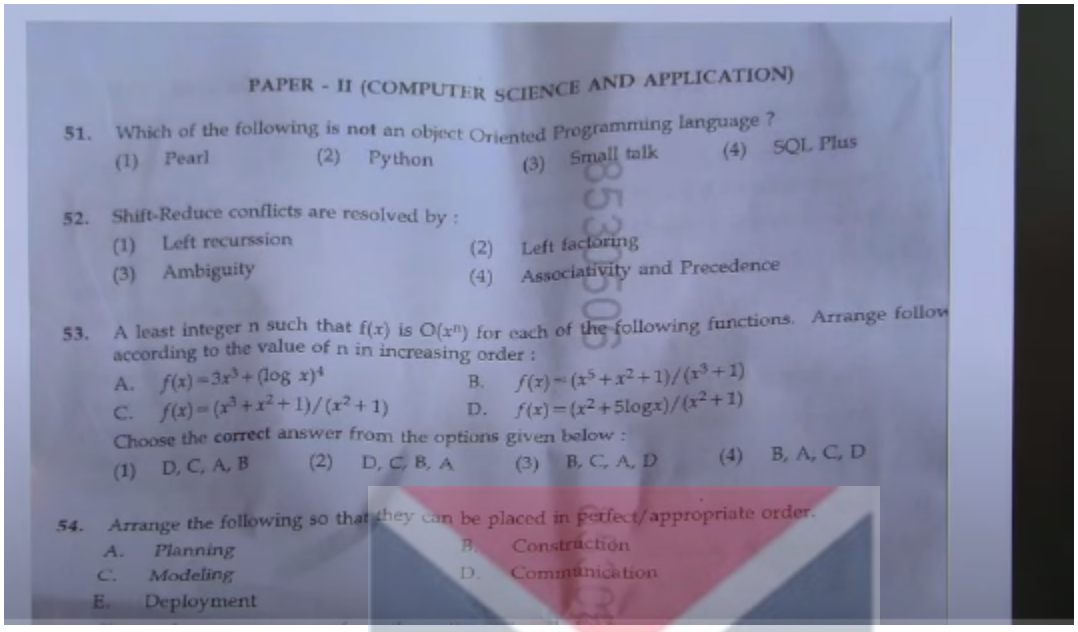
UGC NET June 2024 Computer Science Question Paper (Unofficial)



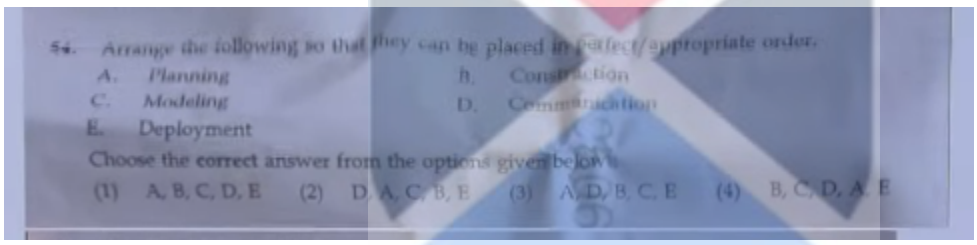
PAPER - II (COMPUTER SCIENCE AND APPLICATION)

51. Which of the following is not an object Oriented Programming language ?
(1) Pearl (2) Python (3) Small talk (4) SQL Plus

52. Shift-Reduce conflicts are resolved by :
(1) Left recurssion (2) Left factoring
(3) Ambiguity (4) Associativity and Precedence

53. A least integer n such that $f(x)$ is $O(x^n)$ for each of the following functions. Arrange follow according to the value of n in increasing order :
A. $f(x)=3x^3+(\log x)^4$ B. $f(x)=(x^5+x^2+1)/(x^3+1)$
C. $f(x)=(x^3+x^2+1)/(x^2+1)$ D. $f(x)=(x^2+5\log x)/(x^2+1)$
Choose the correct answer from the options given below :
(1) D, C, A, B (2) D, C, B, A (3) B, C, A, D (4) B, A, C, D

54. Arrange the following so that they can be placed in perfect/appropriate order.
A. Planning B. Construction
C. Modeling D. Communication
E. Deployment



