National Testing Agency

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Data Science Artificial Intelligence Cyber Security And Computer Science

Group Number :	1
Group Id :	432449145
Group Maximum Duration :	0
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Show Attended Group? :	No
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Data Science Artificial Intelligence Cyber Security And Computer Science

Section Id :	432449239
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	75
Number of Questions to be attempted :	75
Section Marks :	300
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	432449610
Question Shuffling Allowed :	Yes
Is Section Default? :	No

Question Number : 1 Question Id : 43244918097 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following string is **not** generated by the grammar : $S \rightarrow SaSbS \mid \epsilon$?

(1) aabb

(2) abab

(3) aababb

(4) aaabb

Options :

43244970901. 1

43244970902. 2

43244970903. 3

43244970904. 4

Question Number : 2 Question Id : 43244918098 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

R_1 and R_2 are regular sets. Which of the following is **not** correct ?

(1) $R_1 \cap R_2$ needs not be regular

(2) $\Sigma^* - R_1$ is regular

(3) $R_1 \cup R_2$ is regular

(4) R_1^* is regular

Options :

43244970905. 1

43244970906. 2

43244970907. 3

43244970908. 4

Question Number : 3 Question Id : 43244918099 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following search uses the problem specific knowledge beyond the definition of the problem ?

(1) Informed search

(2) Depth first search

(3) Breadth first search

(4) Uninformed search

Options :

43244970909. 1

43244970910. 2

43244970911. 3

43244970912. 4

Question Number : 4 Question Id : 43244918100 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the acronym PEAS in AI. Which of the following is **not** correct ?

(1) P - Perceptron

(2) E - Environment

(3) A - Actuators

(4) S - Sensors

Options :

43244970913. 1

43244970914. 2

43244970915. 3

43244970916. 4

Question Number : 5 Question Id : 43244918101 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In UNIX, which system call is used for inter process communication via shared memory ?

(1) pipe ( )

(2) msgget ( )

(3) shmget ( )

(4) semctl ( )

Options :

43244970917. 1

43244970918. 2

43244970919. 3

43244970920. 4

Question Number : 6 Question Id : 43244918102 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The messages exchanged by communicating processes reside in a temporary queue. Such queue cannot be implemented in the following way :

(1) Zero capacity
(2) Blocking capacity
(3) Bounded capacity
(4) Unbounded capacity

Options :

43244970921. 1
43244970922. 2
43244970923. 3
43244970924. 4

Question Number : 7 Question Id : 43244918103 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which is true about the fork ( ) system call ?

(1) It allocates memory
(2) It creates a child process
(3) It creates a program
(4) It creates machine code

Options :

43244970925. 1
43244970926. 2
43244970927. 3
43244970928. 4

Question Number : 8 Question Id : 43244918104 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In hardwired control, the control signals are generated :

(1) by microprogram stored in memory
(2) by fixed combinational circuits
(3) using PLA only
(4) Sequentially from ROM

Options :

43244970929. 1
43244970930. 2
43244970931. 3
43244970932. 4

Question Number : 9 Question Id : 43244918105 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following statement is **not** correct about addressing modes ?

(1) Immediate addressing reduces memory access time
(2) Index addressing is used for accessing array elements
(3) Register indirect addressing allows accessing memory via a pointer
(4) Relative addressing cannot be used for branch instruction

Options :

43244970933. 1

43244970934. 2

43244970935. 3

43244970936. 4

Question Number : 10 Question Id : 43244918106 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which type of firewall filters is based on application - layer data such as URL and HTTP headers ?

(1) Packet-filtering firewall

(2) Stateful inspection firewall

(3) Application proxy firewall

(4) Circuit level gateway

Options :

43244970937. 1

43244970938. 2

43244970939. 3

43244970940. 4

Question Number : 11 Question Id : 43244918107 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is **not** a valid address in an internet employing the TCP/IP protocols ?

(1) Frame address

(2) Physical address

(3) Logical address

(4) Port address

Options :

43244970941. 1

43244970942. 2

43244970943. 3

43244970944. 4

Question Number : 12 Question Id : 43244918108 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Suppose we can download 10 pages per minute. A page has 24 lines on average and a line has 80 characters on average. Assuming 8 bits per character, the bit rate is :

(1) 6.4×10^5 bps

(2) 1.536×10^5 bps

(3) 8.64×10^3 bps

(4) 2.56×10^3 bps

Options :

43244970945. 1

43244970946. 2

43244970947. 3

43244970948. 4

Question Number : 13 Question Id : 43244918109 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following statement correctly differentiates substitution and transposition ciphers ?

