

National Testing Agency

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M Tech SCS

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SECTION A

Section Id : 128206385
Section Number : 1
Section type : Online
Mandatory or Optional: Mandatory
Number of Questions: 60
Number of Questions to be attempted: 60
Section Marks: 60
Display Number Panel: Yes
Group All Questions: No

Sub-Section Number: 1
Sub-Section Id: 128206636
Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 12820613663 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following is TRUE for any simple connected undirected graph with more than 2 vertices?

- (a) No two vertices have the same degree
- (b) At least three vertices have the same degree
- (c) At least three vertices have the same degree
- (d) All vertices have the same degree

Options :

- 12820653915. A
- 12820653916. B
- 12820653917. C
- 12820653918. D

Question Number : 2 Question Id : 12820613664 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A binary tree of height h has:

- (a) at least h and at most $2^h - 1$ elements
- (b) at least $\log_2(h+1)$ and at most $2^h - 1$ elements
- (c) at least $\log_2(h+1)$ and at most h elements
- (d) nothing can be said with certainty

Options :

- 12820653919. A
- 12820653920. B
- 12820653921. C
- 12820653922. D

Question Number : 3 Question Id : 12820613665 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The expression $1 * 2 ^ 3 * 4 ^ 5 * 6$ will be evaluated to

- (a) 3230
- (b) 16230
- (c) 49152
- (d) 173458

Options :

- 12820653923. A
- 12820653924. B
- 12820653925. C
- 12820653926. D

Question Number : 4 Question Id : 12820613666 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If n has the value 3 then the output of the statement `printf(“%d, %d”, n++, ++n);` is:

- (a) 3, 5
- (b) 4, 5
- (c) 4, 4
- (d) Implementation dependent

Options :

- 12820653927. A
- 12820653928. B
- 12820653929. C
- 12820653930. D

Question Number : 5 Question Id : 12820613667 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In C++ a function with same name is defined twice. Arguments of the function, match but return type do not. Then which of the following is true:

- (a) There will be a compile time error
- (b) There will be a run time error
- (c) No error, and function is considered to be overloaded.
- (d) None of above

Options :

- 12820653931. A
- 12820653932. B
- 12820653933. C
- 12820653934. D

Question Number : 6 Question Id : 12820613668 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the following declaration

```
int a, *b = &a, **c = &b;
```

The following program fragment

```
a=4; **c=5;
```

- (a) does not change the value of a
- (b) assigns address of c to a
- (c) assigns the value of b to a
- (d) assigns 5 to a

Options :

- 12820653935. A
- 12820653936. B
- 12820653937. C
- 12820653938. D

Question Number : 7 Question Id : 12820613669 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The declaration `int (*p) [5];` means

- (a) p is one dimensional array of size 5, of pointer to integers
- (b) p is pointer to integer array of 5 elements
- (c) the same as `int *p[5];`
- (d) None of the above

Options :

- 12820653939. A
- 12820653940. B
- 12820653941. C
- 12820653942. D

Question Number : 8 Question Id : 12820613670 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which combination of the integer variables x , y , and z makes the variable a get the value 4 in the following expression?

$$a = (x > y) ? ((x > z) ? x : z) : ((y > z) ? y : z)$$

(a) $x=3, y=4, z=2$

(b) $x=6, y=5, z=3$

(c) $x=6, y=3, z=5$

(d) $x=5, y=4, z=5$

Options :

12820653943. A

12820653944. B

12820653945. C

12820653946. D

Question Number : 9 Question Id : 12820613671 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Page fault occurs when

(a) the page is corrupted by application software

(b) the page is in main memory

(c) the page is not in main memory

(d) attempt to divide a number by 0

Options :

12820653947. A

12820653948. B

12820653949. C

12820653950. D

Question Number : 10 Question Id : 12820613672 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Fence register is used for

(a) CPU protection

(b) Memory protection

(c) File protection

(d) All of the above

Options :

12820653951. A

12820653952. B

12820653953. C

12820653954. D

Question Number : 11 Question Id : 12820613673 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a paged memory, the page hit ratio is 0.35. The time required to access a page in secondary memory is equal to 100 ns. The time required to access a page in primary memory is:

- (a) 3.0 ns
- (b) 68.0 ns
- (c) 68.5 ns
- (d) 78.5 ns

Options :

12820653955. A

12820653956. B

12820653957. C

12820653958. D

Question Number : 12 Question Id : 12820613674 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An operating system uses Shortest Remaining Time first (SRT) process scheduling algorithm. Consider the arrival time and execution times for the following processes:

Process	Execution Time	Arrival Time
P ₁	20	0
P ₂	25	15
P ₃	10	30
P ₄	15	45

What is the total waiting times for process P₂?

