

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO**TEST BOOKLET****AP (COMPUTER ENGINEERING) (TE) 2014**

Time Allowed : 2 Hours]

[Maximum Marks : 100

*All questions carry equal marks.***INSTRUCTIONS**

1. Immediately after the commencement of the examination, you should check that test booklet does not have any unprinted or torn or missing pages or items, etc. If so, get it replaced by a complete test booklet.
2. Write your Roll Number only in the box provided alongside.
Do not write anything else on the Test Booklet.
3. This Test Booklet contains 100 items (questions). Each item comprises four responses (answers). Choose only one response for each item which you consider the best.
4. After the candidate has read each item in the Test Booklet and decided which of the given responses is correct or the best, he has to mark the circle containing the letter of the selected response by blackening it completely with Black or Blue ball pen. In the following example, response "C" is so marked :
5. Do the encoding carefully as given in the illustrations. While encoding your particulars or marking the answers on answer sheet, you should blacken the circle corresponding to the choice in full and no part of the circle should be left unfilled.
6. You have to mark all your responses ONLY on the ANSWER SHEET separately given according to INSTRUCTIONS FOR CANDIDATES' already supplied to you. Responses marked on the Test Booklet or in any paper other than the answer sheet shall not be examined.
7. All items carry equal marks. Attempt all items. Your total marks will depend only on the number of correct responses marked by you in the Answer Sheet. There will be no negative marking.
8. Before you proceed to mark responses in the Answer Sheet fill in the particulars in the front portion of the Answer Sheet as per the instructions sent to you.
9. After you have completed the test, hand over the Answer Sheet to the Invigilator.

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P.T.O.

Time Allowed : 2 Hours]

1. Which one of the following is the tightest upper bound that represents the number of swaps required to sort n numbers using selection sort ?

(A) $O(\log n)$	(B) $O(n)$
(C) $O(n \log n)$	(D) $O(n^2)$

2. Which one of the following is the tightest upper bound that represents the time complexity of inserting an object into a binary search tree of n nodes ?

(A) $O(1)$	(B) $O(\log n)$
(C) $O(n)$	(D) $O(n \log n)$

3. Which of the following statements are *true* ?
 - (1) The problem of determining whether there exists a cycle in an undirected graph is in P
 - (2) The problem of determining whether there exists a cycle in an undirected graph is in NP
 - (3) If a problem A is NP-complete, there exists a non-deterministic polynomial time algorithm to solve A

(A) (1), (2) and (3)	(B) (1) and (2) only
(C) (2) and (3) only	(D) (1) and (3) only

4. What is the time complexity of Bellman-Ford single-source shortest path algorithm on a complete graph of n vertices ?
- (A) Θn^2 (B) $\Theta n^2 \log n$
 (C) Θn^3 (D) $\Theta n^3 \log n$
5. A list of n strings, each of length n , is sorted into lexicographic order using the merge-sort algorithm. The worst case running time of this computation is :
- (A) $O(n \log n)$ (B) $O(n^2 \log n)$
 (C) $O(n^2 + \log n)$ (D) $O(n^2)$
6. Assuming $P \neq NP$, which of the following is true ?
- (A) $NP\text{-complete} = NP$ (B) $NP\text{-complete} \cap P = \emptyset$
 (C) $NP\text{-hard} = NP$ (D) $P = NP\text{-complete}$
7. The recurrence relation capturing the optimal execution time of the *Towers of Hanoi* problem with n discs is :
- (A) $T(n) = 2T(n - 2) + 2$ (B) $T(n) = 2T(n - 1) + n$
 (C) $T(n) = 2T(n/2) + 1$ (D) $T(n) = 2T(n - 1) + 1$
8. Let $W(n)$ and $A(n)$ denote respectively, the worst case and average case running time of an algorithm executed on an input of size n . Which of the following is always true ?
- (A) $A(n) = \Omega(W(n))$ (B) $A(n) = \Theta(W(n))$
 (C) $A(n) = O(W(n))$ (D) $A(n) = o(W(n))$

