

APPSC ASOs in A.P. Economics & Statistical Sub Service - 2012



COMPUTER SCIENCE Paper II

Time : 150 Minut

Max. Marks : 150

INSTRUCTIONS

1. Please check the Test Booklet and ensure that it contains all the questions. If you find any defect in the Test Booklet or Answer Sheet, please get it replaced immediately.
2. The Test Booklet contains 150 questions. Each question carries one mark.
3. The Test Booklet is printed in four (4) Series, viz. **A** **B** **C** **D**. The Series, **A** or **B** or **C** or **D** is printed on the right-hand corner of the cover page of the Test Booklet. Mark your Test Booklet Series **A** or **B** or **C** or **D** in Part C on side 1 of the Answer Sheet by darkening the appropriate circle with Blue/Black Ball point pen.

Example to fill up the Booklet Series

If your Test Booklet Series is A, please fill as shown below :



If you have not marked the Test Booklet Series, at Part C of side 1 of the Answer Sheet or marked in a way that it leads to discrepancy in determining the exact Test Booklet Series, then, in all such cases, your Answer Sheet will be invalidated without any further notice. No correspondence will be entertained in the matter.

4. Each question is followed by 4 answer choices. Of these, you have to select one correct answer and mark it on the Answer Sheet by darkening the appropriate circle for the question. If more than one circle is darkened, the answer will not be valued at all. Use Blue/Black Ball point pen to make heavy black marks to fill the circle completely. Make no other stray marks.

e.g. : If the answer for Question No. 1 is Answer choice (2), it should be marked as follows :



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1. What is the value of 'x', if $x_{(8)} = 202_{(10)}$?
- (1) 412
 - (2) 312
 - (3) 212
 - (4) 112
2. What is the BCD equivalent for Gray number 1110 ?
- (1) 0001 0001
 - (2) 0001 0000
 - (3) 0001 0010
 - (4) 0001 0100
3. According to Boolean Algebra, Bubbled AND gate is equivalent to
- (1) OR gate
 - (2) AND gate
 - (3) NOR gate
 - (4) NAND gate
4. How many nibbles are there in 1111000110010101 ?
- (1) 4
 - (2) 5
 - (3) 6
 - (4) 8
5. What is the simplified Boolean equation for $Y = \bar{A}\bar{B}\bar{C} + \bar{A}B\bar{C} + A\bar{B}\bar{C} + ABC$?
- (1) $Y = \bar{A}(\bar{B} + \bar{C})$
 - (2) $Y = \bar{A}$
 - (3) $Y = \bar{B}$
 - (4) $Y = \bar{C}$
6. According to De Morgan's theorem, Boolean equation $Y = \overline{AB}$ is equivalent to
- (1) $Y = \overline{A+B}$
 - (2) $Y = \bar{A} + \bar{B}$
 - (3) $Y = \bar{A} + B$
 - (4) $Y = A + \bar{B}$
7. How many bits are there in 4 nibbles ?
- (1) 4
 - (2) 8
 - (3) 16
 - (4) 32
8. What is the ASCII code of 'W' ?
- (1) 0110111
 - (2) 1010111
 - (3) 1100110
 - (4) 1111001
9. If X, Y and Z are three Boolean variables, then which of the following Boolean equations is true ?
- (1) $X \cdot X' = 1$
 - (2) $X + XZ = X$
 - (3) $X(Y + Z) = (X + Y)(X + Z)$
 - (4) $X + Y = Y + Z$
10. Which of the following is *not* weighted code ?
- (1) Hexa-decimal system
 - (2) Excess-3-code
 - (3) Binary system
 - (4) None of the above