54. Arrange the following so that they can be placed in perfect/appropriate order.
A. Planning B. Construction
C. Modeling D. Communication
E. Deployment
Choose the correct answer from the options given below :
(1) A, B, C, D, E (2) D, A, C, B, E (3) A, D, B, C, E (4) B, C, D, A, E

55. Match List-I with List-II :

List - I		List - II	
A.	$A \rightarrow aB \mid a,\ a \in T,\ A, B \in V$	I.	Recursive Descent Parser
B.	$A \rightarrow BC \mid a,\ a \in T,\ A, B, C \in V$	II.	Turing Machine
C.	LL (1) grammar	III.	Choamsky Normal Form
D.	Halting problem	IV.	Finite Automate

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

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

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

56. What is a perceptron in ANN ?

(1) A double layer auto-associative neural network.

(2) A neural network that contains feedback.

(3) An auto-associative neural network.

(4) A single layer feed-forward neural network with pre-processing

57. Arrange the following examples of Artificial Intelligence (AI) in the order of increasing complexity :

A. Spam email detection using rule-based systems.

B. Handwritten digit recognition using shallow neural networks.

C. Image classification using convolutional neural networks.

D. Autonomous driving using reinforcement learning algorithms.

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

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

58. Match List-I with List-II :

List - I **Line coding scheme**		List - II **Bandwidth (average)**	
A.	NRZ-L	I.	$B = N/4$
B.	2 B1Q	II.	$B = N/8$
C.	4.D-PAM 5	III.	$B = N/3$
D.	MLT-3	IV.	$B = N/2$

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

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

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

66. The height of a binary search tree for the words banana, peach, apple, pear, coconut, mango and papaya using alphabetical order is ?

(1) 2 (2) 3 (3) 4 (4) 5

67. Match List-I with List-II :

List - I	List - II
A. Batch Multiprogramming	I. allows more efficient use of main memory
B. Time sharing	II. user no longer has direct access to the processor
C. Monitor	III. Maximize processor use
D. Reentrant Procedures	IV. minimize response time

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

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

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

68. Which of the following is the function of the semantic analysis phase of compilation process ?

(1) Type conversion (2) Tokenization

(3) Loop optimization (4) Data flow Analysis

[illegible] and context free languages which is not correct ?

69. For the regular languages and context free languages which is not correct ?

A. both are closed under union operation

B. both are closed under concatenation operation

C. both are closed under intersection operation

D. both are closed under complementation operation

E. both are closed under kleen star operation

Choose the **most appropriate** answer from the options given below :

(1) A and B Only (2) B and C Only

(3) C and D Only (4) D and E only

70. Match List-I with List-II :

List - I	List - II
A. Back Tracking	I. Automata
B. Infinite languages with matching numbers	II. Undecidable Problem
C. Canonical LR Parser	III. Predictive Parser
D. Post Correspondence Problem	IV. Large number of states

Choose the correct answer from the options given below :

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

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

71. The output of the following C++ Program is :

```
#include <stdio.h>
int main (void)
{
    int x, *p;
    x = 30;
    p = x;
    print f ("%d", *p);
    return 0;
}
```

(1) 30 (2) value of x (3) address of x (4) Error

72. Which of the following have truth values if universe of discourse consists of all integers ?

A. $n \exists m\ (n^2<m)$ B. $\exists n\, m\ (n<m^2)$

C. $\exists n \exists m\ (n^2+m^2=5)$ D. $\exists n \exists m\ (n^2+m^2=6)$

E. $\exists n \exists m\ (m+n=4 \wedge n-m=1)$

Choose the correct answer from the options given below :

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

73. Multiple Inheritance is permitted directly in.....

A. C++ B. Java

C. Python D. VB.NET

E. BASIC

Choose the **most appropriate** answer from the options given below :

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

X

75. Match List-I with List-II :

List - I		List - II
A.	RAID level-2	I. block-interleaved
B.	RAID level-3	II. error-correcting-code
C.	RAID level-4	III. reed-solomon codes
D.	RAID level-6	IV. bit-interleaved