9. Which is the number of swaps required to sort n element using selection sort in the worst case :

(A) $\Theta(n)$

(B) $\Theta(n \log n)$

(C) $\Theta(n^2)$

(D) $\Theta(n^2 \log n)$

10. In the worst case the number comparison needed to search singly linked list is :

(A) $\log_2 n$

(B) $n/2$

(C) $\log_2 n - 1$

(D) n

11. What will be the output of the following C program segment ?

```
char inChar='A';  
switch (inChar) {  
case 'A' : printf ("Choice A");  
case 'B' :  
case 'C' : printf("Choice B");  
case 'D' :  
case 'E' :  
default : printf("No choice"); }
```

(A) No choice

(B) Choice A

(C) Choice A Choice B No choice

(D) Program gives no output as it is erroneous

12. What does the following fragment of C-program print ?

```
char c[ ]="GATE2011";
```

```
char *p=c;
```

```
printf("%s", p+p [3]-p[1]);
```

(A) GATE2011

(B) E2011

(C) 2011

(D) 011

13. The output of the following program fragment is :

```
x=5;
```

```
y=x++;
```

```
printf("%d,%d", x,y);
```

(A) 5, 6

(B) 5, 5

(C) 6, 5

(D) 6, 6

14. What cannot replace "?" in the following C code to print all odd numbers less than 100 :

```
for(i=1; ?; I=I+2)
```

```
printf("%d/n", i);
```

(A) i<=100

(B) i<=101

(C) i<100

(D) i<101

15. The output of the following program segment is :

```
main( )  
{  
    int x=0;  
    while(x<=10)  
        for(;;)  
            if(++x%10==0)  
                break;  
    printf("x=%d", x);
```

- (A) x=1
- (B) compilation error
- (C) x=20
- (D) none of these

16. How many times the following would print "abc" :

```
main( )  
{  
    printf("\n abc");  
    main( );  
}
```

- (A) infinite number of times
- (B) 32767 times
- (C) 65535 times
- (D) till the stack does not overflow

17. What will be the value of i for the following :
- ```
int f=11, i=3;
i+=(f>3) ? i & 2 : 5;
```
- (A) 2 (B) 5  
(C) 13 (D) 12
18. An unrestricted GOTO statement is harmful because :
- (A) It makes it more difficult to verify programs  
(B) It increases the running time of the program  
(C) It increases the memory required to program  
(D) It generates the compiler generating longer machine code
19. The function `sprint( )` works like `printf( )` but operates on :
- (A) data in a file (B) `stderr`  
(C) `stdin` (D) string
20. The goal of structured programming is to :
- (A) have well indented program  
(B) be able to infer the flow of control from the compiled program  
(C) be able to infer the flow of control in the program context  
(D) avoid the use of GOTO statement

21. What is the maximum number of reduce moves that can be taken by a bottom-up parser for a Grammar with no epsilon-and unit-production (i.e., of type  $A \rightarrow \epsilon$  and  $A \rightarrow a$ ) to parse a string with  $n$  tokens ?
- (A)  $n/2$  (B)  $2n - 1$   
 (C)  $n - 1$  (D)  $2^n$
22. In a compiler, keywords of a language are recognized during :
- (A) parsing of the program  
 (B) the code generation  
 (C) the lexical analysis of the program  
 (D) dataflow analysis
23. In a compiler the module that checks every character of source code is called :
- (A) The code generator (B) The code optimizer  
 (C) The lexical analyser (D) Syntax analyser
24. The number of tokens in C program are :
- ```
printf("i=%d,&i=%x", i,&i)
```
- (A) 3 (B) 26
 (C) 10 (D) 21

25. In a compiler keywords are recognized during :
- (A) parsing of the program
 - (B) the code generation
 - (C) the lexical analysis of the program
 - (D) dataflow analysis
26. Which of the statements is *true* ?
- (A) SLR parser is more powerful than LALR
 - (B) LALR parser is more powerful than canonical LR parser
 - (C) Canonical LR parser is more powerful than LALR parser
 - (D) The Parser SLR, canonical LR, LALR have same power
27. Consider the grammar shown below :
- $S \rightarrow CC$
- $C \rightarrow cC \mid d$
- The grammar is :
- (A) LR(1) but not LALR(1)
 - (B) SLR(1) but not LL(1)
 - (C) LALR(1) but not SLR(1)
 - (D) LL(1)
28. The Grammar $A \rightarrow AA \mid (A) \mid \epsilon$ is not suitable for predictive parsing because the grammar is :
- (A) Ambiguous
 - (B) Left recursive
 - (C) Right recursive
 - (D) An operator grammar

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29. Which of the following is the top down parser ?