- (a) 5
- (b) 15
- (c) 40
- (d) 55

Options :

12820653959. A

12820653960. B

12820653961. C

12820653962. D

Question Number : 13 Question Id : 12820613675 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A computer system has 4K word cache organized in a block set associative manner, with 4 blocks per set, 64 words per block. The number of bits in the SET and WORD field of the main memory address format is:

- (a) 15, 4
- (b) 6, 4
- (c) 7, 2
- (d) 4, 6

Options :

- 12820653963. A
- 12820653964. B
- 12820653965. C
- 12820653966. D

Question Number : 14 Question Id : 12820613676 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Any column of a table in a database is referred to as the

- (a) tuple
- (b) attribute
- (c) entity
- (d) degree

Options :

- 12820653967. A
- 12820653968. B
- 12820653969. C
- 12820653970. D

Question Number : 15 Question Id : 12820613677 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a database relation $R(a, b, c, d)$ where the domains of a, b, c and d include only atomic values, the only functional dependencies are the following (and those inferred from them)

$$a \rightarrow c; b \rightarrow d$$

Which of the following statements about R is correct?

- (a) R is in first normal form but not in second normal form
- (b) R is in second normal form but not in third normal form
- (c) R is in third normal form
- (d) Insufficient information

Options :

- 12820653971. A
- 12820653972. B
- 12820653973. C

12820653974. D

Question Number : 16 Question Id : 12820613678 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The table Employee has 10 records. It has a non-NULL column called SALARY which is also UNIQUE. What is the output of the following SQL statement?

```
SELECT COUNT (*)  
FROM EMPLOYEE  
WHERE SALARY > ANY(SELECT SALARY FROM EMPLOYEE);
```

- (a) 10
- (b) 9
- (c) 5
- (d) 0

Options :

- 12820653975. A
- 12820653976. B
- 12820653977. C
- 12820653978. D

Question Number : 17 Question Id : 12820613679 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An attribute of one table matching with the primary key of another table is called

- (a) foreign key
- (b) candidate key
- (c) secondary key
- (d) composite key

Options :

- 12820653979. A
- 12820653980. B
- 12820653981. C
- 12820653982. D

Question Number : 18 Question Id : 12820613680 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Boolean expression $AB + AB' + A'C + AC$ is unaffected by the value of the Boolean variable

- (a) A
- (b) B
- (c) C
- (d) None of the above

Options :

- 12820653983. A
- 12820653984. B
- 12820653985. C
- 12820653986. D

Question Number : 19 Question Id : 12820613681 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

(10110011100011110000)₂ in base 32 is

- (a) 22 14 7 16
- (b) 11 9 23 31
- (c) 11 9 7 16
- (d) 11 14 23 16

Options :

- 12820653987. A
- 12820653988. B
- 12820653989. C
- 12820653990. D

Question Number : 20 Question Id : 12820613682 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The maximum addressing capacity of Intel 8085 is

- (a) 4 Kbytes
- (b) 64 Kbytes
- (c) 32 Kbytes
- (d) 1 Mbytes

Options :

- 12820653991. A
- 12820653992. B
- 12820653993. C
- 12820653994. D

Question Number : 21 Question Id : 12820613683 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the value of Euler's totient function- ϕ (35)?

- (a) 8
- (b) 14
- (c) 24
- (d) 36

Options :

- 12820653995. A
- 12820653996. B
- 12820653997. C
- 12820653998. D

Question Number : 22 Question Id : 12820613684 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The correct matching for the following pairs is

- | | |
|-----------------------------|--------------------|
| (A) DMA I/O | (I) High Speed RAM |
| (B) Cache | (II) Disk |
| (C) Interrupt I/O | (III) Printer |
| (D) Condition code Register | (IV) ALU |

- (a) A-IV, B-III, C-I, and D-II
- (b) A-II, B-I, C-III, and D-IV
- (c) A-IV, B-III, C-II, and D-I
- (d) A-II, B-III, C-IV, and D-I

Options :

- 12820653999. A
- 12820654000. B
- 12820654001. C
- 12820654002. D

Question Number : 23 Question Id : 12820613685 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the subnet address for a host with IP address 200.10.5.68/28

- (a) 200.10.5.56
- (b) 200.10.5.32
- (c) 200.10.5.64
- (d) 200.10.5.0

Options :

- 12820654003. A
- 12820654004. B
- 12820654005. C
- 12820654006. D

Question Number : 24 Question Id : 12820613686 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is split horizon?

- (a) Information about a route should not be sent back in the direction from which the original update came.
- (b) It splits the traffic when you have a large bus (horizon) physical network
- (c) It holds the regular update message from broadcasting to downed link.
- (d) All of the above

Options :

- 12820654007. A
- 12820654008. B
- 12820654009. C

12820654010. D

Question Number : 25 Question Id : 12820613687 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

NAT is replaced by which technology

- (a) Firewall
- (b) Proxy Server
- (c) Antivirus software
- (d) IDS

Options :

- 12820654011. A
- 12820654012. B
- 12820654013. C
- 12820654014. D

Question Number : 26 Question Id : 12820613688 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The maximum data rate of a channel of 3000-Hz bandwidth and SNR of 30 dB is

- (a) 15000 bps
- (b) 60000 bps
- (c) 30000 bps
- (d) 3000 bps

Options :

- 12820654015. A
- 12820654016. B
- 12820654017. C
- 12820654018. D

Question Number : 27 Question Id : 12820613689 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let p be the predicate such that $p(x)$ means that x is a linear map and q be the predicate such that $q(x)$ means that x has a matrix representation. Denote by r the predicate such that $r(x, y)$ means that x and y are equivalent. Which one of the following first order logic statements represents the statement: 'Each linear map has an equivalent matrix representation'?