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

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

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

78. Which of the following is the Markup language ?

A. HTML B. XML C. DHTML D. LML E. PM

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

(1) B, C, D Only (2) A, C, D Only

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

79. Which of the followings are type of interface in an ATM network ?

A. user-to-user B. user-to-network C. network-to-network

D. host-to-network E. user-to-host

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

(1) A and B Only (2) B and C Only (3) C and D Only (4) D and E Only

80. For the fuzzy set $A = \{(x_1, 0.3), (x_2, 0.7), (x_3, 0.4)\}$, the complement of A would be represented as :

(1) $\{(x_1, 0.4), (x_2, 0.3), (x_3, 0.1)\}$ (2) $\{(x_1, 0.3), (x_2, 0.7), (x_3, 0.4)\}$

(3) $\{(x_1, 0.7), (x_2, 0.3), (x_3, 0.6)\}$ (4) $\{(x_1, 0.21), (x_2, 0.28), (x_3, 0.12)\}$

81. The instructions

ADD R_1, A, B

ADD R_2, C, D

MUL X, R_1, R_2

evaluates the $X = (A + B)*(C + D)$ in which of the following ?

(1) 3 - Address instructions (2) 2 - Address instructions

(3) 1 - Address instructions (4) RISC instructions

(1) A and B Only (2) B and C Only

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(3) $\{(x_1, 0.7), (x_2, 0.3), (x_3, 0.6)\}$ (4) $\{(x_1, 0.21), (x_2, 0.28), (x_3, 0.12)\}$

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(3) 1 - Address instructions (4) RISC instructions

82. An ambiguous grammar is one which has :

A. More than one derivations

B. More than one left most derivations

C. More than one right most derivations

D. More than one Parse tree

E. More than one syntax tree

Choose the correct answer fro

82. An ambiguous grammar is one which has :

A. More than one derivations

B. More than one left most derivations

C. More than one right most derivations

D. More than one Parse tree

E. More than one syntax tree

Choose the correct answer from the options given below :

(1) A and D Only (2) B and C Only (3) D and E Only (4) A and E Only

83. Back propagation is a learning technique that adjusts weights in the neural network by propa weight changes :

(1) Forward from source to hidden nodes

(2) Backward from sink to source

(3) Forward from source to sink

(4) Backward from sink to hidden nodes

84. The Boolean expression for the following would be

F(A, B, C) = Σ(0, 2, 6)

d(A, B, C) = Σ(1, 3, 5)

(1) $A'C' + BC'$ (2) $B + AC'$ (3) $A + BC'$ (4) $A' + BC'$

85. Arrange the following in correct order, so that they can follow a proper run time environment :

A. Programming statement
B. Compilation
C. Memory allocation
D. Type of variable
E. Memory deallocation

Choose the correct answer from the options given below :

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

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

86. A computer system with cache access time of 100 ns, a main memory access time of 1100 ns, and a hit ratio of 0.9, then average access time would be :

(1) 200 ns (2) 190 ns (3) 210 ns (4) 120 ns

87. An IPv4 packet has arrived with the first few hexadecimal digits as shown below. How many hops can this packet travel before being dropped ? The data belong to what upper-layer protocol?

(5 4 0 0 0 0 18 0 0 1 0 0 1 1 0 0 4 0 6 0 1 . . . . .)16

hops, UDP

88. Arrange the following simple graphs based on number of spanning tree they have :

A. K_3 [Complete Graph with 3 nodes]

B. K_4 [Complete Graph with 4 nodes]

C. $K_{2,2}$ (Complete bipartite graph of the 2 nodes in each partition)

D. C_5 (Cycle graph of 5 nodes)

Choose the correct answer from the options given below :

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

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

89. Match List-I with List-II :

List - I		List - II
A. Channelization protocol	I.	ALOHA
B. Bit-oriented protocol	II.	TDMA
C. Random-access protocol	III.	Reservation
D. Controlled-access protocol	IV.	HDLC

Choose the correct answer from the options given below :

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

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

90. What is the total delay (latency) for a frame size of 10 million bits that is being set up on a link with 20 routers, each having a queuing time of 2 μs and a processing time of 1 μs ? The length of link 5000 km. The speed of light inside the link is 2×10^8 m/s. The link has bandwidth of 6 Mbps.

