt1 = '\0';

75. Consider the following C program

```
# include <stdio.h>
int main ( )
{ static int a [ ] = {10, 20, 30, 40, 50}; int i;
 static int *p [ ] = {a, a+3, a+4, a+1, a+2};
 for (i = 0; i < 5; i++)
      printf ("%d", *(p+i));
}
```

What is the output of the program?

(A) 10 40 50 20 30

(B) 10 20 30 40 50

(C) 50 40 30 20 10

(D) 50 30 40 20 10

76. In an C expression || operator evaluation

(A) will be stopped if one of its term evaluates false

(B) will be stopped if one of its term evaluates true

(C) takes place from left to right

(D) takes place from right to left

77. ———— is not a function of hypervisor management software.

(A) Create virtual machine
(B) Delete virtual machine
(C) Migrate virtual machine
(D) Store virtual machine

78. Which of the following is not a feature of infrastructure strategy and planning?

(A) Development of value proposition
(B) Implementation of cloud delivery model
(C) Current environment assessment
(D) Dynamic platform for data center

79. Which of the following architectural standards is working with cloud computing industry?

(A) Service oriented architecture
(B) Standardized web services
(C) Web – applications frameworks
(D) Message oriented middleware

80. With respect to private cloud, infrastructure cost reduction is by

(A) Virtualization techniques
(B) Consolidation of resources
(C) Provision management for all resources
(D) Outsourcing the cloud services

81. Connecting virtualized servers and storage, supporting platform specific network requirement is the service of

(A) Device virtualization
(B) System virtualization
(C) Cloud virtualization
(D) Service virtualization

82. What is the input to reduce function?

(A) One key and a list of all values associated with the key
(B) One key – value pair
(C) A list of key – value pairs
(D) One key and two values associated with the key

83. Point out the wrong statement

(A) If you set the HBase service into maintenance mode, then its roles are put into effective maintenance mode

(B) If you set a host into maintenance mode, then any roles running on that host are put into effective maintenance mode

(C) Putting a component into maintenance mode prevents events from being logged

(D) (A) and (B)

84. Cloud management software needs to support

(A) Physical machine

(B) Virtual machine

(C) Physical machine and virtual machine

(D) Neither physical machine nor virtual machine

85. Which of the following monitor the performance of the major cloud based services in real-time in cloud commons?

(A) Cloud watch

(B) Cloud sensor

(C) Cloud metrics

(D) (A) and (B)

86. Which of the following is true of cloud computing?

(A) It's always going to be less expensive

(B) More secure compared with local computing

(C) You can access your data from any computer in the world with internet connection

(D) Few companies are investing in technology

87. Which of these is not a major type of cloud computing usage?

(A) Security as a service

(B) Platform as a service

(C) Software as a service

(D) infrastructure as a service

88. In the cloud data management interface the storage space is partitioned into units called

(A) Containers

(B) Workspace

(C) Replices

(D) Blocks

89. Application frameworks provide a means for creating ———— hosted application using IDE.

(A) PaaS
(B) SaaS
(C) CaaS
(D) IaaS

90. A company needs to provide IT services to a World Wide customer base utilizing a diverse set of devices. Which attribute of cloud computing can help the company deliver such services?

(A) Flexible pricing
(B) Horizontal scaling of application servers
(C) Pervasiveness
(D) Vertical scaling of application servers

91. Which of the following is dominant significance in mobile systems?

(A) Amalgamation
(B) Data security
(C) Elasticity
(D) Support

92. The replication factor of a file in HDFS can be changed using

(A) – changerep
(B) – rerep
(C) – setrep
(D) – xrep

93. If ———— in Xen installed machine is compromised, the hackers can easily control the entire machine.

(A) Domain U
(B) Domain O
(C) Domain M
(D) Domain V

94. Normally, Overlay networks should be formed for content sharing in

(A) Cluster computing
(B) Grid computing
(C) P – 2 – P computing
(D) Cloud computing

95. Multi core CPU is ———— efficient compared to many core GPU in cloud data centers in term of computational speed and energy consumption.

