

मध्यप्रदेश लोक सेवा आयोग  
रेसीडेन्सी एरिया  
इन्दौर

क्रमांक-1335 / 69 / 2011 / प-9

इन्दौर दिनांक -10.03.2017

—::विज्ञप्ति::—

सूचना प्रौद्योगिकी परीक्षा-2016 के संदर्भ में अभ्यर्थियों से आयोग द्वारा जारी विज्ञप्ति क्रमांक 1324 / 69 / 2011 / 26.02.2017 के अंतर्गत प्रावधिक उत्तर कुंजी परीक्षा परिणाम बनाने के पूर्व आयोग की वेबसाईट पर दिनांक-26.02.2017 को प्रकाशित की गई थी। अभ्यर्थियों से प्राप्त ऑनलाईन अभ्यावेदनों का विषय विशेषज्ञों द्वारा परीक्षण किया गया तथा समस्त ऑनलाईन आपत्तियों का सूक्ष्म परीक्षण करने के पश्चात अनुशंसित संशोधित उत्तर कुंजी बनाई गई है। यह अंतिम उत्तर कुंजी है। इस उत्तर कुंजी के आधार पर परीक्षा परिणाम तैयार किया जा रहा है। अब किसी अभ्यावेदन पर विचार नहीं किया जायेगा। अभ्यर्थी आयोग की वेबसाईट पर अपना रोल नंबर एवं प्रवेश पत्र पर दिये गये पासवर्ड की सहायता से लॉग-इन कर अपनी रिस्पांस शीट का अवलोकन कर सकते हैं। यह विज्ञप्ति आयोग की वेबसाईट [www.mppsc.nic.in](http://www.mppsc.nic.in), [www.mppsc.com](http://www.mppsc.com) & [www.mppscdemo.in](http://www.mppscdemo.in) पर दिनांक 10.03.2017 से उपलब्ध है।



(डॉ. रवीन्द्र कान्हेरे)  
परीक्षा नियंत्रक

# Information Technology – 2016

## (Final Model Answer Key)

Q.No: 1	Which of the following algorithms is based on divide-and-conquer paradigm?
A	<b>Heapsort</b>
B	<b>Dijkstra's algorithm</b>
C	<b>Insertion sort</b>
<b>D</b>	<b>Merge sort</b>

Q.No: 2	Considering a sequence of n numbers; select the option that applies.
A	<b>Running time of quick sort algorithm in worst case is <math>O(n \log n)</math></b>
B	<b>Searching in Binary search requires <math>O(n)</math> time in worst case when the array is sorted</b>
<b>C</b>	<b>Average case running time of insertion sort is <math>\Theta(n^2)</math>.</b>
D	<b>Best case running time of insertion sort is <math>\Omega(n^2)</math>.</b>

Q.No: 3	Consider the following polynomial of degree d: $f(n) = \sum_{i=0}^d a_i n^i$ , where $a_i$ are constants and $a_d > 0$ then we have
<b>A</b>	<b><math>f(n) = \Theta(n^d)</math></b>
B	$f(n) = \Theta(n^{d+1})$
C	$f(n) = \Theta(n^{d+5})$
D	<b>All are correct</b>

Q.No: 4	Which of the following problems can be solved using greedy approach?
A	<b>Finding the shortest path between a pair (s, d) of vertices in a weighted undirected graph. Assuming that every weight is positive.</b>
B	<b>Fractional knapsack problem</b>
C	<b>A problem which exhibits optimal substructure property.</b>

<b>D</b>	<b>All are correct</b>
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Q.No: 5	Which of the following data structures is used to implement recursion?
A	<b>Priority Queue</b>
B	<b>Array</b>
<b>C</b>	<b>Stack</b>
D	<b>None of these are correct</b>

Q.No: 6	The _____ data structure is used in Breadth-first-search algorithm
<b>A</b>	<b>Queue</b>
B	<b>Binary search tree</b>
C	<b>Stack</b>
D	<b>Graph</b>

Q.No: 7	Which is not a correct statement for binary heap data structure with n nodes?
A	<b>It can be efficiently implemented using array data structure.</b>
B	<b>It can be used to design a sorting algorithm.</b>
<b>C</b>	<b>Both insertion and deletion operations can be performed in constant time.</b>
D	<b>Its height is <math>O(\log n)</math>.</b>

Q.No: 8	Select the incorrect statement
A	<b>The two most common representation of graph are: adjacency lists and adjacency matrices.</b>
B	<b>Every tree is also a graph.</b>
C	<b>A tree is a minimally connected graph.</b>
<b>D</b>	<b>Kruskal's minimum cost spanning tree algorithm some times gives incorrect result when the weights are assigned to the edges are not distinct.</b>