(1) 0.624050 s. (2) 1.691726 s. (3) 2.425080 s. (4) 1.714030 s.

91. How much time does an algorithm using 2^{50} bit operations need if each bit operation takes 2^{-38} second of time ?

(1) 1 hour (2) 10 minutes (3) 30 minutes (4) 1.5 hour

92. Match List - I with List - II.

List - I	List - II
Boolean Expression	Dual of Boolean Expression

93. A bit string of length four is generated at random. What is probability that it contains at least tw consecutive 0's given that first bit is 0 ?

(1) $\frac{1}{2}$ (2) $\frac{5}{16}$ (3) $\frac{5}{8}$ (4) $\frac{1}{4}$

94. Services provided by point-to-point protocol (PPP) :

A. frame format
B. establishment of the link
C. flow control
D. sequence numbering
E. authentication

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

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

95. Which of the following is/are true in case of tree locking ?

A. It ensures shorter waiting times.
B. It ensures freedom from deadlock.
C. Transaction can lock data items earlier.
D. It does not ensure greater amount of concurrency.

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

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

96. Arrange the following sets in increasing order, on the basis of their cardinality :

A. $A_1 = \{\{1, 2\}, \{3\}\}$
B. $A_2 = \{\{1\}, \{2\}, \{3\}, \{4\}\}$
C. $A_3 = \{\{1, 2, 3, 4, 5, 6\}\}$
D. $A_4 = \{\{1, 2\}, \{2, 3, 4\}, \{5\}\}$
E. $A_5 = \{\{1\}, \{2\}, \{3\}, \{4\}, \{5\}\}$

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

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

97. The Cardinality of a fuzzy set is :

(1) 0 (2) finite (3) infinite (4) not known

98. Which of the following is not the goal of reverse Engineering ?

(1) Cope with complexity
(2) Recover lost information
(3) Detect side effect
(4) Data flow

99. The chairs of an auditorium are to be labelled with a letter followed by a positive two digits integer where labelling is starting with A01. How many maximum possible chair could be labelled in this way ?

(1) 2600 (2) 2574 (3) 2340 (4) 2366

100. Arrange in appropriate order, the construction of a finite automata :

A. Minimum State DFA
B. Regular Expression
C. NFA-ε
D. Problem Statement
E. DFA

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

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

101. Lower-triangular sparse matrix is one :

(1) in which all the non-zero elements lie only on the leading diagonal.
(2) in which all the non-zero elements lie above leading diagonal.
(3) in which all the non-zero elements lie below leading diagonal.
(4) which is not defined for sparse matrix.

102. The following code :

stmt → if expr then stmt else stmt
| if expr then stmt

suffers from :

(1) Ambiguity (2) Left factoring (3) Left Recurssion (4) λ-moves

103. Which of the following is **not** correct about the virtual memory segmentation ?

(1) It is not necessary to load all of the segments of a process.
(2) It has no internal fragmentation.
(3) It has large virtual address space.
(4) It provides lower degree of multiprogramming.

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

List - I	List - II
A. Union	I. Virtual Reality
B. Function	II. Shadow mask
C. Interactive Environment	III. Subroutine
D. Output device	IV. User defined data type

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

(1) A-IV, B-III, C-I, D-II (2) A-IV, B-II, C-III, D-I
(3) A-II, B-IV, C-I, D-III (4) A-I, B-III, C-IV, D-II

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

107. Which of the following is **not** a characteristics of a specialized embedded OS ?
(1) real time scheduling policy.
(2) responds to external interrupts
(3) provides special non-sequential files.
(4) provides fixed or variable sized partitions.