(A) Less
(B) More
(C) Equally
(D) Not comparable

96. In connection with cloud computing, which one of the following is true?

(A) The unpreceedented absorption and adoption of internet is the key driver for cloud computing

(B) Internet is not an important factor

(C) Resources needs to be distributed over the geography

(D) The web is the not the global scale communication infrastructure

97. Computational and data grid with RFID and sensors technology leads to

(A) Web 2.0

(B) Internet cloud

(C) Internet of things

(D) Clusters

98. The main functions that need to be over written according to our application in Hadoop are

(A) Map and partition

(B) Map and combine

(C) Map and reduce

(D) Map and synchronize

99. The slave node in Hadoop is called as

(A) Name node

(B) Data node

(C) Kernel node

(D) Watch Dog

100. Deep kernel modification is required in ———— virtualization.

(A) Full

(B) Para

(C) Host – based

(D) ISA based

101. Block size in GFS is normally

(A) 4 KB

(B) 16 KB

(C) 64 MB

(D) 128 MB

102. Which scheduling algorithm suits best in grid computing or cloud computing mostly?

(A) Earliest deadline first scheduling
(B) Fair share scheduling
(C) Lottery scheduling
(D) Rate monotonic scheduling

103. Waiting time in CPU scheduling is the time a process spent in

(A) Ready queue
(B) I/O queue
(C) Job queue
(D) Stack space

104. Which of the following are the states of a fire state process model?

(i) Running
(ii) Ready
(iii) New
(iv) Exit
(v) Destroy

(A) (i), (ii), (iii) and (v) only
(B) (i), (ii), (iv) and (v) only
(C) (i), (iii), (iv) and (v) only
(D) (i), (ii), (iii) and (iv) only

105. Which of the following is not true of a file system using File Allocation Table (FAT)?

(A) A bitmap is used to track free blocks
(B) Index nodes are unnecessary
(C) File size is limited only by the amount of free space
(D) Block n of file can be read without reading through blocks 0 to n-1 first

106. Which of the following is correct?

I : RAID is a set of logical disk drives viewed by the operating system
II : RAID is used to store parity information to guarantee data recoverability

(A) I and II are true
(B) I and II are false
(C) I is true and II is false
(D) I is false and II is true

107. Suppose that a disk drive has 5000 cylinders. The drive is currently serving a request at cylinder 143 and previous request was at cylinder 125. The queue of pending requests is 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130. Which of the following disk scheduling algorithms have the least total seek distance?

(A) FCFS
(B) SSTF
(C) SCAN
(D) LOOK

108. In round robin CPU scheduling as time quantum is increased the average turn around time

(A) Increases
(B) Decreases
(C) Remain constant
(D) Varies irregularly

109. UDP socket is

(A) Connection oriented socket
(B) Connectionless socket
(C) Multicast socket
(D) Connection oriented and multicast socket

110. The main operations possible with VMs are

(A) Multiplexing the VMs
(B) Multiplexing, suspension and migration of VMs
(C) Multiplexing, suspension and resume of VMs
(D) Multiplexing, suspension, resuming and migration of VMs

111. Which of the following file allocation methods takes long time for allocation?

(A) Contiguous
(B) Chained
(C) Indexed allocation with fixed blocks
(D) Index-ed blocks with variable size blocks

112. A Trojan horse is a

(A) Special password that is built into the system firmware
(B) Computer virus that spreads through email
(C) Program that does something beyond its apparent purpose
(D) Program that shut down if its initial conditions are not met

113. The memory allocation scheme subject to external fragmentation is

(A) Segmentation
(B) Swapping
(C) Pure demand paging
(D) Fixed contiguous partitions

114. Management of metadata information is done by

(A) File-organisation module
(B) Logical file system
(C) Basic file system
(D) Application programs

115. Trojan-Horse programs

(A) Are legitimate programs that allow unauthorized access
(B) Are hacker programs that do not show up on the system
(C) Are really do not work usually
(D) Are usually immediately discovered

116. Linux makes use of ———— page table structure.

(A) Single level
(B) Two level
(C) Three level
(D) Hashed

117. A computer has 32 bit virtual addresses and 4 KB pages. The program and data together fit in the lowest page (0-4095). The stack fits in the highest page. How many entries are needed in the page table if one level paging is used?

(A) 2^{20}
(B) 2^{32}
(C) 2^{64}
(D) 2^{10}

118. Given a block size of 4KB and a disk that holds 100 GB of data (using 32 bit disk address), how big can a file be if you have a single index block in an indexed file management scheme?

(A) 4 KB
(B) 512 KB
(C) 12 MB
(D) 100 GB

119. Which of the following statements is false?

(A) Segmentation suffers from external fragmentation
(B) Paging suffers from internal fragmentation
(C) Segmented memory can be paged
(D) Virtual memory is used only in multi-user systems

120. Which of the memory allocation strategy is faster?

(A) Best fit
(B) Worst fit
(C) First fit
(D) Quick fit

121. To know whether a frame is modified or not, the following is used

(A) Dirty bit
(B) Valid bit
(C) Invalid bit
(D) Update bit

122. Consider a real computer system where neither the resources nor the demands of processes for resources are consistent over long periods. If deadlock is controlled by banker's algorithm, which of the following changes cannot be made safely?