- 5
11. Truth table of any Boolean circuit can be represented by
- (1) sum of product form of Boolean expressions
 - (2) product of sums form of Boolean expressions
 - (3) Karnaugh map
 - (4) All of the above
12. How many number of columns in a state table are required for a sequential circuit with 'm' flip-flops and 'n' inputs ?
- (1) $2m + n$
 - (2) $m + 2n$
 - (3) $2m + 2n$
 - (4) $m + n$
- 6
13. The output state of J-K flip-flop is in 'toggle' condition, when
- (1) if $J = 0$ and $K = 0$
 - (2) if $J = 0$ and $K = 1$
 - (3) if $J = 1$ and $K = 0$
 - (4) if $J = 1$ and $K = 1$
- 7
14. Which of the following logic circuits has one input and many outputs ?
- (1) Multiplexer
 - (2) Demultiplexer
 - (3) Half adder
 - (4) Full adder
- 8
15. What is the 2's complement of 01011010 ?
- (1) 10100101
 - (2) 10100110
 - (3) 01010110
 - (4) 01010101
- 9
16. What is the sum of $4_{(16)} + C_{(16)}$?
- (1) $0A_{(16)}$
 - (2) $11_{(16)}$
 - (3) $10_{(16)}$
 - (4) $12_{(16)}$
17. What is the maximum clock frequency that can be used with a master-slave flip-flop having a propagation delay of 75 ns ?
- (1) 13.1 MHz
 - (2) 13.2 MHz
 - (3) 13.3 MHz
 - (4) 13.4 MHz
18. The addressing mode used in an instruction of the form SUB A,B is
- (1) Absolute
 - (2) Immediate
 - (3) Index
 - (4) Indirect
19. Which of the following is typical characteristics of a RISC machine ?
- (1) Instructions interpreted by microprograms
 - (2) Instructions taking multiple cycles
 - (3) Highly pipelined
 - (4) None of the above
- 10
20. The number of flip-flops required to construct a binary Modulo-N Counter is
- (1) 2^N
 - (2) $\log_2 N$
 - (3) N^3
 - (4) $N + 1$

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21. A computer has a 32-bit wide databus 4K × 8 static RAM memory chips. Then the smallest memory this computer can have is
- (1) 64 Kb
 - (2) 24 Kb
 - (3) 48 Kb
 - (4) 16 Kb
22. Which of the following registers holds the address of the next instruction to be executed by the CPU ?
- (1) Instruction register
 - (2) Program counter
 - (3) Data register
 - (4) Stack pointer
23. What is the length of address bus, if the memory unit has a capacity of 4096 words ?
- (1) 8-bits
 - (2) 10-bits
 - (3) 12-bits
 - (4) 16-bits
24. What is the value of op code in Register-reference instruction format of basic computer ?
- (1) 000
 - (2) 001
 - (3) 010
 - (4) 111
25. Which of the following instructions transfers the content of accumulator into the memory word specified by the effective address ?
- (1) LDA
 - (2) Load
 - (3) BSA
 - (4) STA
26. In DMA mode of data transfer, the process of allowing the DMA controller to transfer one data word at a time and after which it must return the control of the buses to the CPU is known as
- (1) cycle stealing
 - (2) process stealing
 - (3) Both (1) and (2)
 - (4) None of the above
27. In which interrupt, the branch address of service routine is assigned to a fixed location in memory ?
- (1) Vectored interrupt
 - (2) Non-vectored interrupt
 - (3) Both (1) and (2)
 - (4) None of the above
28. In which method of cache writing, only the cache location is updated during the write operation of cache ?
- (1) Write-back method
 - (2) Write-through method
 - (3) Write-forward method
 - (4) None of the above
29. In Direct Mapping of cache memory method, among 15-bits of CPU address, the least significant 9-bits are called as
- (1) tag field
 - (2) word field
 - (3) index field
 - (4) byte field
30. A memory unit can be accessed in Associative memory by
- (1) address
 - (2) content
 - (3) Both (1) and (2)
 - (4) None of the above

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31. In cache memory, Hit Ratio means

- (1) the ratio of number of hits divided by number of misses
- (2) the ratio of number of misses divided by number of hits
- (3) the ratio of number of hits divided by the total number of hits plus misses
- (4) the ratio of number of misses divided by the total number of hits plus misses

32. The number of instructions that are needed to add 'n' numbers and store the result in memory using only one address instruction is

- (1) n
- (2) n^2
- (3) $n - 1$
- (4) $n + 1$

33. If the cache needs an access time of 20 ns and the main memory 120 ns, then the average access time of a CPU is _____ and assume hit-ratio is 80%.