- (a) $(\forall x p(x)) \Rightarrow (\exists y q(y) \wedge r(x, y))$
- (b) $\exists x \forall y (p(x) \wedge q(y) \wedge r(x, y))$
- (c) $\forall x \exists y (p(x) \wedge q(y) \wedge r(x, y))$
- (d) $\forall x \exists y (p(y) \wedge q(x) \wedge r(x, y))$

Options :

- 12820654019. A
- 12820654020. B

12820654021. C

12820654022. D

Question Number : 28 Question Id : 12820613690 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the set of integers with the binary relation:

$$R = \{(i, j) : i - j \text{ is an odd integer}\}$$

Which one of the following statements about R is true?

- (a) R is reflexive
- (b) R is symmetric
- (c) R is transitive
- (d) None of the above

Options :

12820654023. A

12820654024. B

12820654025. C

12820654026. D

Question Number : 29 Question Id : 12820613691 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The number of Boolean functions on 4 variables is

- (a) 16
- (b) 16^{16}
- (c) 2^{16}
- (d) 16^2

Options :

12820654027. A

12820654028. B

12820654029. C

12820654030. D

Question Number : 30 Question Id : 12820613692 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the number of edges in a forest with n vertices and k connected components?

- (a) $n - k$
- (b) $n + k$
- (c) $n - 1$
- (d) Not determined

Options :

12820654031. A

12820654032. B

12820654033. C

12820654034. D

Question Number : 31 Question Id : 12820613693 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Pumping Lemma is used to prove which of the following statements?

- (a) a given grammar is regular
- (b) a given grammar is not regular
- (c) two given regular expressions are equivalent
- (d) None of the above

Options :

12820654035. A

12820654036. B

12820654037. C

12820654038. D

Question Number : 32 Question Id : 12820613694 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following pairs of regular expressions are not equivalent?

- (a) $(ab)^*a$ and $a(ba)^*$
- (b) $(a+b)^*$ and $(a^*+b)^*$
- (c) $(a+b)^*$ and $(a^*+b^*)^*$
- (d) None of the above

Options :

12820654039. A

12820654040. B

12820654041. C

12820654042. D

Question Number : 33 Question Id : 12820613695 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the grammar

$S \rightarrow PQ \mid SQ \mid PS$

$P \rightarrow a$

$Q \rightarrow b$

What is the number of productions to be used to get a string of n terminals?

- (a) $2n - 1$
- (b) $2n$
- (c) $n + 1$
- (d) n^2

Options :

12820654043. A

12820654044. B

12820654045. C

12820654046. D

Question Number : 34 Question Id : 12820613696 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The *mv* command changes:

- (a) only the directory
- (b) only the directory entry and i-node
- (c) only the i-node number
- (d) None of the above

Options :

12820654047. A

12820654048. B

12820654049. C

12820654050. D

Question Number : 35 Question Id : 12820613697 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The PID of the kernel process is

- (a) undefined
- (b) 0
- (c) 1
- (d) 3

Options :

12820654051. A

12820654052. B

12820654053. C

12820654054. D

Question Number : 36 Question Id : 12820613698 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The number of solutions of $\begin{pmatrix} 1 & 0 & 5 \\ 0 & 1 & 6 \\ 1 & 0 & 5 \end{pmatrix} x = \begin{pmatrix} 1 \\ 2 \\ 2 \end{pmatrix}$ is:

- (a) 0
- (b) 1
- (c) Infinite
- (d) None of the above

Options :

12820654055. A

12820654056. B

12820654057. C

12820654058. D

Question Number : 37 Question Id : 12820613699 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let A, B be arbitrary $n \times n$ matrices. Which one of the following statements is true in general?

- (a) $\text{rank}(A + B) = \text{rank}(A) + \text{rank}(B)$
- (b) $\text{trace}(A + B) = \text{trace}(A) + \text{trace}(B)$
- (c) $\text{nullity}(A + B) = \text{nullity}(A) + \text{nullity}(B)$
- (d) $\det(A + B) = \det(A) + \det(B)$

Options :

- 12820654059. A
- 12820654060. B
- 12820654061. C
- 12820654062. D

Question Number : 38 Question Id : 12820613700 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The rank of any 10×1000 matrix cannot be greater than

- (a) 10
- (b) 990
- (c) 90
- (d) 1000

Options :

- 12820654063. A
- 12820654064. B
- 12820654065. C
- 12820654066. D

Question Number : 39 Question Id : 12820613701 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The vector $\hat{i} = (1 \ 0)$ can be expressed in terms of the orthogonal basis $\hat{u} = (3 \ 2)$ and $\hat{v} = (-2 \ 3)$ by the expression $\hat{i} = a \hat{u} + b \hat{v}$. The components a, b are given by

- (a) $a = \frac{3}{13}; b = -\frac{3}{13}$
- (b) $a = \frac{3}{\sqrt{13}}; b = -\frac{2}{\sqrt{13}}$
- (c) $a = 1; b = 0$
- (d) $a = \frac{3}{13}; b = -\frac{2}{13}$

Options :