(A) Adding new resources

(B) Permanently removing resources from the system

(C) Decreasing resource requirement of one process

(D) Decreasing the number of processes

123. Those processes should be aborted on occurrance of a deadlock, the termination of which

(A) Is more time consuming

(B) Incurs minimum cost

(C) Safety is not hampered

(D) Incurs maximum cost

124. The circular wait condition can be prevented by

(A) Defining a linear ordering of resource types

(B) Using threads

(C) Using pipes

(D) All the above mentioned

125. Interval between the time since submission of the job to the time its results become available is called

(A) Response time

(B) Through put

(C) Waiting time

(D) Turn around time

126. Match the following

(1)	Mutual exclusion	a.	A process may hold allocated resources while waiting assignment
(2)	Hold and wait	b.	No resource can be forcibly removed from a process holding it
(3)	No preemption	c.	Only one process may use a resource at a time

(A) 1 – c, 2 – a, 3 – b

(B) 1 – a, 2 – b, 3 – c

(C) 1 – b, 2 – a, 3 – c

(D) 1– a, 2 – c, 3 – b

127. Before proceeding with its execution, each process must acquire all the resources it needs is called

(A) Pre-emption

(B) Circular wait

(C) Hold and wait

(D) Deadlock

128. Select count (10) from teachers where sem = III and year = 2010; if we do want to eliminate duplicate tuples use keyword ———— in the aggregate expression.

(A) Distinct (B) Count

(C) Unique (D) Primary key

129. A trigger is?

(A) A statement that enables to start array DBMS

(B) A statement that is executed by the user when debugging an applications array

(C) A condition the system tests for the validity of the database user

(D) A statement that is executed automatically by the system as a side effect of modification to the database

130. Database ————, which is the logical design of the database and the database ————, which is a snapshot of the data in the database at a given instant in time

(A) Instance, schema (B) Schema, Relation

(C) Domain, Relation (D) Schema, Instance

131. A locked file can be?

(A) Accessed by only one user

(B) Modified by users with correct password

(C) Is used to hide sensitive information

(D) Both (B) and (C)

132. When transaction T_i requests a data item currently held by T_j, T_i allows to wait only if it has a time stamp smaller than that of T_j otherwise T_i is rolled back. This is

(A) Wait-die (B) Wait-Wound

(C) Wound-wait (D) Wait

133. The deadlock state can be changed back to stable state by using ———— statement.

(A) Commit (B) Roll back

(C) Save point (D) Deadlock

134. Consider the following action :

Transaction ....

Commit ;

Roll back ;

What does rollback do?

(A) Unclose the transaction before commit

(B) Clears all transactions

(C) Reclose the transactions before commit

(D) Not action

135. A functional dependency of the form $x \to y$ is trivial if

(A) $y \subseteq x$ (B) $y \subset x$

(C) $x \subseteq y$ (D) $x \subset y$ and $y \subset x$

136. Entity set 'Transaction' has the attributes transaction number, date, amount

Entity set 'Account' has the attributes account number, customer name, balance

Identify the discriminator and primary key the weak entity

(A) Account number, account number

(B) Transaction number, { account number, transaction number}

(C) {Account number, date}, {account number, date}

(D) Date, {transaction number, date}

137. Suppose there are K classes, and of the instances in S the fraction of instances in class i is P_i. The measure of purity, Gini measure is defined as

(A) $1 + \sum_{i-1}^{K} P_i^2$ (B) $1 - \sum_{i-1}^{K} P_i^2$

(C) $\sum_{i-1}^{K} P_i^2$ (D) $\sum_{i}^{K} P_i^2$

138. Which of the following is not a integrity constraints?

(A) Not null (B) Positive

(C) Unique (D) Check

139. Following are related to SQL find the odd element

(A) INTERSECT (B) MIN

(C) SUM (D) COUNT

140. In query processing, the query should be translated in ———— form by the system before going for optimisation phase.

(A) Relational calculus (B) Relational – algebra

(C) Relational – table (D) Relational – expression

141. With regard to expressive power of the formal relational query languages, relational algebra

(A) Is more powerful than relational calculus

(B) Has the same power as relational calculus

(C) Has the same power as safe relational calculus

(D) Not possible to predict

142. Consider a B+ free in which the maximum number of keys in a node is 5. What is the minimum number of keys in any non-root node?