Q.No: 9	Select the odd one out:
A	<b>AVL trees</b>
<b>B</b>	<b>Array</b>

C	<b>Binary search trees</b>
D	<b>Clique</b>

Q.No: 10	The running time of an algorithm A is described by the recurrence $T(n) = 7T(n/2) + n^2$ . A competing algorithm $A'$ has a running time of $T'(n) = aT'(n/2) + n^2$ . Determine the largest integer value for a such that $A'$ is asymptotically faster than A.
A	<b>6</b>
B	<b>8</b>
C	<b>5</b>
D	<b>None of these are correct</b>

Q.No: 11	Rank the functions: $n^2$ , $\lg^{50}(n)$ , $n \lg(n)$ by order of growth; that is, find an arrangement $g_1, g_2, g_3$ of the functions satisfying $g_1 = \Omega(g_2)$ , $g_2 = \Omega(g_3)$ .
A	<b><math>n^2, \lg^{50}(n), n \lg(n)</math></b>
B	<b><math>\lg^{50}(n), n^2, n \lg(n)</math></b>
C	<b><math>n^2, n \lg(n), \lg^{50}(n)</math>,</b>
D	<b><math>\lg^{50}(n), n \lg(n), n^2</math></b>

Q.No: 12	Which one is a constant time algorithm?
A	<b>Algorithm for accessing an element in a linked list.</b>
B	<b>Algorithm push() for storing an element onto a stack</b>
C	<b>Binary search algorithm</b>
D	<b>Algorithm for deleting an element from an array</b>

Q.No: 13	The time complexity of any comparison sorting algorithm will be
A	<b><math>\Omega(n)</math></b>
B	<b><math>\Omega(n \lg n)</math></b>
C	<b><math>\Omega(\lg n)</math></b>
D	<b><math>\Omega(n^2)</math></b>

Q.No: 14	A binary search tree is generated by inserting in order the following integers:
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	50, 15, 62, 5, 20, 58, 91, 3, 8, 37, 60, 24 The number of nodes in the left subtree and right subtree of the root respectively is
<b>A</b>	<b>(7, 4)</b>
B	(4, 7)
C	(6, 5)
D	(8, 3)

Q.No: 15	For merging two sorted lists of sizes m and n into a sorted list of size m+ n, we require comparisons of
A	<b>O(mn)</b>
B	<b>O(log(m + n))</b>
C	<b>O(log m)+ O(log n)</b>
<b>D</b>	<b>O(m + n)</b>

Q.No: 16	A binary tree T has n leaf nodes. The number of nodes of degree >1 in T is
<b>A</b>	<b>n-1</b>
B	n
C	<b>log<sub>2</sub> n</b>
D	<b>2<sup>n</sup></b>

Q.No: 17	The solution of following recurrence relation is $T(1) = O(1)$ $T(n) = \sqrt{2}T(n/2) + \log n$
A	<b>T(n) = <math>\theta(\sqrt{n} \log n)</math></b>
B	<b>T(n) = <math>\theta(\log n)</math></b>
<b>C</b>	<b>T(n) = <math>\theta(\sqrt{n})</math></b>
D	<b>T(n) = <math>\theta(n \log n)</math></b>

Q.No: 18	Consider the two functions $f(n) = n$ , and $g(n) = n^{1+\sin n}$ , then select the correct answer for the statements: I. $f(n) = \theta(g(n))$ II. $g(n) = O(f(n))$
<b>A</b>	<b>Both I and II are true.</b>

<b>B</b>	<b>Both I and II are false.</b>
C	<b>Only I is true</b>
D	<b>Only II is true</b>

Q.No: 19	The number of 1s in the binary representation of $(3 \times 4096 + 15 \times 256 + 5 \times 16 + 3)$ are
A	<b>12</b>
B	<b>8</b>
C	<b>9</b>
<b>D</b>	<b>10</b>

Q.No: 20	The correct matching for the following pair 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	<b>a-IV, b-I, c-III, d-II</b>	
B	<b>a-II, b-I, c-IV, d-III</b>	
<b>C</b>	<b>a-II, b-I, c-III, d-IV</b>	
D	<b>a-I, b-III, c-II, d-IV</b>	

Q.No: 21	Which of the following statements is not correct?
A	<b>System software is a computer software designed to provide services to other software.</b>
B	<b>System software is mainly involved with running the computer.</b>
C	<b>Application software performs specific tasks for the computer user.</b>
<b>D</b>	<b>Microsoft Word is an example of system software</b>