(A) Recursive decent

(B) Operator precedence

(C) An LR(k) parser

(D) An LALR(k)

30. Given the language $L = \{ab, aa, baa\}$, which of the following strings are in L^* ?

(1) abaabaaabaa

(2) aaaabaaaa

(3) baaaaabaaaab

(4) baaaaabaa

(A) (1), (2) and (3)

(B) (2), (3) and (4)

(C) (1), (2) and (4)

(D) (1), (3) and (4)

31. Consider the following sequence of micro-operations :

MBR \leftarrow PC

MAR \leftarrow X

PC \leftarrow Y

Memory \leftarrow MBR

Which one of the following is a possible operation performed by this sequence ?

(A) Instruction fetch

(B) Operand fetch

(C) Conditional branch

(D) Initiation of interrupt service

32. The simplified SOP (sum of product) form of the Boolean expression $(P + Q' + R') \cdot (P + Q' + R) \cdot (P + Q + R')$ is :
- (A) $(P + Q' + R')$ (B) $(P + Q' R')$
 (C) $(P'Q + R)$ (D) $(PQ + R)$
33. A RAM chip has a capacity of 1024 words of 8 bits each $1\text{K} \times 8$. The number of 2×4 decoders with enable line needed to construct a $16\text{K} \times 16$ RAM from $1\text{K} \times 8$ RAM is :
- (A) 4 (B) 5
 (C) 6 (D) 7
34. The smallest integer that can be represented by an 8-bit number in 2's complement form, is :
- (A) -256 (B) -128
 (C) -127 (D) 0
35. Which one of the following expressions *does not* represent exclusive NOR of x and y ?
- (A) $xy + x'y'$ (B) $x \oplus y'$
 (C) $x' \oplus y$ (D) $x' \odot y'$

36. The decimal value 0.5 in IEEE single precision floating point representation has :
- (A) fraction bits of 000.....000 and exponent value of 0
 - (B) fraction bits of 000.....000 and exponent value of -1
 - (C) fraction bits of 100.....000 and exponent value of 0
 - (D) no exact representation
37. The amount of ROM needed to implement a 4 bit multiplier is :
- (A) 64 bits
 - (B) 128 bits
 - (C) 1 Kbits
 - (D) 2 Kbits
38. Register renaming is done in pipelined processors :
- (A) as an alternative to register allocation at compile time
 - (B) for efficient access to function parameters and local variables
 - (C) to handle certain kinds of hazards
 - (D) as part of address translation

39. An 8KB direct mapped write-back cache is organized as multiple blocks, each of size 32-bytes. The processor generates 32-bit addresses. The cache controller maintains the tag information for each cache block comprising of the following :

1 Valid bit,

1 Modified bit,

As many bits as the minimum needed to identify the memory block mapped in the cache. What is the total size of memory needed at the cache controller to store metadata (tags) for the cache ?

(A) 4864 bits

(B) 6144 bits

(C) 6656 bits

(D) 5376 bits

40. An application loads 100 libraries at startup. Loading each library requires exactly one disk access. The seek time of the disk to a random location is given as 10 ms. Rotational speed of disk 6000 rpm. If all 100 libraries are loaded from random locations on the disk, how long does it take to load all libraries ? (The time to transfer data from the disk block once the head has been positioned at the start of the block may be neglected) ;