- (1) 30 ns
- (2) 35 ns
- (3) 40 ns
- (4) 45 ns

34. Programming in a language that actually controls the path of signals or data within the computer is called

- (1) Machine language programming
- (2) Assembly language programming
- (3) Systems programming
- (4) Micro programming

35. What will be the output after executing following 'C' code ?

```
# include <stdio.h>

int main()
{
    char ch=321;
    printf("%d %c", ch, ch);
    return 0;
}
```

- (1) 321 #
- (2) 65 A
- (3) 66 B
- (4) 321 !

36. What will be the output after executing the following 'C' code ?

```
# include <stdio.h>

int main()
{
    float x = 2.2, y = 3.5;
    if (x==y)
        printf("x and y are equal");
    else
        printf("x and y are not equal");
    return 0;
}
```

- (1) x and y are not equal
- (2) x and y are equal
- (3) It will print nothing
- (4) Runtime error

37. Which function is used to release the allocated memory space ?
- (1) deallocate()
 - (2) release()
 - (3) free()
 - (4) drop()
38. An array contains group of elements of
- (1) different datatypes
 - (2) int and char datatype
 - (3) similar datatype
 - (4) object datatypes
39. What are the range of values that can be accommodated in an 'int' datatype ?
- (1) - 32768 to + 32767
 - (2) - 256 to + 255
 - (3) 0 to 255
 - (4) 0 to 65535
40. BCPL stands for
- (1) Basic Compilation and Programming Language
 - (2) Basic Combined Programming Language
 - (3) Basic 'C' and Programming Language
 - (4) Basic Combined Professional Language
41. Which of the following operators in 'C' takes only integer operands ?
- (1) %
 - (2) *
 - (3) +
 - (4) /
42. If 'switch' feature is used, then
- (1) 'default' case must be present
 - (2) 'default' case, if used, should be the last case
 - (3) 'default' case, if used, can be placed anywhere
 - (4) None of the above
43. A pointer variable can be
- (1) passed to a function as argument
 - (2) changed within a function
 - (3) Both (1) and (2)
 - (4) returned by a function
44. ftell()
- (1) is a function
 - (2) gives the current file position indicator
 - (3) can be used to find the size of a file
 - (4) All of the above

45. Function overloading concept is useful
- (1) to write too many functions with similar function name
 - (2) to write too many functions with different names
 - (3) to write too many functions with different languages
 - (4) to write too many functions using different loops
46. By default, all members of a class have _____ access for all its members.
- (1) private
 - (2) public
 - (3) protected
 - (4) Both (1) and (3)
47. How would you read the expression $X.Y$?
- (1) Member X of object Y
 - (2) Both X and Y are interrelated objects
 - (3) Member Y of object X
 - (4) Both (1) and (2)
48. #if or #elif can be used to evaluate
- (1) constant expressions
 - (2) macro expressions
 - (3) Both (1) and (2)
 - (4) all expressions
49. What is a virtual member ?
- (1) A member of a friend class that can be redefined in its derived classes.
 - (2) A member of a virtual class that cannot be redefined in its derived class
 - (3) A member of a static class that cannot be redefined in its derived class
 - (4) A member of a class that can be redefined in its derived class
50. Under which condition a destructor destroys an object ?
- (1) Scope of existence has finished
 - (2) Whenever the compiler creates object code
 - (3) Program is terminated
 - (4) Both (1) and (2)
51. Which type of class has only one unique value for all objects of that same class ?
- (1) this
 - (2) friend
 - (3) static
 - (4) dynamic
52. In Computer Science, to describe the way of an algorithm under optimal conditions is known with the term
- (1) Worst case performance
 - (2) Best case performance
 - (3) Average case performance
 - (4) All of the above