Q.No: 22	The multiplication of binary number 1100 to itself is
<b>A</b>	<b>10010000</b>
B	<b>11110011</b>
C	<b>10101010</b>
D	<b>11110000</b>

Q.No: 23	The stored-program concept is usually attributed to the
A	<b>Alan Turing</b>
<b>B</b>	<b>John von Neumann</b>
C	<b>John Mauchly</b>
D	<b>John Eckert</b>

Q.No: 24	Which of the following statements is not correct?
A	<b>DRAM is made with cells that store data as charge on capacitors</b>
B	<b>SRAM is a digital device that uses the same logic elements used in the processor.</b>
C	<b>One of the most widely used forms of DRAM is SDRAM</b>
<b>D</b>	<b>Traditional DRAM is synchronous.</b>

Q.No: 25	Which is not true about cache memory?
A	<b>The cache contains a copy of portions of main memory.</b>
B	<b>In three-level cache (i.e., L1, L2, and L3) organization, L2 cache is larger than the L1 cache.</b>
<b>C</b>	<b>The cache is usually visible to the programmer.</b>
D	<b>The cache memory is intended to give memory speed.</b>

Q.No: 26	Consider the following statements (I) A bus is a communication pathway connecting two or more devices. (II) Typically, a bus consists of single communication pathway. (III) A bus that connects major computer components (processor, memory, I/O) is called a system bus.
A	<b>I and II are correct</b>
<b>B</b>	<b>I and III are correct</b>
C	<b>All are correct</b>
D	<b>Only III is correct</b>

Q.No: 27	The most important floating-point representation is defined in IEEE Standard 754, adopted in
<b>A</b>	<b>1985</b>
B	<b>1990</b>

C	<b>1970</b>
D	<b>1991</b>

Q.No: 28	Consider the following statements (I) For the base-2 system we have two types of complements 2's and 1's. (II) For the base-10 system we have two types of complements 10's and 9's.
A	<b>Both I and II are not correct</b>
B	<b>Only II is correct</b>
<b>C</b>	<b>Both I and II are correct</b>
D	<b>Only I is correct</b>

Q.No: 29	A thread
A	<b>Is a basic unit of CPU utilization</b>
B	<b>Can be in ready, blocked, running, or terminated states</b>
C	<b>Is used to implement virtual memory</b>
<b>D</b>	<b>Both (Is a basic unit of CPU utilization &amp; Can be in ready, blocked, running, or terminated states) are correct</b>

Q.No: 30	A major problem with priority scheduling algorithm is
<b>A</b>	<b>Starvation</b>
B	<b>To decide priority</b>
C	<b>Thrashing</b>
D	<b>Both (To decide priority &amp; Thrashing) are correct</b>

Q.No: 31	Observe the following statements and select the correct option: (I) A time-shared operating system allows the many users to share the computer simultaneously. (II) Context-switch times are highly dependent on hardware support. (III) Software may trigger an interrupt by executing a system call (IV) The delay between job submission and job completion is called turnaround time.
A	<b>I and IV are correct</b>
B	<b>I, II and IV are correct</b>
C	<b>Only IV is correct</b>
<b>D</b>	<b>All are correct</b>

Q.No: 32	Each process is represented in the operating system by a PCB. Here PCB stands for
A	<b>Program Control Block</b>
<b>B</b>	<b>Process Control Block</b>
C	<b>Process Communication Block</b>
D	<b>Printed Circuit Board</b>

Q.No: 33	The mechanism that brings a page into memory when it is needed is called
A	<b>Segmentation</b>
B	<b>Fragmentation</b>
<b>C</b>	<b>Demand Paging</b>
D	<b>Page Replacement</b>

Q.No: 34	Select the odd one out
A	<b>Mutual exclusion</b>
<b>B</b>	<b>Banker's algorithm</b>
C	<b>Hold and wait</b>
D	<b>Circular wait</b>

Q.No: 35	Which of the following statements is/are correct (I) A semaphore is a synchronization tool. (II) One of the methods for dealing with deadlocks is: allow the system to enter deadlock state and then recover. (III) A situation where processes wait indefinitely within the semaphore is called deadlock. (IV) A segment of code, in which the process may be changing common variables, updating a table, writing a file, and so on is called control section.
<b>A</b>	<b>I and II</b>
B	<b>II and III</b>
C	<b>I and IV</b>
D	<b>I, II and IV</b>