- 12820654067. A
- 12820654068. B

12820654069. C

12820654070. D

Question Number : 40 Question Id : 12820613702 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The determinant $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 4 & 16 \\ 1 & 3 & 9 \end{vmatrix}$ is

- (a) 0
- (b) -6
- (c) 6
- (d) 24

Options :

12820654071. A

12820654072. B

12820654073. C

12820654074. D

Question Number : 41 Question Id : 12820613703 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Clockwise rotation by 30° in the two dimensional plane is given by

(a) $\begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$

(b) $\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$

(c) $\begin{pmatrix} \frac{\sqrt{3}}{2} & \frac{1}{2} \\ -\frac{1}{2} & \frac{\sqrt{3}}{2} \end{pmatrix}$

(d) $\begin{pmatrix} \frac{\sqrt{3}}{2} & -\frac{1}{2} \\ \frac{1}{2} & \frac{\sqrt{3}}{2} \end{pmatrix}$

Options :

12820654075. A

12820654076. B

12820654077. C

12820654078. D

Question Number : 42 Question Id : 12820613704 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A fair coin is tossed 4 times independently. What is the chance of the event of getting at least 2 head and at least 1 tail?

- (a) $\frac{3}{8}$
- (b) $\frac{1}{4}$
- (c) $\frac{5}{8}$
- (d) $\frac{11}{16}$

Options :

12820654079. A

12820654080. B

12820654081. C

12820654082. D

Question Number : 43 Question Id : 12820613705 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a gathering of students, 75% knew some probability, 30% knew some statistics and 20% had no knowledge of either probability or statistics . What proportion of the students had some knowledge of both probability and statistics?

- (a) 15%
- (b) 25%
- (c) 30%
- (d) 75%

Options :

12820654083. A

12820654084. B

12820654085. C

12820654086. D

Question Number : 44 Question Id : 12820613706 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A relay consists of 5 components each of which can be functioning or defective. The relay will function correctly if at least 1 component is functioning. How many different possibilities of defective components exist such that the relay functions correctly?

- (a) 5
- (b) 15
- (c) 25
- (d) 31

Options :

- 12820654087. A
- 12820654088. B
- 12820654089. C
- 12820654090. D

Question Number : 45 Question Id : 12820613707 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In hypothesis testing, the level of significance of a test is the probability of

- (a) Committing a Type I error
- (b) Committing a Type II error
- (c) Not committing a Type I error
- (d) Not committing a Type II error

Options :

- 12820654091. A
- 12820654092. B
- 12820654093. C
- 12820654094. D

Question Number : 46 Question Id : 12820613708 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The _____ test is NOT used to compare the parameters (like mean, variance, proportion etc.) of two different samples.

- (a) z
- (b) t
- (c) χ^2
- (d) F

Options :

- 12820654095. A
- 12820654096. B
- 12820654097. C
- 12820654098. D

Question Number : 47 Question Id : 12820613709 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a population with known variance σ_P^2 and unknown mean μ_P , the null hypothesis is taken as $H_0: \mu_P = \mu$. A sample of size n is drawn from this population with sample mean \bar{X} and sample variance σ_S^2 . Then the statistic used for performing the z-test to test H_0 is computed by

(a) $Z = \frac{\bar{X} - \mu}{\sigma_P^2/n}$

(b) $Z = \frac{\bar{X} - \mu}{\sigma_S/(n-1)}$

(c) $Z = \frac{\bar{X} - \mu}{\sigma_S/\sqrt{n}}$

(d) $Z = \frac{\bar{X} - \mu}{\sigma_P/\sqrt{n}}$

Options :

12820654099. A

12820654100. B

12820654101. C

12820654102. D

Question Number : 48 Question Id : 12820613710 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The sample mean is given by $\bar{X} = \frac{1}{n} \sum X_i$ where the sample is given by $\{X_1, X_2, \dots, X_n\}$. Which one of these formulas is the correct expression for the sample variance σ_S^2 ?

(a) $\frac{1}{n} \sum X_i^2$

(b) $\frac{1}{n} \sum X_i^2 - \bar{X}^2$

(c) $\frac{1}{n-1} \sum (X_i^2 - \bar{X})^2$

(d) $\frac{1}{n} \sum (X_i^2 - \bar{X})^2$

Options :

12820654103. A

12820654104. B

12820654105. C

12820654106. D

Question Number : 49 Question Id : 12820613711 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The mean of the Exponential distribution with parameter λ is given by

- (a) λ
- (b) $1/\lambda$
- (c) λ^2
- (d) $\lambda(1 - \lambda)$

Options :

- 12820654107. A
- 12820654108. B
- 12820654109. C
- 12820654110. D

Question Number : 50 Question Id : 12820613712 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following properties is NOT satisfied by the Euclidean norm

$\|x\| = (\sum_{i=1}^n x_i^2)^{1/2}$ of a vector $x \in \mathbb{R}^n$?

- (a) $\|x\| = 0$ only for $x = 0$
- (b) $\|x + y\| \leq \|x\| + \|y\|$
- (c) $\|x - y\| \geq \|x\| - \|y\|$
- (d) $\|\lambda x\| = \lambda^2 \|x\|$ for any real λ

Options :

- 12820654111. A
- 12820654112. B
- 12820654113. C
- 12820654114. D

Question Number : 51 Question Id : 12820613713 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the value of $\max_{0 \leq x \leq 1} x e^{-x^2}$?