(1) Substitution changes the order of symbols; transposition replaces symbol

(2) Both change symbol order and values simultaneously

(3) Substitution replaces symbol with others; transposition rearranges their position

(4) Substitution is always weaker than transposition in modern cryptography

Options :

43244970949. 1

43244970950. 2

43244970951. 3

43244970952. 4

Question Number : 14 Question Id : 43244918110 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In a secure communication model, if an attacker intercepts a message and replaces it with a fake one before forwarding it, this attack is best classified as :

(1) Replay attack

(2) Masquerade attack

(3) Man in the middle

(4) Denial of service

Options :

43244970953. 1

43244970954. 2

43244970955. 3

43244970956. 4

Question Number : 15 Question Id : 43244918111 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is a universal gate ?

(1) AND

(2) OR

(3) NAND

(4) Inverter

Options :

43244970957. 1

43244970958. 2

43244970959. 3

43244970960. 4

Question Number : 16 Question Id : 43244918112 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following boolean expression is related to De-Morgan theorem ?

(1) $x + xy = x$

(2) $x + (y + z) = (x + y) + z$

(3) $x(y + z) = xy + xz$

(4) $(x + y)' = x'y'$

Options :

43244970961. 1

43244970962. 2

43244970963. 3

43244970964. 4

Question Number : 17 Question Id : 43244918113 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Afer execution of ANI 0FH with accumulator = A9H, which flags are affected ?

(1) Sign, zero and carry

(2) Carry and zero

(3) Zero and parity

(4) Sign, zero, parity and carry

Options :

43244970965. 1

43244970966. 2

43244970967. 3

43244970968. 4

Question Number : 18 Question Id : 43244918114 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

After ADI 01H when A = FFH, the accumulator and carry flags are :

(1) A = 00H, CY = 0

(2) A = 00H, CY = 1

(3) A = 01H, CY = 1

(4) A = FEH, CY = 1

Options :

43244970969. 1

43244970970. 2

43244970971. 3

43244970972. 4

Question Number : 19 Question Id : 43244918115 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In the fractional knapsack problem, the greedy choice is based on (i^{th} item has worth/value as V_i and weight as W_i) :

(1) Maximum value (V_i)

(2) Minimum weight (W_i)

(3) Maximum value/weight (V_i/W_i) ratio

(4) Random choice

Options :

43244970973. 1

43244970974. 2

43244970975. 3

43244970976. 4

Question Number : 20 Question Id : 43244918116 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following statement is true ?

(1) Greedy and dynamic programming both require optimal sub structure

(2) Greedy requires overlapping sub problems

(3) Dynamic programming does not require optimal sub structure

(4) Greedy always gives optimal solution

Options :

43244970977. 1

43244970978. 2

43244970979. 3

43244970980. 4

Question Number : 21 Question Id : 43244918117 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For the Dijkstra's algorithm applying on a graph, which of the following condition is required?

(1) Graph must be directed acyclic

(2) Graph must not have negative edge weights

(3) All edges must have equal weight

(4) Graph must be complete

Options :

43244970981. 1

43244970982. 2

43244970983. 3

43244970984. 4

Question Number : 22 Question Id : 43244918118 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following operation is **not** a partial order relation ?

(1) "less than or equal ($\leq$)" on $\mathbb{R}$

(2) "subset ($\subseteq$)" on power set of set A

(3) "Divides" on $\mathbb{N}$

(4) "less than ($<$)" on $\mathbb{R}$

Options :

43244970985. 1

43244970986. 2

43244970987. 3

43244970988. 4

Question Number : 23 Question Id : 43244918119 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

if $f(x)=x^2+1$ and $g(x)=2x-3$, then (fog) (x) is equal to :

(1) $4x^2-12x+9$

(2) $4x^2-12x+10$

(3) $4x^2-12x+13$

(4) $2x^2-6x+10$

Options :

43244970989. 1

43244970990. 2

43244970991. 3

43244970992. 4

Question Number : 24 Question Id : 43244918120 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the group $G=\{+1,-1,+i,-i\}$ under multiplication operation.
Which of the following is **not** correct ?