Q.No: 36	Which directory system is used in most operating systems?
A	<b>Single level directory structure</b>
<b>B</b>	<b>Two level directory structure</b>

<b>C</b>	<b>Tree directory structure</b>
<b>D</b>	<b>Acyclic directory structure</b>

Q.No: 37	_____ provides a mechanism to allow processes to communicate and to synchronize their actions.
<b>A</b>	<b>PCB</b>
<b>B</b>	<b>LWP</b>
<b>C</b>	<b>LRU</b>
<b>D</b>	<b>IPC</b>

Q.No: 38	Dirty bit for a page in a page table
<b>A</b>	<b>Helps avoid unnecessary writes on a paging device</b>
<b>B</b>	<b>Helps maintain LRU information</b>
<b>C</b>	<b>Allows only read on a page</b>
<b>D</b>	<b>None of these are correct</b>

Q.No: 39	A feasibility study is a short, focused study that aims to answer a number of questions including
<b>A</b>	<b>Can the system be implemented using current technology and within given cost and schedule constraints?</b>
<b>B</b>	<b>Does the system contribute to the overall objectives of the organization?</b>
<b>C</b>	<b>Can the system be integrated with other systems which are already in place?</b>
<b>D</b>	<b>All are correct</b>

Q.No: 40	Which of the following statements is correct? (I) Requirements validation is concerned with showing that the requirements actually define the system that the customer wants. (II) In consistency checks, it is ensured that the requirements in the document should not conflict.
<b>A</b>	<b>Only I</b>
<b>B</b>	<b>Both I and II</b>
<b>C</b>	<b>Only II</b>
<b>D</b>	<b>Both I and II are not correct</b>

Q.No: 41	Observe the following statements, and select the correct option that applies. (I) Data-flow diagrams are a way of representing function oriented systems. (II) Data-flow diagrams are also called flow-charts. (III) In data-flow diagrams each round-edged rectangle represents a function that implements some data transformation. (IV) In data-flow diagrams Files or Data stores are represented as round-edged rectangles.
A	<b>I, II and IV are correct</b>
B	<b>II and III are correct</b>
<b>C</b>	<b>I and III are correct</b>
D	<b>II and IV are correct</b>

Q.No: 42	Pick-up the option that is not correct in connection with the software system requirements classification
A	<b>Functional requirements</b>
B	<b>Domain requirements</b>
C	<b>Non-functional requirements</b>
<b>D</b>	<b>None of these</b>

Q.No: 43	The correct sequence of phases in software development process is
<b>A</b>	<b>Requirements definition, System and software design, Implementation and unit testing, Integration and system testing, Operation and maintenance</b>
B	<b>Requirements definition, System and software design, Integration and system testing, Implementation and unit testing, Operation and maintenance</b>
C	<b>Requirements definition, Implementation and unit testing, System and software design, Integration and system testing, Operation and maintenance</b>
D	<b>System and software design, Requirements definition, Implementation and unit testing, Integration and system testing, Operation and maintenance</b>

Q.No: 44	Considering the statements below select the correct option that applies (I) Software project management is an essential part of software engineering. (II) Good management cannot guarantee project success. (III) Bad management usually results in project failure. (IV) Software managers are responsible for planning and scheduling project development.
A	<b>I and III are correct</b>
B	<b>I, III and IV are correct</b>
C	<b>III and IV are correct</b>
<b>D</b>	<b>All are correct</b>

Q.No: 45	Which of the following statements is/are not correct? (I) Quality plan describes developing the skills and experience of the project team members. (II) Maintenance plan describes the approach, resources and schedule for system validation.
A	<b>II</b>
<b>B</b>	<b>I and II</b>
C	<b>I</b>
D	<b>No sufficient information given to decide</b>

Q.No: 46	Match the pairs						
	<table border="1"> <tr> <td>I. Staff turnover</td> <td>a. Project risk</td> </tr> <tr> <td>II. Requirements change</td> <td>b. Project and product risk</td> </tr> <tr> <td>III. Technology change</td> <td>c. Business risk</td> </tr> </table>	I. Staff turnover	a. Project risk	II. Requirements change	b. Project and product risk	III. Technology change	c. Business risk
	I. Staff turnover	a. Project risk					
	II. Requirements change	b. Project and product risk					
III. Technology change	c. Business risk						
A	<b>I-c, II-b, III-a</b>						
B	<b>I-b, II-a, III-c</b>						
<b>C</b>	<b>I-a, II-b, III-c</b>						
D	<b>I-a, II-c, III-b</b>						