(A) 0.50 s

(B) 1.50 s

(C) 1.25 s

(D) 1.00 s

41. Determine the maximum length of cable (in km) for transmitting data at a rate of 500 Mbps in an Ethernet LAN with frames of size 10,000 bits. Assume the signal speed in the cable to be 2,00,000 km/s :
- (A) 1 (B) 2
(C) 2.5 (D) 5
42. In an IPv4 datagram, the M bit is 0, the value of HLEN is 10, the value of total length is 400 and the fragment offset value is 300. The position of the datagram, the sequence numbers of the first and the last bytes of the payload, respectively are :
- (A) Last fragment, 2400 and 2789
(B) First fragment, 2400 and 2759
(C) Last fragment, 2400 and 2759
(D) Middle fragment, 300 and 689
43. Using public key cryptography X adds a digital signature σ to message M, encrypts $\langle M, \sigma \rangle$, and sends it to Y, where it is decrypted. Which one of the following sequences of keys is used for the operations ?
- (A) Encryption : X's private key followed by Y's private key; Decryption : X's public key followed by Y's public key
(B) Encryption : X's private key followed by Y's public key; Decryption : X's public key followed by Y's private key
(C) Encryption : X's public key followed by Y's private key; Decryption : Y's public key followed by X's private key
(D) Encryption : X's private key followed by Y's public key; Decryption : Y's private key followed by X's public key

44. Match the program domains in Group I with the solution technologies in Group II :

Group I

Group II

- | | |
|---|-----------------------|
| (P) Services oriented computing | (1) Interopertability |
| (Q) Heterogeneous communicating systems | (2) BPMN |
| (R) Information representation | (3) Publish-find bind |
| (S) Process description | (4) XML |

(A) (P)→(1), (Q)→(2), (R)→(3), (S)→(4)

(B) (P)→(3), (Q)→(4), (R)→(2), (S)→(1)

(C) (P)→(3), (Q)→(1), (R)→(4), (S)→(2)

(D) (P)→(4), (Q)→(3), (R)→(2), (S)→(1)

45. Which one of the following are used to generate a message digest by the network security protocols ?

(P) RSA (Q) SHA-1

(R) DES (S) MD5

(A) (P) and (R) Only (B) (Q) and (S) Only

(C) (Q) and (S) Only (D) (R) and (S) Only

46. The transport layer protocols used for real time multimedia, file transfer, DNS and email, respectively are :
- (A) TCP, UDP, UDP and TCP
 - (B) UDP, TCP, TCP and UDP
 - (C) UDP, TCP, UDP and TCP
 - (D) TCP, UDP, TCP and UDP
47. Assume that source S and destination D are connected through two intermediate routers labeled R. Determine how many times each packet has to visit the network layer and the data link layer during a transmission from S to D. S—R—R—D
- (A) Network layer—4 times and Data link layer—4 times
 - (B) Network layer—4 times and Data link layer—3 times
 - (C) Network layer—4 times and Data link layer—6 times
 - (D) Network layer—2 times and Data link layer—6 times
48. The protocol data unit (PDU) for the application layer in the Internet stack is :
- (A) Segment
 - (B) Datagram
 - (C) Message
 - (D) Frame

49. In the IPv4 addressing format, the number of network allowed under Class C addresses is :
- (A) 2^{14} (B) 2^7
(C) 2^{21} (D) 2^{24}
50. Which of the following transport layer protocols is used to support electronic mail ?
- (A) SMTP (B) IP
(C) TCP (D) UDP
51. In a binary maxheap counting n numbers the smallest element can be found in time :
- (A) $\Theta(n)$ (B) $\Theta \log n$
(C) $\Theta (\log \log n)$ (D) $\Theta(1)$
52. The preorder traversal sequence of a binary search tree is 30, 20, 10, 15, 25, 23, 39, 35, 42. Which one of the following is the postorder traversal sequence of the same tree ?
- (A) 10, 20, 15, 23, 25, 35, 42, 39, 30
(B) 15, 10, 25, 23, 20, 42, 35, 39, 30
(C) 15, 20, 10, 23, 25, 42, 35, 39, 30
(D) 15, 10, 23, 25, 20, 35, 42, 39, 30

53. Consider the following operation along with Enqueue and Dequeue operations on queues, where k is a global parameter :

```
multiDequeue(Q) {  
    m=k  
    while (Q is not empty) and m>0 {  
        Dequeue Q  
        m=m-1  
    }  
}
```

What is the worst case time complexity of a sequence of n queue operations on an initially empty queue ?