(1) G is a abelian group

(2) G is a cyclic group

(3) $\{1, -1\}$ is a subgroup of G

(4) $\{1, -i, i\}$ is a subgroup of G

Options :

43244970993. 1

43244970994. 2

43244970995. 3

43244970996. 4

Question Number : 25 Question Id : 43244918121 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which visualization method is most effective for detecting outliers in multidimensional numerical data ?

(1) Line graph

(2) Pie chart

(3) Box plot

(4) Heat map

Options :

43244970997. 1

43244970998. 2

43244970999. 3

43244971000. 4

Question Number : 26 Question Id : 43244918122 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which clustering algorithm can detect clusters of arbitrary shape and handle noise effectively ?

(1) K-Means

(2) Mean shift

(3) DBSCAN

(4) Agglomerating hierarchical clustering

Options :

43244971001. 1

43244971002. 2

43244971003. 3

43244971004. 4

Question Number : 27 Question Id : 43244918123 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is primitive data type in C ?

(1) long int

(2) struct

(3) union

(4) enum

Options :

43244971005. 1

43244971006. 2

43244971007. 3
43244971008. 4

Question Number : 28 Question Id : 43244918124 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is **not** a non linear data structure ?

(1) Binary tree
(2) Heap
(3) Graph
(4) char

Options :

43244971009. 1
43244971010. 2
43244971011. 3
43244971012. 4

Question Number : 29 Question Id : 43244918125 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is **not** a keyword in C ?

(1) do
(2) break
(3) join
(4) for

Options :

43244971013. 1
43244971014. 2
43244971015. 3
43244971016. 4

Question Number : 30 Question Id : 43244918126 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is **not** correct IP address ?

(1) 20.110.254.160
(2) 25.256.230.10
(3) 230.110.230.230
(4) 10.11.234.234

Options :

43244971017. 1
43244971018. 2
43244971019. 3
43244971020. 4

Question Number : 31 Question Id : 43244918127 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : Preemptive scheduling can lead to race conditions in critical section.

Reason (R) : Preemption allows multiple processes to access shared data simultaneously.

In the light of the above statements, choose the **most appropriate answer** from the options given below :

(1) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(2) Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

(3) **(A)** is correct but **(R)** is not correct

(4) **(A)** is not correct but **(R)** is correct

Options :

43244971021. 1

43244971022. 2

43244971023. 3

43244971024. 4

Question Number : 32 Question Id : 43244918128 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : In a ripple carry adder, carry propagation delay increases linearly with the number of bits.

Reason (R) : Each bit addition must wait for the carry output from the previous stage.

In the light of the above statements, choose the **most appropriate answer** from the options given below :

(1) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(2) Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

(3) **(A)** is correct but **(R)** is not correct

(4) **(A)** is not correct but **(R)** is correct

Options :

43244971025. 1

43244971026. 2

43244971027. 3

43244971028. 4

Question Number : 33 Question Id : 43244918129 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : TCP uses sequence numbers to ensure reliable, in-order delivery of data segment.

Reason (R) : Sequence number helps detect packet duplication and reordering in transmission.

In the light of the above statements, choose the **most appropriate answer** from the options given below :

(1) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(2) Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

(3) **(A)** is correct but **(R)** is not correct

(4) **(A)** is not correct but **(R)** is correct

Options :

43244971029. 1

43244971030. 2

43244971031. 3

43244971032. 4

Question Number : 34 Question Id : 43244918130 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : TCP provides reliable, in-order delivery of data segments using sequence numbers.

Reason (R) : TCP ensures security and confidentiality of transmitted data.

In the light of the above statements, choose the **most appropriate answer** from the options given below :

(1) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(2) Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

(3) **(A)** is correct but **(R)** is not correct

(4) **(A)** is not correct but **(R)** is correct

Options :

43244971033. 1

43244971034. 2

43244971035. 3

43244971036. 4

Question Number : 35 Question Id : 43244918131 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : In a synchronous counter, all flip flops toggle simultaneously.

Reason (R) : All flip flops share the same clock signal.

In the light of the above statements, choose the **most appropriate answer** from the options given below :

(1) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(2) Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

(3) **(A)** is correct but **(R)** is not correct

(4) **(A)** is not correct but **(R)** is correct

Options :

43244971037. 1

43244971038. 2

43244971039. 3

43244971040. 4

Question Number : 36 Question Id : 43244918132 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : During memory interfacing, address decoding is required to select the desired memory chip.