- (a) $\frac{1}{\sqrt{2}} e^{-1/\sqrt{2}}$
- (b) e^{-1}
- (c) $\frac{1}{\sqrt{2}} e^{-1/2}$
- (d) $\frac{1}{2} e^{-1/2}$

Options :

- 12820654115. A
- 12820654116. B
- 12820654117. C
- 12820654118. D

Question Number : 52 Question Id : 12820613714 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a certain code, MONKEY is written as XDJMNL. How is TIGER written in that code?

- (a) QDFHS
- (b) SDFHS
- (c) UJHFS
- (d) SHFDQ

Options :

12820654119. A

12820654120. B

12820654121. C

12820654122. D

Question Number : 53 Question Id : 12820613715 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

At a farm, there are hens, cows and bullocks, and keepers to look after them. There are 69 heads less than legs. The number of cows is double that of bullocks; the number of cows and hens is the same and there is one keeper per ten birds or cattle. The total number of birds, animals and keepers does not exceed 50. How many cows are there?

- (a) 10
- (b) 12
- (c) 14
- (d) 16

Options :

12820654123. A

12820654124. B

12820654125. C

12820654126. D

Question Number : 54 Question Id : 12820613716 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the next term in the series: 1,2,3,5,8, _?

- (a) 9
- (b) 11
- (c) 13
- (d) 15

Options :

- 12820654127. A
- 12820654128. B
- 12820654129. C
- 12820654130. D

Question Number : 55 Question Id : 12820613717 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

All of the following pairs of words except one bear a certain common relationship. Which one of the following is the odd pair?

- (a) Waist: Belt
- (b) Neck: Tie
- (c) Wrist: Band
- (d) Shoe: Lace

Options :

- 12820654131. A
- 12820654132. B
- 12820654133. C
- 12820654134. D

Question Number : 56 Question Id : 12820613718 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following interchange of operations will make the equation

$5 + 5 \div 5 - 5 \times 5 = 5$ correct?

- (a) + and -
- (b) + and \div
- (c) + and \times
- (d) \div and \times

Options :

- 12820654135. A
- 12820654136. B
- 12820654137. C
- 12820654138. D

Question Number : 57 Question Id : 12820613719 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the solution of a linear programming problem using simplex method, the current cost of the objective function must:

- (a) Increase in the next iteration
- (b) Can not decrease in the next iteration
- (c) Remain the same in next iteration
- (d) None of the above

Options :

- 12820654139. A

- 12820654140. B
- 12820654141. C
- 12820654142. D

Question Number : 58 Question Id : 12820613720 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The covariance $cov(X, Y)$ of two is random variables X and Y is

- (a) $E[X^2 + Y^2] - E[X]^2 - E[Y]^2$
- (b) $E[XY] - E[X]E[Y]$
- (c) $E[X^2Y^2] - E[X]^2E[Y]^2$
- (d) $var(X)var(Y)$

Options :

- 12820654143. A
- 12820654144. B
- 12820654145. C
- 12820654146. D

Question Number : 59 Question Id : 12820613721 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The minimum number of bits used to represent a character from ASCII code set is :

- (a) 2
- (b) 4
- (c) 7
- (d) 8

Options :

- 12820654147. A
- 12820654148. B
- 12820654149. C
- 12820654150. D

Question Number : 60 Question Id : 12820613722 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The DESCRIBE command if used on a table, will not display information about

- (a) primary keys
- (b) indexes
- (c) default values
- (d) all of the above

Options :

- 12820654151. A
- 12820654152. B
- 12820654153. C
- 12820654154. D

Section B:Data Communication stream

Section Id :	128206386
Section Number :	2
Section type :	Online
Mandatory or Optional:	Optional
Number of Questions:	20
Number of Questions to be attempted:	20
Section Marks:	40
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	128206637
Question Shuffling Allowed :	Yes

Question Number : 61 Question Id : 12820613723 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which one of the following security algorithms having variable key length?

- (a) DES
- (b) 3DES
- (c) RC4
- (d) AES

Options :

- 12820654155. A
- 12820654156. B
- 12820654157. C
- 12820654158. D

Question Number : 62 Question Id : 12820613724 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

MACAW methods used for _____

- (a) IEEE 802.2
- (b) IEEE 802.3
- (c) IEEE 802.11
- (d) IEEE 802.14

Options :

- 12820654159. A
- 12820654160. B
- 12820654161. C
- 12820654162. D

Question Number : 63 Question Id : 12820613725 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the maximum data rate for 802.11b wireless LANs?

- (a) 2 Mbps
- (b) 10 Mbps
- (c) 11 Mbps
- (d) 54 Mbps

Options :

12820654163. A

12820654164. B

12820654165. C

12820654166. D

Question Number : 64 Question Id : 12820613726 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which one of the following is the topology with lowest cost?

- (a) Bus
- (b) Tree
- (c) Ring
- (d) Mesh

Options :

12820654167. A

12820654168. B

12820654169. C

12820654170. D

Question Number : 65 Question Id : 12820613727 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The transport layer is responsible for _____

- (a) Addressing
- (b) Congestion Control
- (c) Coding
- (d) Error checking

Options :

12820654171. A

12820654172. B

12820654173. C

12820654174. D

Question Number : 66 Question Id : 12820613728 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following encryption algorithm is a block cipher, and uses the Rijndael algorithm?