Q.No: 47	An IPv6 address consists of _____ bytes
A	<b>4</b>
B	<b>8</b>
<b>C</b>	<b>16</b>
D	<b>None of these are correct</b>

Q.No: 48	Read the following statements and select the option that applies (I) An IP address does not actually refer to a host (II) An IP address refers to a network interface (III) If a host is on two networks, then also it must have only one IP address (IV) Routers have multiple interfaces and thus multiple IP addresses
<b>A</b>	<b>I, II and IV are correct</b>
B	<b>II, III and IV are correct</b>
C	<b>I, II and III are correct</b>
D	<b>All are correct</b>

Q.No: 49	In slotted ALOHA, the vulnerable time is _____ the frame transmission time.
A	<b>three times</b>
B	<b>two times</b>
<b>C</b>	<b>the same as</b>
D	<b>None of these are correct</b>

Q.No: 50	IEEE 802.3 is popularly called
A	<b>WiFi</b>
B	<b>HTTP</b>
C	<b>OSI model</b>
<b>D</b>	<b>Ethernet</b>

Q.No: 51	In Ethernet addressing, if the least significant bit of the first byte in a destination address is 0, the address is
A	<b>Multicast</b>
<b>B</b>	<b>Unicast</b>
C	<b>Broadcast</b>
D	<b>None of these are correct</b>

Q.No: 52	The entire host name has a maximum of
<b>A</b>	<b>255 characters</b>
B	<b>127 characters</b>
C	<b>63 characters</b>
D	<b>31 characters</b>

Q.No: 53	Select a correct answer while considering the following statements (I) Socket interface is an API designed for communication. (II) Socket interface started at UC Berkeley as a part of UNIX environment. (III) As far as the application layer is concerned, communication between a client process and server process is communication between two sockets, created at two ends. (IV) Socket address is same as IP address.
A	<b>I, II and IV are correct</b>
B	<b>I and III are correct</b>

C	All are correct
D	I, II and III are correct

Q.No: 54	URL stands for
A	Unique Resource Locator
B	Uniform Resource Locator
C	User Request Loader
D	None of these are correct

Q.No: 55	If the HTTP protocol is used for accessing the web page, the well-known port number is
A	125
B	25
C	80
D	81

Q.No: 56	Which of the followings is not a FTP command?
A	RNTO
B	ABOR
C	RETR
D	None of these are correct

Q.No: 57	The access method in Bluetooth is
A	TDD-TDMA
B	FDMA
C	CDMA
D	None of these are correct

Q.No: 58	Wi-Fi is an abbreviation for
A	Wireless Field
B	Wireless Frequency
C	Wireless Fidelity

D	<b>None of these are correct</b>
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Q.No: 59	Consider the following statements and select the correct option that applies (I) DNS stands for Domain Name Server. (II) To identify an entity, TCP/IP protocols use the IP address (III) TCP/IP uses a DNS client and a DNS server to map a name to an address.
A	<b>All are correct</b>
B	<b>II and III are correct</b>
C	<b>I and II are correct</b>
D	<b>Only III is correct</b>

Q.No: 60	International Standards Organization Open Systems Interconnection Reference Model has _____ layers.
A	<b>5</b>
B	<b>6</b>
C	<b>7</b>
D	<b>4</b>

Q.No: 61	Which of the following codes is not an error-correcting code?
A	<b>Hamming</b>
B	<b>Reed-Solomon</b>
C	<b>Binary convolutional</b>
D	<b>Checksums</b>

Q.No: 62	Which layer is concerned with the syntax and semantics of the information transmitted?
A	<b>Presentation Layer</b>
B	<b>Session Layer</b>
C	<b>Transport Layer</b>
D	<b>Network Layer</b>

Q.No: 63	Consider the following statements, and select the correct option. (I) SMTP was originally specified as RFC 821 (II) SMTP is short for Simple Message Transfer Protocol
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	(III) The message transfer agents are typically system processes (IV) SMTP is short for Short Message Transfer Protocol (V) SMTP is short for Simple Mail Transfer Protocol.
A	<b>I, III and IV are correct</b>
B	<b>II and III are correct</b>
<b>C</b>	<b>I, III and V are correct</b>
D	<b>Only V is correct</b>

Q.No: 64	Which one of the following is not a client server application?
A	<b>Internet chat</b>
B	<b>Web browsing</b>
C	<b>E-mail</b>
<b>D</b>	<b>Ping</b>