Reason (R) : Each memory chip has unique address range that must be enabled using chip select signals.

In the light of the above statements, choose the **most appropriate answer** from the options given below :

(1) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(2) Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

(3) **(A)** is correct but **(R)** is not correct

(4) **(A)** is not correct but **(R)** is correct

Options :

43244971041. 1

43244971042. 2

43244971043. 3

43244971044. 4

Question Number : 37 Question Id : 43244918133 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : Prim's and Kruskal's algorithms always produce the same minimum total weight spanning tree for a given connected, weighted graph.

Reason (R) : Both algorithms use same greedy properties of choosing the minimum weight edge at each step.

In the light of the above statements, choose the **most appropriate answer** from the options given below :

(1) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(2) Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

(3) **(A)** is correct but **(R)** is not correct

(4) **(A)** is not correct but **(R)** is correct

Options :

43244971045. 1

43244971046. 2

43244971047. 3

43244971048. 4

Question Number : 38 Question Id : 43244918134 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : Every function is a relation.

Reason (R) : A function can be one to many.

In the light of the above statements, choose the **most appropriate answer** from the options given below :

(1) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(2) Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

(3) **(A)** is correct but **(R)** is not correct

(4) **(A)** is not correct but **(R)** is correct

Options :

43244971049. 1

43244971050. 2

43244971051. 3

43244971052. 4

Question Number : 39 Question Id : 43244918135 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : ++*ptr in C increments the value pointed by ptr.

Reason (R) : ptr is a pointer.

In the light of the above statements, choose the **most appropriate answer** from the options given below :

(1) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

(2) Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

(3) **(A)** is correct but **(R)** is not correct

(4) **(A)** is not correct but **(R)** is correct

Options :

43244971053. 1

43244971054. 2

43244971055. 3

43244971056. 4

Question Number : 40 Question Id : 43244918136 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The attributes in IPsec for Authentication Header protocol in transport mode from left to right are :

A. IPsec header

B. Padding

C. Authentication header

D. Rest of original packet

Choose the **correct** answer from the options given below :

(1) D, C, A, B

(2) A, C, D, B

(3) D, C, B, A

(4) A, C, B, D

Options :

43244971057. 1
43244971058. 2
43244971059. 3
43244971060. 4

Question Number : 41 Question Id : 43244918137 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following automata in increasing processing power :

A. Linear bounded automata
B. Turing machine
C. Finite automata
D. Pushdown automata

Choose the **correct** answer from the options given below :

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

Options :

43244971061. 1
43244971062. 2
43244971063. 3
43244971064. 4

Question Number : 42 Question Id : 43244918138 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the historic perspective of AI in terms of year of their development in increasing year :

A. Turing test
B. Expert systems
C. Perceptron
D. Analytical Engine

Choose the **correct** answer from the options given below :

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

Options :

43244971065. 1
43244971066. 2
43244971067. 3
43244971068. 4

Question Number : 43 Question Id : 43244918139 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A process is organised in the memory from bottom to top ordering the following in correct order :

A. stack

B. text

C. data

D. heap

Choose the **correct** answer from the options given below :

(1) B, C, D, A

(2) B, D, C, A

(3) A, C, D, B

(4) A, D, C, B

Options :

43244971069. 1

43244971070. 2

43244971071. 3

43244971072. 4

Question Number : 44 Question Id : 43244918140 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange 5 stage instruction pipeline operation in **correct** order :

A. Instruction Fetch

B. Instruction Decode / Register Fetch

C. Execute / ALU operation

D. Memory access

E. Write Back

Choose the **correct** answer from the options given below :

(1) A, C, B, E, D

(2) A, B, D, C, E

(3) B, A, C, D, E

(4) A, B, C, D, E

Options :

43244971073. 1

43244971074. 2

43244971075. 3

43244971076. 4

Question Number : 45 Question Id : 43244918141 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the number of symbols in data representation in increasing order :

A. Binary

B. Hexadecimal

C. Octal

D. Penta (radix 5)

Choose the **correct** answer from the options given below :

(1) A, D, C, B

(2) B, C, A, D

(3) A, D, B, C

(4) B, C, D, A

Options :