- a) DES
- b) AES
- c) RC5
- d) RSA

Options :

- 12820654175. A
- 12820654176. B
- 12820654177. C
- 12820654178. D

Question Number : 67 Question Id : 12820613729 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of following protocols uses TCP port 443?

- (a) HTTPS
- (b) Telnet
- (c) FTP
- (d) SMTP

Options :

- 12820654179. A
- 12820654180. B
- 12820654181. C
- 12820654182. D

Question Number : 68 Question Id : 12820613730 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What data is encapsulated which is the correct order?

- (a) Data, frame, packet, segment, bit
- (b) Data, segment, packet, frame, bit
- (c) Segment, data, packet, frame, bit
- (d) Data, segment, frame, bit

Options :

- 12820654183. A
- 12820654184. B
- 12820654185. C
- 12820654186. D

Question Number : 69 Question Id : 12820613731 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following virus attack initiated DoS attack?

- (a) Faux
- (b) Walachi
- (c) Bagle
- (d) MyDoom

Options :

- 12820654187. A
- 12820654188. B
- 12820654189. C
- 12820654190. D

Question Number : 70 Question Id : 12820613732 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The correct matching for the following pairs is

- | | |
|-------------------------------|---|
| (A) session layer | (I) Connects DCE into physical channel |
| (B) Transport layer | (II) Provides end to end accountability |
| (C) Application layer | (III) To exchanges data between users |
| (D)Medium dependent Interface | (IV) Performs required file transfer |

- (a) A-III, B-IV, C-II, and D-I
- b) A-III, B-II, C-IV, and D-I
- c) A-II, B-IV, C-I, and D-III
- d) A-III, B-II, C-I, and D-IV

Options :

- 12820654191. A
- 12820654192. B
- 12820654193. C
- 12820654194. D

Question Number : 71 Question Id : 12820613733 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

You have the following MAC address: C9-3F-32-B4-DC-19. What is the organizationally unique identifier (OUI) portion of binary

- (a) 11000110-11000000-00011111
- (b) 11001100-00111111-00011000
- (c) 11001001-00111111-00110010
- (d) 11001100-01111000-00011000

Options :

- 12820654195. A
- 12820654196. B
- 12820654197. C
- 12820654198. D

Question Number : 72 Question Id : 12820613734 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Message integrity is achieved using _____

- (a) Encryption Algorithm
- (b) Hash Algorithm
- (c) Digital Signature algorithm
- (d) Diffie-Hellman Algorithm

Options :

- 12820654199. A

- 12820654200. B
- 12820654201. C
- 12820654202. D

Question Number : 73 Question Id : 12820613735 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Arrange the header length in ascending order?

- a. UDP, SCTP, IP, IPv6
- b. UDP, SCTP, IPv6, IP
- c. IPv6, UDP, SCTP, IP
- d. IP, IPv6, SCTP, UDP

Options :

- 12820654203. A
- 12820654204. B
- 12820654205. C
- 12820654206. D

Question Number : 74 Question Id : 12820613736 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If the data rate of ring is 20Mbps, signal propagation speed is 200 μ s, then what is the number of bits that can be placed on channel of 200km?

- (a) 2000 bits
- (b) 20,000 bits
- (c) 1,000 bits
- (d) None of above

Options :

- 12820654207. A
- 12820654208. B
- 12820654209. C
- 12820654210. D

Question Number : 75 Question Id : 12820613737 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the remainder of $3^{11} + 2$ mode 11

- (a) 3
- (b) 4
- (c) 5
- (d) 6

Options :

- 12820654211. A
- 12820654212. B
- 12820654213. C
- 12820654214. D

Question Number : 76 Question Id : 12820613738 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following protocols use both TCP and UDP?

- (a) FTP
- (b) SMTP
- (c) TELNET
- (d) DNS

Options :

- 12820654215. A
- 12820654216. B
- 12820654217. C
- 12820654218. D

Question Number : 77 Question Id : 12820613739 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is authentication next header code in Ipv6?

- (a) 49
- (b) 50
- (c) 51
- (d) 59

Options :

- 12820654219. A
- 12820654220. B
- 12820654221. C
- 12820654222. D

Question Number : 78 Question Id : 12820613740 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which type of firewall is consider the most secure?

- (a) Dual-homed
- (b) Stateful packet inspection
- (c) Circuit level gateway
- (d) Packet screening

Options :

- 12820654223. A
- 12820654224. B
- 12820654225. C
- 12820654226. D

Question Number : 79 Question Id : 12820613741 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is control frame RTS size in wireless communication?

- (a) 10 byte
- (b) 20 byte
- (c) 30 byte
- (d) 40 byte

Options :

- 12820654227. A
- 12820654228. B
- 12820654229. C
- 12820654230. D

Question Number : 80 Question Id : 12820613742 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If standard Ethernet with the transmission rate of 10 mbps, we assume that the length of the medium is 2500 m and size of frame is 512 bits. The propagation speed of a signal in a cable is normally 2×10^8 m/s. What is the efficiency of Ethernet?