(A) 1
(B) 2
(C) 3
(D) 4

143. A relation is said to be in 3NF if

(i) it is 2NF

(ii) Non-key attributes are independent of one another

(iii) Key attribute is not dependent on part of a composite key

(A) (i) and (iii)
(B) (ii) and (iii)
(C) (i) and (ii)
(D) (i), (ii) and (iii)

144. Relationship between entities and the attributes of relationship in ER diagram is represented on

(A) Rectangle box and ellipse
(B) Ellipse and rectangle box
(C) Diamond box and ellipse
(D) Ellipse and diamond box

145. Given the basic ER and relational models, which of the following is INCORRECT?

(A) An attribute of an entity can have more than one value

(B) An attribute of an entity can be composite

(C) In a row of a relational table, an attribute can have more than one value

(D) In a row of a relational table, an attribute can have exactly one value or a null value

146. The sequence followed in designing a DBMS are

(A) Physical, conceptual, logical model
(B) Logical, physical, conceptual model
(C) Conceptual, logical, physical model
(D) Conceptual, physical, logical model

147. Consider a relation 'employee' (emp no, name, salary, address, experience). From this, create a view to list only the employee whose salary is below 10,000 as less-salary-employee.

(A) Create view as select emp no, name, salary from employee where salary < 10,000 ;

(B) Create view with select emp no, name, salary from employee where salary < 10,000

(C) Create view less-salary-employee as select emp no, name, salary from employee where salary < 10,000

(D) Create view less-salary-employee with select emp no, name, salary from employee where salary < 10,000

148. Forth normal form uses mostly ———— to check the design of the relation is in forth normal form or not

(A) Functional dependencies
(B) Multi-valued dependencies
(C) Relational dependencies
(D) Tuple dependencies

149. Let $R = (A, B, C, D, E, F)$ be a relation scheme with following dependencies $C \rightarrow F, E \rightarrow A, EC \rightarrow D, A \rightarrow B$. Which of the following is a key for R?

(A) CD
(B) EC
(C) AE
(D) AC

150. An entity is

(A) A collection of items in an application
(B) A distinct real world item in an application
(C) An inanimate object in an application
(D) A data structure in DBMS

151. The changes made by one transaction are not visible to others till the commit point, this property is called

(A) Automicity
(B) Consistency
(C) Isolation
(D) Durability

152. Let $R(a,b,c)$ and $S(d,e,f)$ be two relations in which d is the foreign key of S that refers to the primary key of R. Consider the following operations?

Which of the following can cause violation of referential integrity constraints?

I. Insert into R

II. Insert into S

III. Delete from R

IV. Delete from S

(A) Both I and IV
(B) Both II and III
(C) All four operations
(D) No violations

153. Match the following

(1)	Compile time polymorphism	a.	Function overloading
(2)	Runtime polymorphism	b.	Operator overloading
		c.	Virtual function
		d.	Late binding

(A) 1 – a,b 2 – c,d
(B) 1 – a,d 2 – b,c
(C) 1 – a,c 2 – b,d
(D) 1 – b,c 2 – a,d

154. Bit fields can only be declared as a part of

(A) Structure
(B) Arrays
(C) Files
(D) Pointers

155. Class Test

```
{ private Demo d;
  void start ( )
{ d = new Demo ( );
  this. take Demo (d); /* Line 7 */
} /*Line 8*/
void take Demo (Demo demo)
{ demo = null;
  demo = new Demo ( ); } }
```

When is the Demo object eligible for garbage collection?

(A) After line 7
(B) After line 8
(C) After the start ( ) method completes
(D) When the instance running this code is eligible for garbage collection

156. Which of these modifiers can be used for a variable so that it can be accessed from any thread or parts of a program?