43244971077. 1

43244971078. 2

43244971079. 3

43244971080. 4

Question Number : 46 Question Id : 43244918142 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following recurrence relations. Their solutions have complexity in increasing order :

A. $T(n) = 2(\lfloor \frac{n}{2} \rfloor) + T(\lceil \frac{n}{2} \rceil) + 1$

B. $T(n) = T(n-1) + n$

C. $T(n) = T(\lceil \frac{n}{2} \rceil) + 1$

D. $T(n) = 2T(\lfloor \frac{n}{2} \rfloor) + n$

Choose the **correct** answer from the options given below :

(1) C, D, A, B

(2) B, A, D, C

(3) C, A, D, B

(4) B, D, C, A

Options :

43244971081. 1

43244971082. 2

43244971083. 3

43244971084. 4

Question Number : 47 Question Id : 43244918143 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let G be finite set, which is a group under some operation and H be a subgroup and a ϵ H. Considering their order / cardinality in increasing order :

A. O (G)

B. O (a)

C. O (H)

D. Card (2^G)

Choose the **correct** answer from the options given below :

(1) B, C, A, D

(2) D, B, C, A

(3) D, B, A, C

(4) B, C, D, A

Options :

43244971085. 1

43244971086. 2

43244971087. 3

43244971088. 4

Question Number : 48 Question Id : 43244918144 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following steps of a data science workflow to be arranged in correct order :

A. Data preprocessing
B. Model building
C. Data collection
D. Data visualization and interpretation
E. Model evaluation

Choose the **correct** answer from the options given below :

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

Options :

43244971089. 1
43244971090. 2
43244971091. 3
43244971092. 4

Question Number : 49 Question Id : 43244918145 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following statements in C to write a program in their order of occurrence :

A. Printf("%d", i);
B. void main ( )
C. int i=5;
D. #include <stdio.h>

Choose the **correct** answer from the options given below :

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

Options :

43244971093. 1
43244971094. 2
43244971095. 3
43244971096. 4

Question Number : 50 Question Id : 43244918146 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the flags in flag Register from left to right :

A. S

B. Z

C. AC

D. P

E. CY

Choose the **correct** answer from the options given below :

(1) A, B, C, D, E

(2) A, B, D, C, E

(3) C, D, E, A, B

(4) C, D, A, B, E

Options :

43244971097. 1

43244971098. 2

43244971099. 3

43244971100. 4

Question Number : 51 Question Id : 43244918147 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the 802.3 MAC frame fields from left to right :

A. Preamble

B. Source address

C. SFD

D. Destination address

Choose the **correct** answer from the options given below :

(1) A, C, D, B

(2) A, C, B, D

(3) D, B, C, A

(4) B, D, C, A

Options :

43244971101. 1

43244971102. 2

43244971103. 3

43244971104. 4

Question Number : 52 Question Id : 43244918148 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following statements :

A. Membership problem is decidable for regular and CFL languages.

B. Emptiness problem is undecidable for RE languages

C. Finiteness problem is decidable for regular languages

D. Equivalence problem is decidable for context-free and RE languages

Choose the **correct** answer from the options given below :

(1) A, B, C only

(2) B, C, D only

(3) C, D, A only

(4) A, B only

Options :

43244971105. 1

43244971106. 2

43244971107. 3

43244971108. 4

Question Number : 53 Question Id : 43244918149 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Some Scientists, well known in AI domain have given AI definitions :

A. The Science and Engineering of making intelligent machines, especially intelligent computer programs.

B. The study of mental faculties through the use of computational models.

C. The field of study that seeks to explain and emulate intelligent behaviour in terms of computational.

D. The study of how to make computer do things at which, at a moment, people are better.

E. The study and analyses of computing theory.

Choose the **correct** answer from the options given below :

(1) A, B, C, D only

(2) B, C, D, E only

(3) C, E, A only

(4) E, A, B only

Options :

43244971109. 1

43244971110. 2

43244971111. 3

43244971112. 4

Question Number : 54 Question Id : 43244918150 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following statements about CPU scheduling :

A. First come, first serve can lead to the "convoy effect"

B. Shortest job first minimizes average waiting time

C. Round robin does not use time quantum for fairness

D. Priority scheduling may cause starvation

E. Multilevel feedback queue combines preemptive and non preemptive scheduling

Choose the **correct** answer from the options given below :