- (A) $\Theta(n)$ (B) $\Theta(n + k)$
(C) $\Theta(nk)$ (D) Θn^2
54. The worst case running time to search for an element in a balanced binary search tree with $n2^n$ elements is :
- (A) $\Theta(n \log n)$ (B) $\Theta(n^2)$
(C) $\Theta(n)$ (D) $\Theta(\log n)$

55. We are given a set of n distinct elements and an unlabeled binary tree with n nodes. In how many ways can we populate the tree with the given set so that it becomes a binary search tree ?
- (A) 0
(B) 1
(C) $n!$
(D) $2^n C_n$, $1/n+1$
56. In what tree for every node the height of its left subtree and right subtree differ by at least by one :
- (A) Binary search tree
(B) AVL tree
(C) Threaded binary tree
(D) Complete tree
57. An algorithm that will sort effectively an array that is nearly sorted except for the interchange of some adjacent pair of numbers like 1, 3, 2, 5, 4, 6 :
- (A) quick sort
(B) bubble sort
(C) merge sort
(D) selection sort
58. What is the time required to insert an element in a stack with linked implementation ?
- (A) $O(\log_2 n)$
(B) $O(n)$
(C) $O(n \log_2 n)$
(D) $O(1)$

59. Which of the following is *false* ?
- (A) Every tree is a bipartite graph
 - (B) A tree contains a cycle
 - (C) A tree with n nodes contains $(n-1)$ edges
 - (D) A tree is a connected graph
60. In a heap, every element is of all elements in the subtree.
- (A) maximum
 - (B) minimum
 - (C) maximum or minimum
 - (D) product
61. A superkey for an entity consists of :
- (A) one attribute only
 - (B) at least two attributes
 - (C) at most two attributes
 - (D) one or more attributes
62. An index is clustered, if :
- (A) it is on a set of fields that form a candidate key
 - (B) it is on a set of fields that include the primary key
 - (C) the data records of the file are organized in the same order as the data entries of the index
 - (D) the data records of the file are organized not in the same order as the data entries of the index

63. The completeness constraint rule :

- (A) Supertype, subtype
- (B) total specialization, partial specialisation
- (C) specialization, generalization
- (D) all of the above

64. Consider the following transactions with data items P and Q initialized to zero :

T1 : read (P);

read (Q);

if $P = 0$ then $Q := Q + 1$;

write (Q).

T2 : read (Q);

read (P);

if $Q = 0$ then $P := P + 1$;

write (P).

Any non-serial interleaving of T1 and T2 for concurrent execution leads to :

- (A) a serializable schedule
- (B) a schedule that is not conflict serializable
- (C) a conflict serializable schedule
- (D) a schedule for which precedence graph cannot be drawn

65. Which of the following is *true* ?
- (A) Every relation in 3NF is also in BCNF
 - (B) A relation R is in 3NF if every non-prime attribute of R is fully functionally dependent on every key of R
 - (C) Every relation in BCNF is also in 3NF
 - (D) No relation can be in both BCNF and 3NF
66. What is the correct translation of the following statement into mathematical logic ?
- “Some real numbers are rational” :
- (A) $\exists x(\text{real}(x) \vee \text{rational}(x))$
 - (B) $\forall x(\text{real}(x) \rightarrow \text{rational}(x))$
 - (C) $\exists x(\text{real}(x) \wedge \text{rational}(x))$
 - (D) $\exists x(\text{rational}(x) \rightarrow \text{real}(x))$
67. Given the basic ER and relational models, which of the following is *incorrect* ?
- (A) An attribute of an entity can have more than one value
 - (B) An attribute of an entity can be composite
 - (C) In a row of relational table, an attribute can have more than one value
 - (D) In a row of a relational table, an attribute can have exactly one value or a *Null* value

68. Which of the following statements are *true* about an SQL query ?

P : An SQL query can contain a HAVING clause even if it does not have a GROUP by clause

Q : An SQL query can contain a HAVING clause only if it has GROUP by clause .