Q.No: 65	Consider the following statements (I) A database is a file that is organized for storing data. (II) There are many different database systems which are used for a wide variety of purposes including: Oracle, MySQL, and Microsoft SQL Server.
<b>A</b>	<b>I and II are true</b>
B	<b>II is true</b>
C	<b>I is true</b>
D	<b>I and II are false</b>

Q.No: 66	In technical descriptions of relational databases the concepts of table, row, and column are more formally referred to as
A	<b>relation, attribute, and tuple, respectively</b>
B	<b>tuple, relation, and attribute, respectively</b>
<b>C</b>	<b>relation, tuple, and attribute, respectively</b>
D	<b>None of these are correct</b>

Q.No: 67	Consider the following statements, and select the correct option that applies (I) The duplication of string data violates one of the best practices for database normalization which basically states that we should never put the same string data in the database more than once. (II) If we need the data more than once, we create a numeric key for the data and reference the actual data using this key.
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	(III) In practical terms, a string takes up a lot more space than an integer on the disk and in the memory of our computer, and takes more processor time to compare and sort.
A	<b>III is true</b>
B	<b>I and II are true</b>
C	<b>I and III are true</b>
<b>D</b>	<b>All are true</b>

Q.No: 68	The 4NF and BCNF differ in the usage of
<b>A</b>	<b>Multi-valued dependencies</b>
B	<b>Functional dependencies</b>
C	<b>Both (Multi-valued dependencies &amp; Functional dependencies)</b>
D	<b>Neither (Multi-valued dependencies nor Functional dependencies)</b>

Q.No: 69	An entity that exists independently of other entity types is called
A	<b>Identifying owner</b>
<b>B</b>	<b>Strong entity type</b>
C	<b>Weak entity type</b>
D	<b>None of these are correct</b>

Q.No: 70	Match the pairs	
	(I) An attribute that uniquely identifies each row in a relation	(a) Entity integrity
	(II) A primary key that consists of more than one attribute	(b) Foreign key
	(III) An attribute in a relation of a database that serves as the primary key of another relation in the same database	(c) Composite key
	(IV) No primary key attribute can be null	(d) Primary key
<b>A</b>	<b>I-d, II-c, III-b, IV-a</b>	
B	<b>I-d, II-b, III-c, IV-a</b>	
C	<b>I-b, II-c, III-a, IV-d</b>	
D	<b>I-a, II-c, III-d, IV-b</b>	

Q.No: 71	Consider the following statements
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	(I) The attributes of a relation that are declared to be a Primary key can be null. (II) The attributes of a relation that are declared to be a Primary key must be nonnull. (III) The attributes of a relation that are declared to be a Primary key are required to be unique. (IV) To remove a relation from an SQL database, we use delete table command.
A	<b>I and III are true</b>
B	<b>II, III and IV are true</b>
<b>C</b>	<b>II and III are true</b>
D	<b>III and IV are true</b>

Q.No: 72	Which of the following statements is correct?
<b>A</b>	<b>The SQL-92 standard does not include triggers.</b>
B	<b>System does not execute triggers automatically.</b>
C	<b>We define a view in SQL using the define view command.</b>
D	<b>Python is one of the database languages</b>

Q.No: 73	Which is not an ACID property?
A	<b>Durability</b>
B	<b>Consistency</b>
C	<b>Atomicity</b>
<b>D</b>	<b>Integrity</b>

Q.No: 74	Consider the following statements for selecting the correct option. (I) Commit work: commits the current transaction and begins a new one. (II) Rollback work: causes the current transaction must be undone. (III) The Keyword "work" is optional in in both I and II statements.
A	<b>I and II are true</b>
<b>B</b>	<b>I, II and III are true</b>
C	<b>Only I is true</b>
D	<b>Only II is true</b>

Q.No: 75	Which of the following options is correct?
A	<b>DBA is a software</b>
B	<b>Physical data models are used to describe data at the logical level.</b>
<b>C</b>	<b>The term "schema" refers to the organization of data as a blueprint of how the</b>

	<b>database is constructed.</b>
D	<b>Database systems are not designed to manage large bodies of information.</b>

Q.No: 76	The natural join R*R of a relation R with n tuples will result in how many tuples?
A	<b>n<sup>2</sup> tuples</b>
B	<b>n tuples</b>
C	<del>2×n</del> tuples
D	<b>None of these are correct</b>

Q.No: 77	Which of the following is not an aggregate function?
A	<b>count</b>
B	<b>sum</b>
C	<b>avg</b>
D	<b>total</b>