(1) A, B, C, E only

(2) B, C, D, E only

(3) A, B, D, E only

(4) A, C, D only

Options :

43244971113. 1

43244971114. 2

43244971115. 3

43244971116. 4

Question Number : 55 Question Id : 43244918151 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following statements about bus arbitration schemes :

A. Daisy chaining is simple but slow

B. Parallel priority arbitration provides faster response than serial methods

C. Distributed arbitration allows multiple masters to share bus control

D. Centralized arbitration increases fairness

Choose the **correct** answer from the options given below :

(1) A, C, D only

(2) A, B, C only

(3) B, C, D only

(4) A, B, D only

Options :

43244971117. 1

43244971118. 2

43244971119. 3

43244971120. 4

Question Number : 56 Question Id : 43244918152 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following statements about flow and error control :

A. Go-Back-N retransmits only the frame that is lost

B. Selective Repeat improves the bandwidth utilization over Go-Back-N

C. Parity bits can detect all single-bit errors

D. Stop and wait protocol achieves high channel utilization on long-delay networks

E. Cyclic Redundancy check provides stronger error detection than single parity

Choose the **correct** answer from the options given below :

(1) A, B, E only

(2) A, C, D only

(3) B, C, D only

(4) B, C, E only

Options :

43244971121. 1

43244971122. 2

43244971123. 3

43244971124. 4

Question Number : 57 Question Id : 43244918153 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following statements about symmetric encryption :

A. Same key for encryption and decryption

B. Faster than asymmetric encryption

C. Key distribution is simpler

D. Stream ciphers encrypt one bit / byte at a time

E. Block ciphers operate on groups of bits

Choose the **correct** answer from the options given below :

(1) A, B, C, E only

(2) B, C, D only

(3) A, C, D, E only

(4) A, B, D, E only

Options :

43244971125. 1

43244971126. 2

43244971127. 3

43244971128. 4

Question Number : 58 Question Id : 43244918154 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider following numbers :

A. $(1101.01)_2 = (13.25)_{10}$

B. $(13.28)_{10} = (1101.011)_2$

C. $(2A)_{16} = (42)_{10}$

D. $(37)_8 = (11010)_2$

Choose the **correct** answer from the options given below :

(1) A, B, C only

(2) B, D only

(3) C, D only

(4) A, C only

Options :

43244971129. 1

43244971130. 2

43244971131. 3

43244971132. 4

Question Number : 59 Question Id : 43244918155 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following statements :

A. MOV A, M copies data from memory (pointed by HL) to accumulator

B. LXI H, 2025H loads 2025H into register pair HL

C. STA 2050H stores the accumulator content into memory at address 2050H

D. LDA 2050H loads HL with the contents of memory location at 2050H

Choose the **correct** answer from the options given below :

(1) A, B, C only

(2) B, C, D only

(3) A, D only

(4) A, C, D only

Options :

43244971133. 1

43244971134. 2

43244971135. 3

43244971136. 4

Question Number : 60 Question Id : 43244918156 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider following statements about time complexity :

A. Merge sort and heap sort have O (n log n) in worst case

B. Quick sort has O (n log n) in average case and O (n^2) in worst case

C. Insertion sort is faster than merge sort for large n

D. Bubble sort is stable

E. Selection sort has fewer swap than insertion sort

Choose the **correct** answer from the options given below :

(1) B, C, E only

(2) A, C, D only

(3) A, B, C only

(4) A, B, D, E only

Options :

43244971137. 1

43244971138. 2

43244971139. 3

43244971140. 4

Question Number : 61 Question Id : 43244918157 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider a binary operation $*$ on set Z (set of integers) defined as $a * b = a + b + 1$ then :

A. $*$ is commutative

B. $*$ is associative

C. Identity element under $*$ exists

D. Every element has an inverse under $*$

E. The structure $(Z, *)$ is not a group

Choose the **correct** answer from the options given below :

(1) A, B, E only

(2) B, D, E only

(3) A, C, D, E only

(4) A, B, C, D only

Options :

43244971141. 1

43244971142. 2

43244971143. 3

43244971144. 4

Question Number : 62 Question Id : 43244918158 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider following statements :

A. Regression predicts categorical outcomes.

B. Classification models are used for continuous variable prediction.

C. Clustering is an unsupervised learning task.

D. Reinforcement learning uses rewards and penalties to improve performance.

E. Decision tree can be used for both classification and regression

Choose the **correct** answer from the options given below :