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53. _____ can be used to test bipartiteness.
- (1) Linear search
 - (2) Binary search tree
 - (3) Breadth first search
 - (4) Doubly linked list
54. A Depth First Search (DFS) is an algorithm for traversing or searching
- (1) A tree structure
 - (2) Graph
 - (3) Both (1) and (2)
 - (4) None of the above
55. A self-balancing binary search tree can be called as
- (1) Depth-first search tree
 - (2) AVL tree
 - (3) Bread-first search tree
 - (4) Complete binary tree
56. The process of visiting each node in a tree, exactly once is called
- (1) Tree visit
 - (2) Node visit
 - (3) Generic tree
 - (4) Tree traversal
57. The sequence of visiting nodes in Binary search tree, while implementing post order is
- (1) node, left, right
 - (2) left, right, node
 - (3) right, left, node
 - (4) All the above
58. What is the worst-case time complexity to insert an element in AVL tree by using big-O-notation ?
- (1) $O(n^2)$
 - (2) $O(n)$
 - (3) $O(n^3)$
 - (4) $O(\log n)$
59. The process of inserting element at the top of stack is called
- (1) insert
 - (2) pop
 - (3) push
 - (4) peep
60. A two-dimensional matrix, in which the rows represent source vertex and columns represent destination vertices is called
- (1) Adjacency matrix
 - (2) Incident matrix
 - (3) Adjacency list
 - (4) Incidency list

61. The depth of a complete binary tree with 'n' nodes is
- (1) $\log_2(n + 1) - 1$
 - (2) $\log_2(n)$
 - (3) $\log_2(n - 1) + 1$
 - (4) $\log_2(n) + 1$
62. Which of the following traversal techniques lists the nodes of a binary search tree in ascending order ?
- (1) Post-order
 - (2) In-order
 - (3) Pre-order
 - (4) None of the above
63. The minimum number of edges in a connected cyclic graph on 'n' vertices is
- (1) $n - 1$
 - (2) n
 - (3) $n + 1$
 - (4) None of the above
64. In circular linked list, insertion of a record involves the modification of
- (1) 3 pointers
 - (2) 2 pointers
 - (3) 1 pointer
 - (4) No pointer
65. The number of edges in a regular graph of degree 'd' and 'n' vertices is
- (1) maximum of n, d
 - (2) $n+d$
 - (3) nd
 - (4) $nd/2$
66. Which of the following algorithms solves all-pair shortest path problem ?
- (1) Dijkstra's Algorithm
 - (2) Floyd's Algorithm
 - (3) Prim's Algorithm
 - (4) Warshall's Algorithm
67. An abstract data type is
- (1) built-in data type
 - (2) combination of structure and union
 - (3) a mathematical model for a certain class of data-structure that have similar behaviour
 - (4) All the above
68. A Queue that allows the elements can only be added to or removed from the front or back is called
- (1) Circular Queue
 - (2) Priority Queue
 - (3) Both (1) and (2)
 - (4) Double-ended Queue
69. Which technique is used to speed up the communication between CPU and slow devices ?
- (1) Swapping
 - (2) Sharing
 - (3) Processing
 - (4) Caching

70. A processor is
- (1) a hardware device
 - (2) it is capable of interpreting instructions
 - (3) useful to perform indicated operations
 - (4) All of the above
71. Which of the following provides a path for the data to flow between I/O devices and main memory ?
- (1) Registers
 - (2) I/O channels
 - (3) Memory stack
 - (4) All the above
72. A response to an asynchronous or exceptional event is called
- (1) TEST I/O
 - (2) START I/O
 - (3) Interrupt
 - (4) Both (1) and (2)
73. A Boot-strap program can be stored on
- (1) RAM
 - (2) Registers
 - (3) ROM
 - (4) Disk-tapes
74. The CPU scheduling algorithm which uses all the requests closer to the current head position is called
- (1) First Come - First Serve
 - (2) Shortest Seek Time First
 - (3) Look scheduling
 - (4) Scan scheduling
75. Page fetch can also be called as
- (1) Page failure
 - (2) Page fault
 - (3) Page usage
 - (4) Both (1) and (2)
76. The necessary condition for deadlock
- (1) Hold and wait
 - (2) Mutual exclusion
 - (3) Circular wait
 - (4) All the above
77. The time required for disk arm to move the heads to the cylinder containing the desired sector is known as
- (1) Rotational latency
 - (2) Move time
 - (3) Seek time
 - (4) Response time
78. Benefits of multi-threaded programming is
- (1) Responsiveness
 - (2) Resource sharing
 - (3) Utilization of multiprocessor architecture
 - (4) All the above
79. A deadlock is a situation
- (1) resources requesting process and process not available
 - (2) process requests resources and resources are not available
 - (3) waiting resources never changing their state
 - (4) All the above
80. Process creation is a cycle of
- (1) process operation with I/O status
 - (2) processes start, test and halt operations
 - (3) CPU execution and I/O wait
 - (4) CPU execution and saving data in memory