- (a) 29%
- (b) 39%
- (c) 49%
- (d) 99%

Options :

- 12820654231. A
- 12820654232. B
- 12820654233. C
- 12820654234. D

Section C: Data Science Stream

Section Id :	128206387
Section Number :	3
Section type :	Online
Mandatory or Optional:	Optional
Number of Questions:	16
Number of Questions to be attempted:	16
Section Marks:	40
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	128206638
Question Shuffling Allowed :	Yes

Question Number : 81 Question Id : 12820613743 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If P and Q are predicates and P is the relational algebra expression, then which of the following equivalences are not valid?

(a) $\sigma_P(\sigma_Q(e)) \neq \sigma_Q(\sigma_P(e))$

(b) $\sigma_P(\sigma_Q(e)) = \sigma_{P \wedge Q}(e)$

(c) $\sigma_P(\sigma_Q(e)) = \sigma_Q(\sigma_P(e))$

(d) $\sigma_Q(\sigma_P(e)) = \sigma_{P \wedge Q}(e)$

Options :

12820654235. A

12820654236. B

12820654237. C

12820654238. D

Question Number : 82 Question Id : 12820613744 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The following functional dependencies hold for relations $R(A, B, C)$ and $S(D, D, E)$:

$B \rightarrow A; A \rightarrow C$

If the relation R contains $2n$ tuples and the relation S contains n tuples, then what is maximum possible number of tuples in the join $R \bowtie S$?

(a) $n/2$

(b) $n - 1$

(c) n

(d) $2n$

Options :

12820654239. A

12820654240. B

12820654241. C

12820654242. D

Sub-Section Number: 2

Sub-Section Id: 128206639

Question Shuffling Allowed : Yes

Question Id : 12820613745 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No

Question Numbers : (83 to 87)

Question Label : Comprehension

The next five questions are based on the following table

Table Name: time_table					
Num	From	To	Route1	Route2	Route3
1	Adelaide	Melbourne	Brisbane	Canberra	Darwin
2	Brisbane	Melbourne	Canberra	Darwin	
3	Sydney	Perth	Brisbane	Canberra	
4	Sydney	Perth	Melbourne	Auckland	
5	Brisbane	Darwin	Sydney	Canberra	Perth
6	Adelaide	Brisbane			

Sub questions

Question Number : 83 Question Id : 12820613746 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the output of the following SQL statement?

```
SELECT COUNT(*)  
FROM time_table A, time_table B  
WHERE A.From = B.From  
AND A.To = B.To;
```

- (a) 6
- (b) 7
- (c) 8
- (d) None of the above

Options :

- 12820654243. A
- 12820654244. B
- 12820654245. C
- 12820654246. D

Question Number : 84 Question Id : 12820613747 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

How many records will be printed by the following SQL statement?

```
SELECT * FROM time_table A, time_table B  
WHERE A.From = 'Adelaide' OR B.To = 'Melbourne';
```

- (a) 12
- (b) 20
- (c) 22
- (d) 24

Options :

- 12820654247. A
- 12820654248. B
- 12820654249. C
- 12820654250. D

Question Number : 85 Question Id : 12820613748 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

How many records will be printed by the following SQL statement?

```
SELECT * FROM time_table A, time_table B WHERE A.Num < 3  
UNION  
SELECT * FROM time_table A, time_table B WHERE A.Num >= 3;
```

- (a) 0
- (b) 2
- (c) 6
- (d) 36

Options :

- 12820654251. A
- 12820654252. B
- 12820654253. C
- 12820654254. D

Question Number : 86 Question Id : 12820613749 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

How many records will be printed by the following SQL statement?

```
SELECT A.From, B.From  
FROM time_table A, time_table B  
GROUP BY (A.From, B.From);
```

- (a) 12
- (b) 8
- (c) 9
- (d) 6

Options :

- 12820654255. A
- 12820654256. B
- 12820654257. C
- 12820654258. D

Question Number : 87 Question Id : 12820613750 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

How many records will be printed by the following SQL statement?

```
SELECT * FROM time_table WHERE MOD(Num,3) =1  
MINUS
```

```
SELECT * FROM time_table WHERE MOD(Num,2) =0;
```

(a) 0

(b) 1

(c) 2

(d) 3

Options :

12820654259. A

12820654260. B

12820654261. C

12820654262. D

Sub-Section Number:	3
Sub-Section Id:	128206640
Question Shuffling Allowed :	Yes

Question Number : 88 Question Id : 12820613751 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following neural networks uses supervised learning?

(a) Multilayer perceptron

(b) Self-organizing map

(c) Hopfield network

(d) Adaptive resonance theory model

Options :

12820654263. A

12820654264. B

12820654265. C

12820654266. D

Question Number : 89 Question Id : 12820613752 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the soft computing technology underlying Fuzzy associative memory?

(a) Neuro-GA

(b) Neuro-Fuzzy

(c) Fuzzy-GA

(d) Neuro-Fuzzy-GA

Options :

12820654267. A

12820654268. B

12820654269. C

12820654270. D

Question Number : 90 Question Id : 12820613753 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Let $\tilde{A} = \{ (x_1, 0.2), (x_2, 0.5), (x_3, 0.6) \}$ and $\tilde{B} = \{ (x_1, 0.1), (x_2, 0.4), (x_3, 0.5) \}$ be two fuzzy sets. Which of the following is correct description of the difference $\tilde{A} - \tilde{B}$?