(1) A, B, E only

(2) A, C, D only

(3) C, D, E only

(4) B, C, E only

Options :

43244971145. 1

43244971146. 2

43244971147. 3

43244971148. 4

Question Number : 63 Question Id : 43244918159 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following statements :

A. In a binary search tree, left sub tree has smaller value than right sub tree

B. In doubly linked list, only forward traversal is possible

C. In C, a function may not always return a value

D. Two dim array requires two index variables

E. A tree must have at least two nodes

Choose the **correct** answer from the options given below :

(1) A, B, C only

(2) B, A, D only

(3) C, D, E only

(4) D, C, A only

Options :

43244971149. 1

43244971150. 2

43244971151. 3

43244971152. 4

Question Number : 64 Question Id : 43244918160 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	Cook's Theorem	I.	The Boolean satisfiability problem (SAT) is NP complete
B.	Pumping lemma for regular languages	II.	Used to prove non-regularity of certain languages
C.	Closure under complementation	III.	Fails for context free language
D.	Non-deterministic pushdown automata	IV.	Recognises all context - free languages

Choose the **correct** answer from the options given below :

(1) A-I, B-II, C-III, D-IV

(2) A-II, B-I, C-III, D-IV

(3) A-III, B-II, C-IV, D-I

(4) A-IV, B-III, C-II, D-I

Options :

43244971153. 1

43244971154. 2

43244971155. 3

43244971156. 4

Question Number : 65 Question Id : 43244918161 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	Modularity	I.	Bounded rationality
B.	Representation	II.	Offline
C.	Computational limits	III.	Flat
D.	Interaction	IV.	Features

Choose the **correct** answer from the options given below :

(1) A-I, B-III, C-IV, D-II

(2) A-I, B-II, C-IV, D-III

(3) A-III, B-IV, C-I, D-II

(4) A-III, B-IV, C-II, D-I

Options :

43244971157. 1

43244971158. 2

43244971159. 3

43244971160. 4

Question Number : 66 Question Id : 43244918162 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	Deadlock prevention	I.	Banker's algorithm
B.	Deadlock detection	II.	Rollbock
C.	Deadlock avoidance	III.	Circular wait
D.	Recovery from deadlock	IV.	High overheads

Choose the **correct** answer from the options given below :

(1) A-III, B-IV, C-II, D-I

(2) A-I, B-III, C-II, D-IV

(3) A-I, B-III, C-IV, D-II

(4) A-III, B-IV, C-I, D-II

Options :

43244971161. 1

43244971162. 2

43244971163. 3

43244971164. 4

Question Number : 67 Question Id : 43244918163 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	Pipeline bubble	I.	A deliberate delay or idle slot inserted in pipeline
B.	Pipeline flush	II.	Clearing all in progress instructions
C.	Data forwarding	III.	Using result before it is written back
D.	Pipeline stall	IV.	Holding stages due to dependency or resource conflict

Choose the **correct** answer from the options given below :

(1) A-I, B-II, C-III, D-IV

(2) A-II, B-I, C-III, D-IV

(3) A-IV, B-I, C-II, D-III

(4) A-IV, B-III, C-II, D-I

Options :

43244971165. 1

43244971166. 2

43244971167. 3

43244971168. 4

Question Number : 68 Question Id : 43244918164 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	Ethernet	I.	Uses token passing and deterministic access
B.	Token ring	II.	Uses CSMA/CD for medium access
C.	Wi-Fi (802.11)	III.	Uses CSMA/CA to avoid collusion
D.	Bluetooth	IV.	IEEE 802.15.1

Choose the **correct** answer from the options given below :

(1) A-II, B-I, C-III, D-IV

(2) A-II, B-III, C-I, D-IV

(3) A-IV, B-II, C-III, D-I

(4) A-I, B-II, C-III, D-IV

Options :

43244971169. 1

43244971170. 2

43244971171. 3

43244971172. 4

Question Number : 69 Question Id : 43244918165 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	Caesar Cipher	I.	Substitution cipher using 5×5 matrix
B.	Playfair Cipher	II.	Polyalphabetic cipher using matrix multiplication
C.	Hill Cipher	III.	Monoalphabetic cipher using fixed shift
D.	Vigenere Cipher	IV.	Polyalphabetic cipher using keyboard repetition