81. Memory was divided into partitions prior to the processing of any job in
- (1) Dynamic partition specification
 - (2) Static partition specification
 - (3) Random partition specification
 - (4) Both (1) and (2)
82. An operating system as a resource manager, it maintains
- (1) keep track of resources
 - (2) allocating the resources
 - (3) reclaim the resources
 - (4) All the above
83. Poor utilization of memory among the below is in
- (1) Single contiguous allocation
 - (2) Partitioned allocation
 - (3) Paged allocation
 - (4) Segmented allocation
84. File control block (FCB) contains the information about
- (1) File permissions
 - (2) File ownership
 - (3) Size of the file
 - (4) All of the above
85. The motivation to develop I/O processors is in
- (1) the disparity between the speed of I/O devices and CPU
 - (2) the disparity between the speed of memory and I/O channels
 - (3) the disparity between the speed of registers and main memory
 - (4) the disparity between the speed of secondary and primary memory devices
86. E-R modeling technique is a
- (1) Bottom-up approach
 - (2) Left-to-right approach
 - (3) Top-down approach
 - (4) Right-to-left approach
87. The column of a table is referred to as
- (1) tuple
 - (2) attribute
 - (3) degree
 - (4) name
88. Which of the following commands is belonging to Data Definition Language ?
- (1) Select
 - (2) Truncate
 - (3) Delete
 - (4) Insert
89. Which constraint is useful to restrict the values before inserting into a table ?
- (1) Primary key
 - (2) Not NULL
 - (3) Check
 - (4) Unique key
90. Which of the following commands is related to Data Manipulation Language ?
- (1) Alter
 - (2) Drop
 - (3) Commit
 - (4) Update

91. In a relational model terminology, a table is called a
- (1) tuple
 - (2) relation
 - (3) domain
 - (4) schema
92. The concurrency control is needed to solve
- (1) the last update problem
 - (2) the temporary update problem
 - (3) the incorrect summary problem
 - (4) All the above
93. When the transaction ends, it moves to the _____ state.
- (1) committed
 - (2) partially committed
 - (3) terminated
 - (4) failed
94. If every non-key attribute is functionally dependent on the primary key, then the relation will be in
- (1) First normal form
 - (2) Second normal form
 - (3) Third normal form
 - (4) Fourth normal form
95. In an E-R diagram, ellipses represent
- (1) attributes
 - (2) entity sets
 - (3) relationship among entity sets
 - (4) link between attributes and entity sets
96. Which normal form takes the step of removing columns that are not dependent upon the primary key ?
- (1) 1NF
 - (2) 2NF
 - (3) 3NF
 - (4) BCNF
97. An attribute of one table matching the primary key of another table is known as
- (1) Primary key
 - (2) Foreign key
 - (3) Secondary key
 - (4) Candidate key
98. The highest level in the hierarchy of data organization is called
- (1) data bank
 - (2) database
 - (3) data file
 - (4) data record
99. Which of the following schemes are used for ensuring atomicity ?
- (1) Log with deferred modification
 - (2) Log with immediate modification
 - (3) Shadow paging
 - (4) All the above
100. A search tree of order 'P' is a tree such that each node contains atmost _____ search values.
- (1) $P - 1$
 - (2) $P + 1$
 - (3) $P/2$
 - (4) $P * 2$

101. The data collected in survey is called

- (1) secondary data
- (2) primary data
- (3) random numbers
- (4) grouped data

102. A set of values can be 'statistical data' if

- (1) values are random numbers
- (2) its mean is computable
- (3) it contains some information
- (4) grouping is possible

103. A grouped frequency distribution with uncertain first or last classes is known as

- (1) exclusive class distribution
- (2) inclusive class distribution
- (3) open end distribution
- (4) discrete frequency distribution