(A) transient
(B) volatile
(C) global
(D) no modifier is needed

157. In C++, dynamic memory allocation is accomplished with the operator

(A) new (B) this

(C) malloc ( ) (D) delete

158. What is the size of the following union?

```
Union Tag {
    int a;
    float b;
    char;
    };
```

(A) 2 (B) 4

(C) 1 (D) 7

159. The return value of the following code is

```
class1 & test (class1 obj)
{ class1 *ptr = new class1 ( );
  : : : :
  return ptr;
}
```

(A) object of class1 (B) reference to ptr

(C) reference of class1 (D) object pointed by ptr

160. Which of the following data types are accepted while declaring bit-fields?

(A) char (B) float

(C) double (D) unsigned int

161. Runtime polymorphism is achieved by

(A) Friend function (B) Virtual function

(C) Operator overloading (D) Function overloading

162. How we can access data members using objects?

(A) object @ datamember
(B) object → datamember
(C) object * datamember
(D) object . datamember

163. Which of the following statement is incorrect regarding string handling in Java?

(A) String is a class
(B) Strings in java are mutable
(C) Every string is an object of class string
(D) Java defines a peer class of string called StringBuffer which allows string to be altered

164. What will be the result of the following prog?

```
void myalloc (char * x, int n)
{ x = (char *) malloc (n * sizeof (char));
 memset (x, '\0', n* sizeof (char));}
 main ( )
{ char * g = "String"; myalloc (g, 20);
 strcpy (g, "Old string"); printf ("The string is : %s", g);}
```

(A) The string is : String
(B) Runtime error
(C) The string is : Old string
(D) Syntax error during compilation

165. Which of the following statements is correct when a class is inherited publicly?

(A) Public members of the base class become protected members of derived class
(B) Public members of the base class become private members of derived class
(C) Private members of the base class become protected members of derived class
(D) Public members of base class become public members of derived class

166. Which of the following is a declaration for a pure virtual function?

(A) Virtual void rotate (int) = 0;
(B) Virtual void rotate (int);
(C) Pure virtual void rotate (int) = 0;
(D) Pure virtual void rotate (int);

167. Choose the correct answer

I. In recursion function, function calls are in the same order

II. Function calls in recursion can be any order

III. Function calls in recursion is not possible

IV. The function calls in recursion are executed in reverse order

(A) Only I (B) Only IV

(C) Both I and II (D) Only III

168. What will be the output of the following C code?

```
# include <stdio. h>
void main ( )
 { short num [3] [2] = {3, 6, 9, 12, 15, 18};
   printf ("%d, %d", *(num + 1) [1], ** (num + 2));
```

(A) 12, 18 (B) 18, 18

(C) 15, 15 (D) 12, 15

169. What is the output of the following code?

```
int func (int x) {
 if (x < = 0)
 return (1);
 return func (x – 1) + x;
 }
 main ( ) {
     printf ("%d\n", func(5));
}
```

(A) 12 (B) 16

(C) 15 (D) 11

170. In which type are the enumeraters stored by the compiler?

(A) string (B) integer

(C) float (D) none of the mentioned above

171. Consider the following C program

```
#include <stdio.h>
int f1 (void); int f2 (void);
int f3 (void); int x = 10;
int main ( )
{ int x = 1;
  x = 1+ f1 ( ) + f2 ( ) + f3 ( ) + fx ( );
printf ("%d", x);
return 0;
}
int f1( ) {int x = 25; x++; return x;}
int f2( ) {static int x = 50; x++; return x;}
int f3( ) (x * = 10; return x; }
```

What is the output of the program?

(A) 229 (B) 230

(C) 227 (D) 226

172. In java, the throw keyword is used

(A) to generate exception programmatically

(B) to throw exception object

(C) to catch exception object

(D) to remove the errors from the block

173. Choose the correct answer

I. A function can return only one value to the calling function

II. A function can return multiple value to the calling function

III. A function can include multiple return statements

IV. A function should not include multiple return statement

(A) Only I is correct (B) Only IV is correct

(C) Both I and III is correct (D) Both II and III is correct

174. In a multifile program, the default storage class for a function is

(A) Static (B) Automatic

(C) External (D) Register

175. How many times the program will print "India"?

```
#include <stdio.h>
 int main ( )
 { printf ("India");
  main ( );
  return 0;}
```

(A) Infinite times (B) 65535 times

(C) Till stack overflows (D) 32767 times

176. Which of the following is not a advantage of cloud computing?

(A) It is easier to maintain cloud computing network

(B) It is possible to handle out of storage

(C) It is possible to access powerful applications online

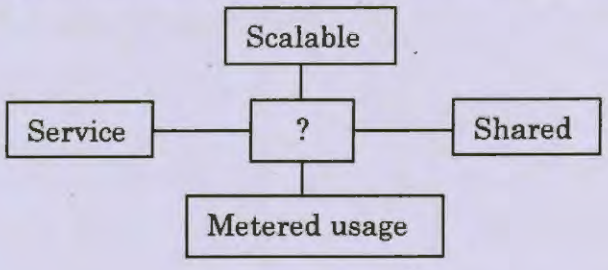
(D) Secret alternative accounting standard