- (a) $\{ (x_1, 0.1), (x_2, 0.4), (x_3, 0.5) \}$
- (b) $\{ (x_1, 0.2), (x_2, 0.4), (x_3, 0.5) \}$
- (c) $\{ (x_1, 0.2), (x_2, 0.5), (x_3, 0.5) \}$
- (d) $\{ (x_1, 0.1), (x_2, 0.1), (x_3, 0.1) \}$

Options :

- 12820654271. A
- 12820654272. B
- 12820654273. C
- 12820654274. D

Question Number : 91 Question Id : 12820613754 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which is the false statement about k-means clustering?

- (a) It is an NP-hard optimization problem
- (b) It is guaranteed to reach the optimal solution
- (c) It is guaranteed to reach a local optimum
- (d) It is dependent on the initial choice of centres

Options :

- 12820654275. A
- 12820654276. B
- 12820654277. C
- 12820654278. D

Question Number : 92 Question Id : 12820613755 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following is a property of a Support Vector Machine?

- (a) Non-deterministic Turing Machine
- (b) Probabilistic binary classifier
- (c) Deterministic binary linear classifier
- (d) Non-parametric regression predictor

Options :

- 12820654279. A
- 12820654280. B
- 12820654281. C
- 12820654282. D

Question Number : 93 Question Id : 12820613756 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Two fuzzy sets are said to be equal if their _____ are equal everywhere in the universe of discourse. Which of the following is the correct option to fill in the blank?

- (a) Heuristic functions
- (b) Singletons
- (c) Membership functions
- (d) Degrees of relevance

Options :

- 12820654283. A
- 12820654284. B
- 12820654285. C
- 12820654286. D

Question Number : 94 Question Id : 12820613757 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

A four input neuron has weights 0.2,0.3, -0.4,0.1. The transfer function is scalar multiplication by 10. What will be the output of the neuron for the input 2,3,2,3 for each variable?

- (a) 0.8
- (b) 1.8
- (c) 8
- (d) 80

Options :

- 12820654287. A
- 12820654288. B
- 12820654289. C
- 12820654290. D

Question Number : 95 Question Id : 12820613758 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following is not a logic programming language?

- (a) LISP
- (b) PROLOG
- (c) STRIPS
- (d) R

Options :

- 12820654291. A
- 12820654292. B
- 12820654293. C
- 12820654294. D

Question Number : 96 Question Id : 12820613759 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which one of the following pair is not equivalent in propositional calculus?

- (a) $(P \vee Q)$ and $(\neg P \rightarrow Q)$
- (b) $(P \rightarrow Q)$ and $(\neg P \rightarrow \neg Q)$
- (c) $(P \rightarrow Q)$ and $(\neg Q \rightarrow \neg P)$
- (d) $(\neg P \vee Q)$ and $(P \rightarrow Q)$

Options :

- 12820654295. A
- 12820654296. B
- 12820654297. C
- 12820654298. D

Question Number : 97 Question Id : 12820613760 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following learning paradigms best describes the stochastic neural network learning algorithms?

- (a) Unsupervised learning
- (b) Reinforcement learning
- (c) Supervised learning
- (d) All of the above

Options :

- 12820654299. A
- 12820654300. B
- 12820654301. C
- 12820654302. D

Question Number : 98 Question Id : 12820613761 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Capability of data mining is to build _____ models.

- (a) retrospective
- (b)interrogative
- (c) predictive
- (d)imperative

Options :

- 12820654303. A
- 12820654304. B
- 12820654305. C
- 12820654306. D

Question Number : 99 Question Id : 12820613762 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The following contingency table summarizes supermarket transaction data where *kitchen – ware* refer to the transactions containing utensils and appliances used in kitchens and $\overline{kitchen – ware}$ refers to the transactions that do not contains the kitchen-ware. Further, *baby – food* refers to transactions containing any kind of baby-food, and $\overline{baby – food}$ refers to the transactions that do not contain any baby food item.

	<i>baby – food</i>	$\overline{baby – food}$	Σ_{row}
<i>kitchen – ware</i>	2500	4500	7000
$\overline{kitchen – ware}$	5000	3000	8000
Σ_{col}	7500	7500	15000

Suppose that the association rule “ $\overline{kitchen – ware} \Rightarrow baby – food$ ” is mined. Then which one of the following options gives the support and confidence of the association rule mined?

- a. (support = 0.333, confidence = 0.625)
- b. (support = 0.166, confidence = 0.357)
- c. (support = 0.30, confidence = 0.66)
- d. (support = 0.53, confidence = 0.375)

Options :

- 12820654307. A
- 12820654308. B
- 12820654309. C
- 12820654310. D

Question Number : 100 Question Id : 12820613763 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Data warehouse architecture is based on _____.

- (a) DBMS
- (b) RDBMS
- (c) Sybase
- (d) SQL Server

Options :

- 12820654311. A
- 12820654312. B
- 12820654313. C
- 12820654314. D