R : All attributes used in the GROUP BY clause must appear in the SELECT clause

S : Not all attributes used in the GROUP BY clause need to appear in the SELECT clause

(A) P and R (B) P and S

(C) Q and R (D) Q and S

69. Database table by name Loan_Records is given below :

Borrower	Bank_Manager	Loan_Amount
Ramesh	Sunderajan	10,000.00
Suresh	Ramgopal	5,000.00
Mahesh	Sunderajan	7,000.00

What is the output of the following SQL query ?

```
SELECT count(*) FROM( (SELECT Borrower, Bank_Manager FROM Loan_Records) AS S NATURAL JOIN (SELECT Bank_Manager, Loan_Amount FROM Loan_Records) AS T);
```

(A) 3 (B) 9

(C) 5 (D) 6

70. Which of the following statements is *true* ?
- (A) Ordered indexing will always outperform hashing for both queries.
 - (B) Hashing will always outperform ordered indexing for both queries
 - (C) Hashing will outperform ordered indexing on Q1, but not on Q2
 - (D) Hashing will outperform ordered indexing on Q2, but not on Q1
71. A scheduling algorithm assigns priority proportional to the waiting time of a process. Every process starts with priority zero (the lowest priority). The scheduler re-evaluates the process priorities every T time units and decides the next process to schedule. Which one of the following is TRUE if the processes have no I/O operations and all arrive at time zero ?
- (A) This algorithm is equivalent to the first-come-first-serve algorithm
 - (B) This algorithm is equivalent to the round-robin algorithm
 - (C) This algorithm is equivalent to the shortest-job-first algorithm
 - (D) This algorithm is equivalent to the shortest-remaining-time-first algorithm

72. Consider the 3 processes, P1, P2 and P3 shown in the table.

Processes	Arrival Time	Time units Required
P1	0	5
P2	1	7
P3	3	4

The completion order of the 3 processes under the policies FCFS and RR2 (round robin scheduling with CPU quantum of 2 time units) are :

- (A) FCFS : P1, P2, P3 RR2 : P1, P2, P3
- (B) FCFS : P1, P3, P2 RR2 : P1, P3, P2
- (C) FCFS : P1, P2, P3 RR2 : P1, P3, P2
- (D) FCFS : P1, P3, P2 RR2 : P1, P2, P3

73. A file system with 300 GByte disk uses a file descriptor with 8 direct block addresses, 1 indirect block address and 1 doubly indirect block address. The size of each disk block is 128 bytes and the size of each disk block address is 8 bytes. The maximum possible file size in this file system is :

- (A) 3 KBytes
- (B) 35 KBytes
- (C) 280 KBytes
- (D) dependent on the size of the disk

74. Consider the virtual page reference string 1, 2, 3, 2, 4, 1, 3, 2, 4, 1 on a demand paged virtual memory system running on a computer system that has main memory size of 3 page frames which are initially empty. Let LRU, FIFO and OPTIMAL denote the number of page faults under the corresponding page replacement policy. Then :

- (A) OPTIMAL < LRU < FIFO
- (B) OPTIMAL < FIFO < LRU
- (C) OPTIMAL = LRU
- (D) OPTIMAL = FIFO

75. A process executes the code :

```
fork( );
fork( );
fork( );
```

The total number of child processes created is :

- (A) 3
- (B) 4
- (C) 7
- (D) 8

76. Consider the following table of arrival time and burst time for three processes P0, P1 and P2 :

Process	Arrival Time	Burst Time
P0	0 ms	9 ms
P1	1 ms	4 ms
P2	2 ms	9 ms

The pre-emptive shortest job first scheduling algorithm is used. Scheduling is carried out only at arrival or completion of processes. What is the average waiting time.

- (A) 5.0 ms
- (B) 4.33 ms
- (C) 6.33 ms
- (D) 7.33 ms

77. A thread is usually defined as a 'light weight process' because an operating system (OS) maintains smaller data structures for a thread than for a process. In relation to this, which of the following is *true* ?
- (A) On per thread basis, the OS maintains only CPU register state
 - (B) The OS does not maintain a separate stack for each thread
 - (C) On per thread basis, the OS does not maintain virtual memory state
 - (D) On per thread basis, the OS maintains only scheduling and accounting information
78. Let the page fault service time be 10 ms in a computer with average memory access time being 20 ns. If one page fault is generated for every 10^6 memory access, what is the effective access time for the memory ?
- (A) 21 ns
 - (B) 30 ns
 - (C) 23 ns
 - (D) 35 ns
79. The register or main memory location which contains the effective address of the operand is known as :
- (A) pointer
 - (B) special location
 - (C) indexed register
 - (D) none of these