177. Identify a very low management cloud model with reliable SCA and scalability

(A) Dynamic private cloud (B) Commodity cloud

(C) Shared private cloud (D) Dedicated private cloud

178. Which of the following should replace the question mark in the following figure?



(A) Abstraction (B) Virtualization

(C) Mobility pattern (D) Monitoring

179. Which of the following is type 2 VM?

(A) Virtual Logic VLX
(B) VMware ESX
(C) Xen
(D) Lynx secure

180. The ———— is a chunk of input that is processed by a single map.

(A) text format
(B) data block
(C) input split
(D) input block

181. A large infrastructure as a service provides wants to allow users to provision server capacity from a variety of different interfaces technologies. Which one is suitable?

(A) HTTP REST API
(B) XML RPC Service
(C) Command line Interface
(D) Proprietary Remote API

182. Applications such as a web server or database server that can run on a virtual machine image are referred as

(A) Virtual application
(B) Machine image
(C) Virtual image
(D) Virtual appliances

183. Match the following according to cloud computing stack

(1)	SaaS	a.	Accessed by web browser
(2)	PaaS	b.	Accessed by cloud development environment
(3)	IaaS	c.	Accessed by virtual infrastructure manager

(A) 1 – a, 2 – b, 3 – c
(B) 1 – c, 2 – b, 3 – a
(C) 1 – b, 2 – a, 3 – c
(D) 1 – a, 2 – c, 3 – b

184. Which of the following is not correct?

(A) Platform security demands data decryption

(B) Platform security demands strict password policies

(C) Platform security demands fault tolerant external firewalls

(D) Platform security demands system trust certificate

185. Which of the following is web services protocol for creating and sharing security context?

(A) WS – Trust

(B) WS – Secure Conversion

(C) WS – Security Policy

(D) (A) and (B)

186. Which of the following is built on top of the Hadoop framework using the elastic computing cloud?

(A) Amazon Elastic Mapreduce

(B) Amazon Mechanical Turk

(C) Amazon Devpay

(D) Amazon Elastic YARN

187. Which refers to the practice of a primary cloud provider offering services that are distributed through another cloud provider?

(A) Hybrid cloud

(B) Grid computing

(C) Composite could

(D) Virtualization

188. EC2 is the main component of

(A) GAE

(B) AWS

(C) Sales force.com

(D) Window Azure

189. Cloud service providers typically provide web based management consoles that provide users insight on the state of cloud services. Which technology is used in client side browser code that queries back end systems for data from cloud services?

(A) XHTML

(B) AJAX

(C) PHP

(D) HTML

190. Availability problem is normally solved using ———— in cloud data centers.

(A) Migration methods (B) Scalable methods

(C) Replication methods (D) Leasing

191. The main features of cloud computing are

(A) Durability, flexibility, availability and security

(B) Scalability, reliability elasticity and availability

(C) Durability, flexibility, scalability and isolation

(D) Scalability, isolation, availability and criticality

192. ———— is the networking topology used in cloud data center generally.

(A) Ring (B) Bus

(C) B cube (D) K cube

193. SDN is a technology used in ———— virtualization.

(A) Desktop (B) Storage

(C) Server (D) Network

194. ———— and ———— are two categories of hardware virtualization.

(A) Xen and full virtualization

(B) Full virtualization and para virtualization

(C) Full and host – based virtualization

(D) Full virtualization and Vmware

195. KVM is a

(A) Full virtualization system

(B) Para virtualization system

(C) Host – based virtualization system

(D) Hardware assisted para virtualization system

196. ———— allows multiple operating systems instances to run as guest on the same server.

(A) Aggregator

(B) Hyper visor

(C) Collector

(D) Virtualizer

197. The file in Name node which stores the information mapping the data block location with the file name is

(A) dfs image

(B) name image

(C) fs image

(D) image

198. The approach of temporarily renting capacity to handle spikes in load is known as

(A) Cloud bursting

(B) Cloud spiking

(C) Cloud renting

(D) Cloud servicing

199. An exception is caused by

(A) A hardware problem

(B) A problem in the operating system

(C) A syntax error

(D) A runtime error

200. Which of the following is Type 1 Hypervisor?

(A) Wind River Simics

(B) Virtual Server 2005 R2

(C) KVM

(D) Lynx Secure

SPACE FOR ROUGH WORK

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