Choose the **correct** answer from the options given below :

(1) A-III, B-I, C-IV, D-II

(2) A-III, B-I, C-II, D-IV

(3) A-II, B-III, C-I, D-IV

(4) A-III, B-IV, C-I, D-II

Options :

43244971173. 1

43244971174. 2

43244971175. 3

43244971176. 4

Question Number : 70 Question Id : 43244918166 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	$x\ (x' + y)$	I.	$xy + x'z$
B.	$x'y'z + x'yz + xy'$	II.	$(x + y)\ (x' + z)$
C.	$xy + x'z + yz$	III.	xy
D.	$(x + y)\ (x' + z)\ (y + z)$	IV.	$x'z + xy'$

Choose the **correct** answer from the options given below :

(1) A-III, B-IV, C-I, D-II

(2) A-I, B-III, C-II, D-IV

(3) A-III, B-IV, C-II, D-I

(4) A-I, B-III, C-IV, D-II

Options :

43244971177. 1

43244971178. 2

43244971179. 3

43244971180. 4

Question Number : 71 Question Id : 43244918167 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	Machine cycle	I.	Time required to complete one operation (Fetch/read/write)
B.	T-state	II.	One subdivision of a machine cycle
C.	Instruction cycle	III.	Time required to complete one instruction
D.	Opcode fetch	IV.	Machine cycle to get instruction opcode from memory

Choose the **correct** answer from the options given below :

(1) A-II, B-III, C-IV, D-I

(2) A-III, B-IV, C-I, D-II

(3) A-IV, B-III, C-II, D-I

(4) A-I, B-II, C-III, D-IV

Options :

43244971181. 1

43244971182. 2

43244971183. 3

43244971184. 4

Question Number : 72 Question Id : 43244918168 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	Binary search	I.	Queue
B.	Merge sort	II.	Stack
C.	Depth first search	III.	$T(n) = 2T(n/2) + n$
D.	Breadth first search	IV.	$T(n) = T(n/2) + 1$

Choose the **correct** answer from the options given below :

(1) A-III, B-IV, C-I, D-II

(2) A-I, B-II, C-III, D-IV

(3) A-IV, B-III, C-II, D-I

(4) A-II, B-IV, C-III, D-I

Options :

43244971185. 1

43244971186. 2

43244971187. 3

43244971188. 4

Question Number : 73 Question Id : 43244918169 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	Injective function	I.	$f(x) = x^2$ on $\mathbb{R}$
B.	Surjective function	II.	$f(x) = 2x + 3$ on $\mathbb{R}$
C.	Bijective function	III.	$f(x) = x^3$ on $\mathbb{R}$
D.	non-injective and non-surjective	IV.	Every element of a codomain has a preimage

Choose the **correct** answer from the options given below :

(1) A-I, B-III, C-II, D-IV

(2) A-III, B-I, C-IV, D-II

(3) A-II, B-IV, C-III, D-I

(4) A-II, B-IV, C-I, D-III

Options :

43244971189. 1

43244971190. 2

43244971191. 3

43244971192. 4

Question Number : 74 Question Id : 43244918170 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	Structured data	I.	tweet, text documents, videos
B.	Unstructured data	II.	sensor reading, temperature logs
C.	Semi-structured data	III.	JSON, XML, web log files
D.	Time-series data	IV.	Tabular data with defined schema

Choose the **correct** answer from the options given below :

(1) A-IV, B-I, C-III, D-II

(2) A-IV, B-III, C-I, D-II

(3) A-IV, B-II, C-I, D-III

(4) A-I, B-IV, C-III, D-II

Options :

43244971193. 1

43244971194. 2

43244971195. 3

43244971196. 4

Question Number : 75 Question Id : 43244918171 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match **List - I** with **List - II**.

	List - I		**List - II**
A.	typedef in C	I.	modifies the memory allocated to a variable
B.	enum in C	II.	stores memory address
C.	type casting	III.	is similar to struct
D.	pointer	IV.	redefines the name of existing data types

Choose the **correct** answer from the options given below :

(1) A-IV, B-III, C-II, D-I

(2) A-III, B-IV, C-I, D-II

(3) A-III, B-IV, C-II, D-I

(4) A-IV, B-III, C-I, D-II

Options :

43244971197. 1

43244971198. 2

43244971199. 3

43244971200. 4