108. What will be the order of the following fields in a frame relay 'frame format' ?
A. Flag B. FCS C. address D. information
Choose the **correct** answer from the options given below :
(1) A, C, D, B (2) D, A, C, D (3) C, B, A, D (4) A, B, D, C

109. The techniques used to handle the phantom problem are _____.
A. Time stamping B. Index locking
C. Predicate locking D. Execution indexing
Choose the **correct** answer from the options given below :
(1) A and B Only (2) B and C Only (3) A and D Only (4) C and D Only

110. The sequence of fields is an IP datagram will be :
A. flags B. options C. Protocol
D. Identification E. Service type
Choose the **correct** answer from the options given below :
(1) E, D, A, C, B (2) D, A, B, C, E (3) D, E, C, B, A (4) E, C, D, A, B

112. IP is responsible for _____ communication while TCP is responsible for _____ communication.
(1) Node-to-node, Host-to-host (2) Process-to-process, Host-to-host
(3) Socket-to-socket, Host-to-node (4) Host-to-Host, Process-to-process

113. Arrange the steps of Mathematical Modeling :
A. Solution fitting with data
B. Formulation Mathematically
C. Solve Mathematically
D. Repeat formulation if it fit worst with data
E. Interpretation results
Choose the **correct** answer from the options given below :
(1) B, C, A, D, E (2) B, A, D, C, E (3) D, A, B, C, E (4) E, D, C,

114. In windows scheduling, which of the following option is **correct** ?
(1) 4 non-real-time priorities (2) 8 non-real-time priorities
(3) 12 non-real-time priorities (4) 16 non-real-time priorities

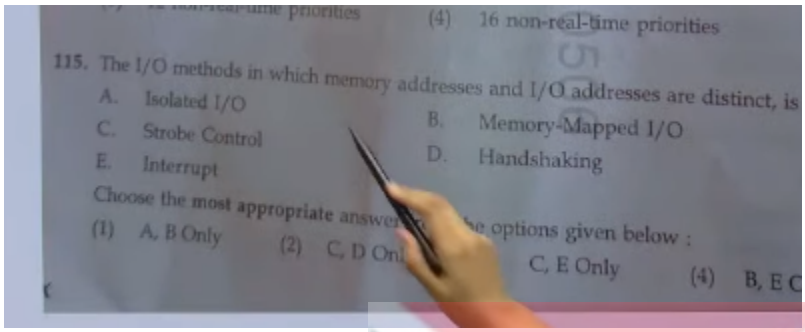
115. The I/O

115. The I/O methods in which memory addresses and I/O addresses are distinct, is called :

A. Isolated I/O
B. Memory-Mapped I/O
C. Strobe Control
D. Handshaking
E. Interrupt

Choose the most appropriate answer from the options given below :

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



121. Match List-I with List-II :

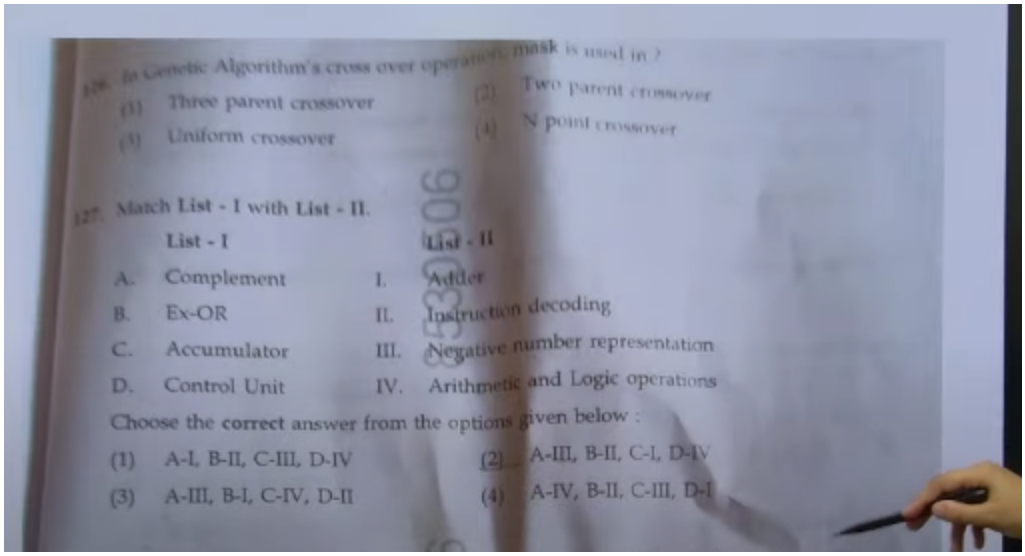
List - I	List - II
A. Verification	I. White box Testing
B. Validation	II. Black box Testing
C. Internal logic exercise	III. Quality Control
D. Software requirement exercise	IV. Quality Assurance