104. The column headings of a table are known as

- (1) stubs
- (2) sub-titles
- (3) reference notes
- (4) captions

105. A selection procedure of a sample without using probability concepts is known as

- (1) Purposive sampling
- (2) Judgement sampling
- (3) Subjective sampling
- (4) All the above three methods

106. The errors in a survey other than sampling errors are called

- (1) non-sampling errors
- (2) planning errors
- (3) formulation errors
- (4) None of the above

107. Sampling frame means

- (1) a list of voters
- (2) a list of sampling units in the population
- (3) a list of households
- (4) a list of random numbers

108. Characteristic of a good questionnaire is

- (1) questions should be without ambiguity
- (2) all questions should be mutually exclusive
- (3) personal questions should not be put
- (4) All the above three

109. Lorenz curve is an indicator of the distribution of two factors which are

- (1) equal
- (2) not equal
- (3) Both (1) and (2)
- (4) cannot say

110. Pictograms are shown by

- (1) pictures
- (2) dots
- (3) circles
- (4) lines

111. What is the percentage of values that lie between 24th and 54th percentiles ?
- (1) 15%
 - (2) 30%
 - (3) 50%
 - (4) 40%
112. If two observations are 10 and -10, then their arithmetic mean is
- (1) 10
 - (2) 0
 - (3) 5
 - (4) ∞
113. The AM and GM of two numbers are 6.5 and 6 respectively. The two numbers are
- (1) 9, 6
 - (2) 9, 5
 - (3) 4, 9
 - (4) 7, 6
114. Which of the following measures of dispersion can attain negative value ?
- (1) Range
 - (2) Mean deviation
 - (3) Standard deviation
 - (4) Variance
115. If each value of a series is divided by 8, then its coefficient of variation is reduced by
- (1) 8%
 - (2) 18%
 - (3) 16%
 - (4) 0%
116. If a distribution is positively skewed, then extreme values lie in the
- (1) anywhere
 - (2) middle
 - (3) left tail
 - (4) right tail
117. Inter quartile range is
- (1) $Q_2 - Q_1$
 - (2) $Q_2 + Q_1$
 - (3) $Q_3 - Q_1$
 - (4) $Q_3 + Q_1$
118. Which of the following statements is true for dispersion measures ?
- (1) It provides basis for control of variability
 - (2) It provides a link between skewness and kurtosis
 - (3) It is least affected by extreme values
 - (4) None of the above statements is true
119. A symmetric distribution is always
- (1) mesokurtic
 - (2) leptokurtic
 - (3) platykurtic
 - (4) can be any one of the above three
120. The relation between mean and mode of a positively skewed distribution is
- (1) mean < mode
 - (2) mean > mode
 - (3) mean = mode
 - (4) there is no relation

121. Mean deviation is minimum when it is measured from
- (1) mean
 - (2) median
 - (3) mode
 - (4) arbitrary value
122. Coefficient of skewness for a symmetric distribution is
- (1) 0
 - (2) -1
 - (3) +1
 - (4) 3
123. For a symmetric distribution
- (1) $Q_2 - Q_1 > Q_3 - Q_2$
 - (2) $Q_2 - Q_1 < Q_3 - Q_2$
 - (3) $Q_2 - Q_1 = Q_3 - Q_2$
 - (4) None of the above
124. A data set is said to be consistent when compared to another data set if coefficient of variation of first data set is
- (1) greater than the coefficient of variation of second data set
 - (2) equal to the coefficient of variation of second data set
 - (3) less than the coefficient of variation of second data set
 - (4) None of the above
125. If the Coefficient of Kurtosis γ_2 is zero, then the frequency curve is
- (1) Leptokurtic
 - (2) Mesokurtic
 - (3) Platykurtic
 - (4) None of the above
126. Regression line passes through the point
- (1) (x_i, y_i)
 - (2) (x_i, \bar{y})
 - (3) (\bar{x}, y_i)
 - (4) (\bar{x}, \bar{y})
127. The two regression lines coincide when the correlation between X and Y is
- (1) Positive
 - (2) Negative
 - (3) Perfect
 - (4) Zero
128. If $r_{X, Y} = 0$, then X and Y are independent if they follow _____ distribution.
- (1) normal
 - (2) binomial
 - (3) Poisson
 - (4) exponential
129. Spearman's rank correlation measure is
- (1) parametric
 - (2) non-parametric
 - (3) cannot be categorised
 - (4) None of the above
130. Karl Pearson's correlation coefficient measures what type of relationship between X and Y ?
- (1) Linear
 - (2) Non-linear
 - (3) Both (1) and (2)
 - (4) None of the above