80. A software to create job queue is called :
- (A) Linkage editor (B) Interpreter
(C) Driver (D) Spooler
81. What is the name of the village in Bilaspur District of H.P. where a bus fell into Gobind Sagar skilling about 25 persons ?
- (A) Galian (B) Rishikesh
(C) Jeori Pattan (D) Rahiyan
82. How long did the Tibetan scholar Kin-Chan-Sang-Po stay in Lahaul-Spiti and Kinnaur ?
- (A) Seven years (B) Thirteen years
(C) Seventeen years (D) Twenty years
83. What was the expected growth rate in H.P. during the 2013-14 fiscal ?
- (A) 5.5 percent (B) 5.9 percent
(C) 6.2 percent (D) 6.6 percent
84. During 2013-14 (upto December 2013) what was the total production of fruits in H.P. (in lakh tons) :
- (A) 6.57 (B) 7.23
(C) 7.80 (D) 8.28

35. How much food grain is provided to the consumers under the *Rajeev Gandhi Ann Yojna* in H.P. ?
- (A) 2 kg Wheat and 2 kg Rice
(B) 3 kg Wheat and 3 kg Rice
(C) 3 kg Wheat and 2 kg Rice
(D) 2 kg Wheat and 3 kg Rice
86. In which village of Kinnaur District is Chandika Devi temple ?
- (A) Kothi (B) Sarahan
(C) Sungra (D) Kamru
87. What is the approximate length of Himachal's international border with Tibet ?
- (A) 200 kms (B) 300 kms
(C) 400 kms (D) 500 kms
88. Which region of H.P. is suitable for the cultivation of seed Potato ?
- (A) Kuthlehar (B) Lahaul
(C) Bara Bhangal (D) Sunder Nagar
89. To which category of expectant mothers is free institutional delivery facility provided in H.P. under the *Matri Seva Yojna* :
- (A) to all dalit women
(B) to all women belonging to BPL families
(C) to all women belonging to Dalit and BPL families
(D) to all women irrespective of their caste or income.

90. Which girl of Himachal Pradesh was the member of Kabbaddi team that won gold medal at the 2014 Asian Games at Incheon ?
- (A) Sarita Thakur (B) Habita Thakur
(C) Kavita Thakur (D) Namita Thakur
91. Which women Police Inspector of J & K was awarded International Female Police Peace Keeper award recently ?
- (A) Bhakti Devi (B) Shakti Devi
(C) Kashi Devi (D) Kunti Devi
92. Who won the 2014 Nobel Prize in Economic Sciences ?
- (A) Jean Tirola (B) Jean Charles Rochet
(C) Bengt Holmsfrom (D) Maithias Dewatripont
93. Who set up the Indian Institute of Science, Bangalore ?
- (A) Tej Bahadur Sapru (B) Jamshed Ji Tata
(C) G.D. Birla (D) Shanti Swarup Bhatnagar
94. Who became the Chief Minister of Tamil Nadu after the ouster of J. Jayalalitha ?
- (A) Gokula Indira (B) Natham Raviswanathan
(C) Panneerselvam (D) Ms. Kanimozhi

95. Who is the President of Afghanistan ?
- (A) Ashraf Ghani (B) Abdullah Abdulla
(C) Hamid Karzai (D) Badshah Khan
96. What religion did B.R. Ambedkar embrace after leaving Hindism ?
- (A) Islam (B) Christianity
(C) Jainism (D) Buddhism
97. Alexandro Gustave Eiffel is remembered for Eiffel Tower, Paris ? What else is he known for ?
- (A) Suez Canal (B) Panama Canal Locks
(C) Leaving Tower of Pissa (D) Le Rove Tunnel
98. Which Assembly Constituency witnessed highest voter turn out during the 2014 elections in Haryana ?
- (A) Tohana (B) Uchana Kalan
(C) Ellenabad (D) Sadhaura
99. Who won the 2014 The Man Booker Prize ?
- (A) Richard Flanagan (B) Neel Mukherjee
(C) Eleanor Catton (D) Kiran Desai
100. Which Sikh Guru founded the Golden Temple at Amritsar ?
- (A) Guru Nanak (B) Guru Amar Das
(C) Guru Ram Das (D) Guru Arjan Dev