Q.No: 78	<p>Consider the set of relation  EMP (Employee_no, Dept_no, Employee_name, salary)  DEPT (Dept_no, Dept_name, location)</p> <p>An SQL query to find all employee names who work in the departments located at "Indore" and whose salary is greater than Rs. 50,000 is</p>
A	<b>select Employee_name from EMP, DEPT where location = 'Indore' and salary&gt;50000 and EMP.Dept_no = DEPT.Dept_no</b>
B	<b>select Employee_name from EMP, DEPT where location = 'Indore' and salary&gt;50000 and EMP Dept_no = DEPT Dept_no</b>
C	<b>select Employee_name from EMP, DEPT where location = 'Indore' and salary&gt;50000 where EMP.Dept_no = DEPT.Dept_no</b>
D	<b>select Employee_name from EMP, DEPT where location = 'Indore' and salary&gt;50000</b>

Q.No: 79	<p>Consider the relation  EMP (Employee_no, Dept_no, Employee_name, salary)</p> <p>What will be the output when the following SQL query is executed?  select * from EMP</p>
A	<b>It will produce an error.</b>
B	<b>It will display only first row from the EMP table.</b>

C	<b>It will count the number of records in the EMP table.</b>
D	<b>It will display all records from the EMP table.</b>

Q.No: 80	Consider the relation DEPT (Dept_no, Dept_name, location) What will be the output when the following SQL query is executed? select count (*) from DEPT
A	<b>It will return the amount of memory space currently used by the relation DEPT.</b>
B	<b>It will display the number of columns in the relation DEPT.</b>
C	<b>It will display the number of tuples in the relation DEPT.</b>
D	<b>It will produce an error.</b>

Q.No: 81	Which SQL command is used to modify attribute values of one or more selected tuples?
A	<b>DELETE</b>
B	<b>UPDATE</b>
C	<b>INSERT</b>
D	<b>None of these are correct</b>

Q.No: 82	ER Model stands for
A	<b>Entity-Related Model</b>
B	<b>Entity-Relational Model</b>
C	<b>Entity-Relation Model</b>
D	<b>Entity-Relationship Model</b>

Q.No: 83	Consider the following statements and select the option that applies. (I) Objects are the basic run-time entities in an object oriented system. (II) Objects take up space in the memory and have an associated address like a structure in C. (III) When program is executed, the objects do not interact by sending message to one another. (IV) Classes are known as Abstract Data Types.
A	<b>I, II and IV are true</b>
B	<b>I and II are true</b>
C	<b>I, II and III are true</b>
D	<b>All are true</b>

Q.No: 84	<p>What is the output of the following C program when executed?</p> <pre>#include&lt;stdio.h&gt; #include&lt;conio.h&gt; void main() { int a=20,b=25,z; clrscr(); z=(a-b)&gt;=0?a:b; printf("%d",z); getch(); }</pre>
A	<b>20</b>
B	<b>5</b>
C	<b>25</b>
D	<b>It will produce an error.</b>

Q.No: 85	<p>Consider the following statements  (I) C and C++ are high level programming languages.  (II) C is a procedure-oriented programming language.  (III) A major advantage with the procedural approach is that it models real world problems very well.  (IV) In object oriented programming emphasis is on data rather than procedure.</p>
A	<b>II and IV are true</b>
B	<b>I, II and IV are true</b>
C	<b>I, II, and III are true</b>
D	<b>All I, II, III and IV are true</b>

Q.No: 86	<p>What is the output of the following C code?</p> <pre>#include&lt;stdio.h&gt; #include&lt;conio.h&gt; void main()</pre>
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	<pre> { float f=5.6; clrscr(); printf("The value of f is:%5.2f",f); getch(); } </pre>
<b>A</b>	<b>The value of f is: 5.60</b>
B	The value of f is: 5.6
C	The value of f is:5.60
D	It will give an error

Q.No: 87	An exception is caused by
A	<b>A hardware problem</b>
B	<b>A problem in the operating system</b>
C	<b>A syntax error</b>
<b>D</b>	<b>A run-time error</b>

Q.No: 88	<p>What is the output of the following C program?</p> <pre> #include&lt;stdio.h&gt;  void main(){ int j=0, k=0; int p, q; for(p=0; p&lt;2; p++){ j++; for(q=0;q&lt;2;q++) k++; } printf("%d\t%d",j,k); } </pre>
<b>A</b>	<b>2 4</b>

B	<b>4 4</b>
C	<b>2 2</b>
D	<b>0 0</b>

Q.No: 89	<p>Consider the following C code</p> <pre>#include&lt;stdio.h&gt;  void main() { int n=5,i; for(i=1;i&lt;=n;i++); printf("Hello\n"); }</pre> <p>How many times "Hello" is printed?</p>
A	<b>5</b>
B	<b>6</b>
<b>C</b>	<b>1</b>
D	<b>Error</b>