131. Limits of rank correlation coefficient are
- (1) (0, 1)
 - (2) (-1, 0)
 - (3) (-1, 1)
 - (4) None of the above
132. If b_{XY} and b_{YX} are the two regressions coefficients, then correlation coefficient r_{XY} is
- (1) $\frac{1}{2} (b_{YX} + b_{XY})$
 - (2) $\frac{1}{2} (b_{YX} - b_{XY})$
 - (3) $\sqrt{b_{YX} / b_{XY}}$
 - (4) $\sqrt{b_{YX} b_{XY}}$
133. If the two regression lines are perpendicular to each other, then the relation between regression coefficients is
- (1) $b_{YX} = b_{XY}$
 - (2) $b_{YX} = -b_{XY}$
 - (3) $b_{YX} \leq b_{XY}$
 - (4) None of the above
134. If the correlation between the two variables X and Y is negative, then the regression coefficient of Y on X is
- (1) positive
 - (2) negative
 - (3) zero
 - (4) not certain
135. If $X + 2Y - 5 = 0$ and $2X + 3Y - 8 = 0$ are the two regression lines and $V(X) = 12$, then $V(Y) =$
- (1) 4
 - (2) 16
 - (3) 8
 - (4) 12
136. If the correlation between x and y is unity, it is known as
- (1) perfect correlation
 - (2) perfect positive correlation
 - (3) both (1) and (2)
 - (4) perfect negative correlation
137. The sales of a departmental store on Dussehra and Diwali are associated with which component of time series ?
- (1) Secular trend
 - (2) Seasonal variations
 - (3) Irregular variation
 - (4) All the above three
138. Adjustment of time series data before its analysis is called
- (1) Scaling
 - (2) Tabulation
 - (3) Grouping
 - (4) Editing
139. The factors responsible for occurrence of business cycles are
- (1) scientific and technological developments
 - (2) likes and dislikes of people
 - (3) social customs
 - (4) All the above three
140. A time series is affected by
- (1) Economic factors
 - (2) Non-economic factors
 - (3) Both (1) and (2)
 - (4) Neither (1) nor (2)

141. Dearness allowance is calculated based on
- (1) Price index number
 - (2) Quantity index number
 - (3) Cost of living index number
 - (4) Volume index number
142. An ideal index number has to satisfy
- (1) unit test and time reversal test
 - (2) time reversal and factor reversal test
 - (3) factor reversal and circular test
 - (4) circular test and unit test
143. Most preferred type of average for index numbers is
- (1) Arithmetic mean
 - (2) Geometric mean
 - (3) Harmonic mean
 - (4) Any of the above three
144. Indices computed using chain base are almost free from
- (1) rigidity of weights
 - (2) seasonal variations
 - (3) homogeneity error
 - (4) All the above three
145. Fisher's ideal index number does *not* satisfy
- (1) time reversal test
 - (2) factor reversal test
 - (3) circular test
 - (4) unit test
146. Deflated wage means
- (1) real wage
 - (2) money wage
 - (3) inflated wage
 - (4) None of the above
147. Base year for an index number should be
- (1) any year
 - (2) normal year
 - (3) any year in distant past
 - (4) an abnormal year
148. Data for index numbers computation should be collected from
- (1) the retailers
 - (2) wholesale dealers
 - (3) the selected group of people
 - (4) the shopkeepers from whom most of the customers purchase items
149. Index numbers measure
- (1) price changes
 - (2) scientific changes
 - (3) economic changes
 - (4) trade changes
150. One of the limitations in the construction of index numbers is
- (1) choice of the type of average
 - (2) choice of investigators
 - (3) choice of the variables to be studied
 - (4) All the above three