Choose the correct answer from the options given below :

(1) A-IV, B-III, C-I, D-II (2) A-I, B-II, C-III, D-IV
(3) A-IV, B-III, C-II, D-I (4) A-III, B-IV, C-I, D-II

122. The parameter Actual count is used in Genetic Algorithm (GA) for :

(1) Crossover (2) Mutation
(3) Selecting population (4) Encoding the Genetic Algorithm



126. In Genetic Algorithm's cross over operation, mask is used in ?

(1) Three parent crossover (2) Two parent crossover

(3) Uniform crossover (4) N point crossover

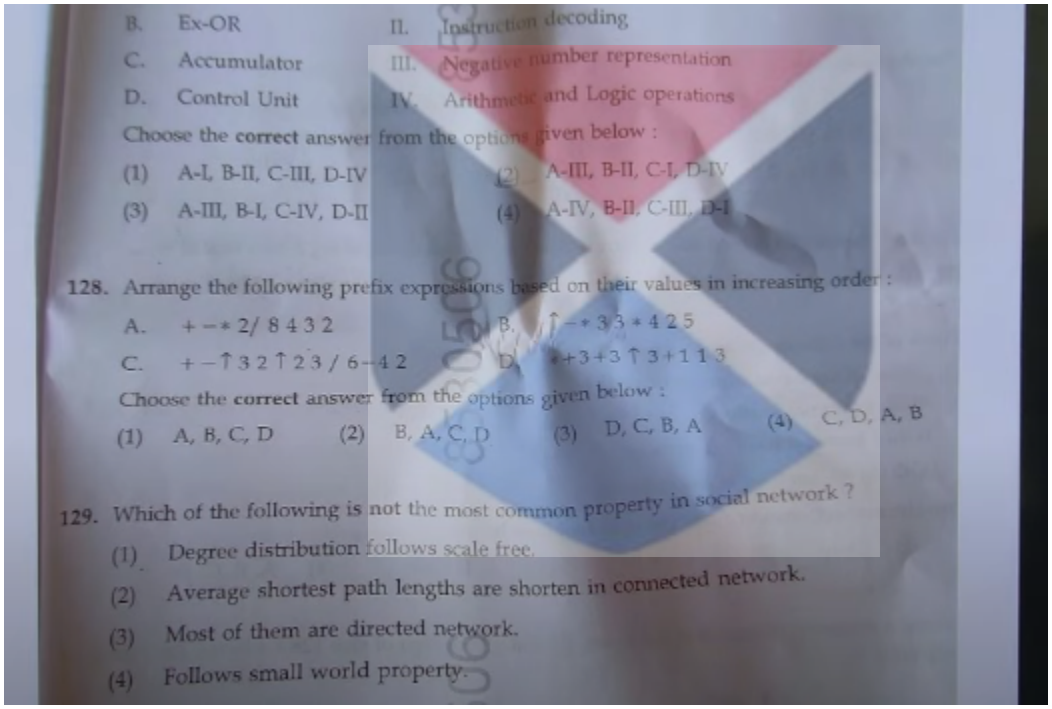
127. Match **List - I** with **List - II**.

	List - I		List - II
A.	Complement	I.	Adder
B.	Ex-OR	II.	Instruction decoding
C.	Accumulator	III.	Negative number representation
D.	Control Unit	IV.	Arithmetic and Logic operations

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

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

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



B. Ex-OR II. Instruction decoding

C. Accumulator III. Negative number representation

D. Control Unit IV. Arithmetic and Logic operations

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

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

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

128. Arrange the following prefix expressions based on their values in increasing order :

A. + − * 2 / 8 4 3 2 B. ↑ − * 3 3 * 4 2 5

C. + − ↑ 3 2 ↑ 2 3 / 6 − 4 2 D. * + 3 + 3 ↑ 3 + 1 1 3

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

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

129. Which of the following is not the most common property in social network ?

(1) Degree distribution follows scale free.

(2) Average shortest path lengths are shorten in connected network.

(3) Most of them are directed network.

(4) Follows small world property.