Q.No: 90	Which of the following keywords was added by ANSI C++?
A	<b>enum</b>
<b>B</b>	<b>using</b>
C	<b>extern</b>
D	<b>virtual</b>

Q.No: 91	<p>What values for a and b, respectively the following program will print, if the "Call by reference" parameter transmission technique is followed?</p> <pre>#include&lt;stdio.h&gt;  void swap(int *,int *);  void main() {</pre>
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	<pre> int a = 10, b = 5;  swap(&amp;a, &amp;b);  printf("%d, %d", a, b);  }  void swap(int *a, int *b) {  int temp;  temp = *a;  *a = *b;  *b = temp;  } </pre>
<b>A</b>	<b>5, 10</b>
B	5, 5
C	10, 5
D	10, 10

Q.No: 92	<p>Consider the following statements</p> <p>(I) A constructor is a special member function whose task is to initialize the objects of its class.</p> <p>(II) The constructor is invoked whenever an object of its associated class is created.</p> <p>(III) Constructors can be "virtual".</p> <p>(IV) Constructors can have default arguments.</p>
A	<b>I and II are true</b>
B	<b>II and IV are true</b>
<b>C</b>	<b>I, II and IV are true</b>
D	<b>All are true</b>

Q.No: 93	Reusability in C++ can be achieved by
A	<b>Polymorphism</b>
B	<b>Dynamic Binding</b>
C	<b>Polymorphism and Dynamic Binding</b>
<b>D</b>	<b>Inheritance</b>

Q.No: 94	<p>What is the output of the following code segment?</p> <pre>main(){ int j; for(j=0;j++ &lt;=4;printf("%d\t",j)); }</pre>
A	<b>0 1 2 3</b>
B	<b>1 2 3 4</b>
<b>C</b>	<b>1 2 3 4 5</b>
D	<b>0 1 2 3 4</b>

Q.No: 95	<p>Consider the following C++ statements  (I) intmul(int i , int j=5, int k=10);  (II) intmul(int i=5 , int j);  (III) intmul(int i=0 , int j, int k=10);  (IV) intmul(int i=2 , int j=5, int k=10);</p>
A	<b>Only IV is legal</b>
B	<b>II and IV are legal</b>
<b>C</b>	<b>I and IV are legal</b>
D	<b>All are legal</b>

Q.No: 96	Which of the following statements is correct?
<b>A</b>	<b>In C language we can write a recursive function.</b>
B	<b>In C++ we cannot write a recursive function.</b>
C	<b>C language is a superset of C++.</b>
D	<b>C++ programs are interpreted instead of compilation.</b>

Q.No: 97	<p>What will be the output of the following C program?</p> <pre>#include&lt;stdio.h&gt; #include&lt;alloc.h&gt; void main() { struct node</pre>
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	<pre> { int data; struct node *link; }; struct node *p, *q;  p = malloc(sizeof(struct node)); q = malloc(sizeof(struct node));  printf("%d %d", sizeof(p),sizeof(q)); } </pre>
A	<b>12 12</b>
B	<b>8 8</b>
C	<b>16 16</b>
D	<b>None of these are correct</b>
<b>Question Deleted</b>	

Q.No: 98	<p>Consider the following statements</p> <p>(I) A private member of a class cannot be inherited either in public mode or in private mode.</p> <p>(II) A public member inherited in private mode becomes private in derived class.</p> <p>(III) A class can contain objects of other classes.</p>
A	<b>I and II are true</b>
B	<b>II and III are false</b>
C	<b>All are false</b>
D	<b>All are true</b>

Q.No: 99	Which of the following statements is correct?
A	<b>Scope resolution operator can be overloaded in C++.</b>
B	<b>"friend" is not a keyword in C++.</b>
C	<b>Inline expansion may not work if "inline" functions are recursive.</b>
D	<b>Inline expansion works efficiently if functions contain static variable.</b>

Q.No: 100	What will be the output of the following C program? <pre>#include&lt;stdio.h&gt;  void main() { static int b[] = {10, 20, 30, 40, 50};  int i;  for(i = 0; i&lt;= 4; i++)  printf("%d ",i[b]);  }</pre>
A	<b>1010 2020 3030 4040 5050</b>
B	<b>10 20 30 40 50</b>
C	<b>1 2 3 4 5</b>
D	<b>Error</b>