LCC-SJCE
CONGREGATE CREATE CONTRIBUTE

LINUX CAMPUS CLUB , SJCE MYSURU

FOSS CAMP 2017

VIVECHAN

ROUND - I

INSTRUCTIONS :

1. This round contains Aptitude, Logical Reasoning, Technical, Algorithm and Puzzle questions comprising 5 sections.
2. The Aptitude and Technical questions carry one mark each. The Algorithm and Puzzle questions carry 5 marks each.
3. There is no negative marking.
4. Shortlisted students will receive a mail from vivechan17@gmail.com.
5. Decisions of organizers are final.
6. The soft copy of question paper along with solutions will be shared with all the participants after the completion of the event.

USN : **SEMESTER :**

NAME : **BRANCH :**

Your Preference for Round 2 (Tick):

1. Coding Round ☐
2. Group Discussion ☐

FOR USE OF ORGANIZERS

SECTION(MAX MARKS)	APTITUDE ( )	LOGICAL ( )	TECHNICAL ( )	ALGORITHM ( )	PUZZLE ( )
MARKS OBTAINED					

TOTAL MARKS OBTAINED : /

APTITUDE

1. A man walks diagonally across a square plot. Approximately, what was percent he saved by not walking along edges ? (Approximately)

A. 10 B. 20

C. 30 D. 40

2. From a point P on a level ground, the angle of elevation of the top tower is 30º. If the tower is 100 m high, the distance of point P from the foot of the tower is:

A. 149 m B. 156 m

C. 173 m D. 200 m

3. A train passes a station platform in 36 seconds and a man standing on the platform in 20 seconds. If the speed of the train is 54 km/hr, what is the length of the platform?

A. 120 m B. 240 m

C. 300 m D. None of these

4. A train can travel 50% faster than a car. Both start from point A at the same time and reach point B 75 kms away from A at the same time. On the way, however, the train lost about 12.5 minutes while stopping at the stations. The speed of the car is :

A. 100 kmph B. 110 kmph

C. 120kmph D. 130 kmph

5. Srivatsa purchased 20 dozens of toys at the rate of Rs. 375 per dozen. He sold each one of them at the rate of Rs. 33. What was his percentage profit?

A. 3.5 B. 4.5

C. 6.5 D. 5.6

6. Six bells commence tolling together and toll at intervals of 2, 4, 6, 8 10 and 12 seconds respectively. In 30 minutes, how many times do they toll together ?

A. 4 B. 10

C. 15 D. 16

7. How many 3-digit numbers can be formed from the digits 2, 3, 5, 6, 7 and 9, which are divisible by 5 and none of the digits is repeated?

A. 5 B. 10

C. 15 D. 20

8. If log 2 = 0.3010 and log 3 = 0.4771, the value of $\log_5 512$ is :

A. 2.870 B. 2.967

C. 3.876 D. 3.912

9. At what time between 7 and 8 o'clock will the hands of a clock be in the same straight line but, not together?

A. 5 min. past 7

B. $5\frac{5}{11}$ min. past 7

C. $5\frac{3}{11}$ min. past 7

D. 6 min. past 7

10. A man's speed with the current is 15 km/hr and the speed of the current is 2.5 km/hr. The man's speed against the current is:

A. 8.5 km/hr

B. 9 km/hr

C. 10 km/hr

D. 12.5 km/hr

11. What will be the day of the week 15^{th} August, 2010?

A. Sunday

B. Monday

C. Tuesday

D. Friday

12. A, B and C jointly thought of engaging themselves in a business venture. It was agreed that A would invest Rs. 6500 for 6 months, B, Rs. 8400 for 5 months and C, Rs. 10,000 for 3 months. A wants to be the working member for which, he was to receive 5% of the profits. The profit earned was Rs. 7400. Calculate the share of B in the profit.

A. Rs. 1900

B. Rs. 2660

C. Rs. 2800

D. Rs. 2840

13. Two numbers are respectively 20% and 50% more than a third number. The ratio of the two numbers is :

A. 2 : 5

B. 3 : 5

C. 4 : 5

D. 6 : 7

14. Two pipes A and B can fill a cistern in 37.5 minutes and 45 minutes respectively. Both pipes are opened. The cistern will be filled in just half an hour, if the B is turned off after:

A. 5 min.

B. 9 min.

C. 10 min.

D. 15 min.

15. Tea worth Rs. 126 per kg and Rs. 135 per kg are mixed with a third variety in the ratio 1 : 1 : 2. If the mixture is worth Rs. 153 per kg, the price of the third variety per kg will be:

A. Rs. 169.50

B. Rs. 170

C. Rs. 175.50

D. Rs. 180

16. The difference between the length and breadth of a rectangle is 23 m. If its perimeter is 206 m, then its area is:

A. 1520 m^2 B. 2420 m^2

C. 2480 m^2 D. 2520 m^2

17. A hall is 15 m long and 12 m broad. If the sum of the areas of the floor and the ceiling is equal to the sum of the areas of four walls, the volume of the hall is: (in m^3)

A. 720 B. 900

C. 1200 D. 1800

18. What is the probability of getting a sum 9 from two throws of a dice?

A. 1/6 B. 1/8

C. 1/9 D. 1/12

19. A sum of money at simple interest amounts to Rs. 815 in 3 years and to Rs. 854 in 4 years. The sum is:

A. Rs. 650 B. Rs. 690

C. Rs. 698 D. Rs. 700

20. I forgot the last digit of a 7-digit telephone number. If one randomly dials the final 3 digits after correctly dialling the first four, then what is the chance of dialling the correct number?

A. 1/1001 B. 1/1000

C. 1/999 D. 1/990

LOGICAL REASONING

1. 22, 21, 23, 22, 24, 23, ... What number should come next?

A. 22 B. 24

C. 25 D. 26

2. Window is to pane as book is to

A. novel B. glass

C. cover D. page

3. **Statement:** Unemployment allowance should be given to all unemployed Indian youth above 18 years of age.

Assumptions:

1. There are unemployed youth in India who needs monetary support.
2. The government has sufficient funds to provide allowance to all unemployed youth.

A. Only assumption 1 is implicit
B. Only assumption 2 is implicit
C. Either 1 or 2 is implicit
D. Neither 1 nor 2 is implicit
E. Both 1 and 2 are implicit

4. Here are some words translated from an artificial language.
Hapllesh means cloudburst
srenchoch means pinball
resbosrench means ninepin
Which word could mean "cloud nine"?

A. leshsrench
B. ochhapl
C. haploch
D. haplresbo

5. B_2CD , _____ , BCD_4 , B_5CD , BC_6D

A. B_2C_2D
B. BC_3D
C. B_2C_3D
D. BCD_7

6. ELFA, GLHA, ILJA, _____, MLNA

A. OLPA
B. KLMA
C. LLMA
D. KLLA

7. Replace the question mark :
3 : 12 :: 5 : ?

A. 25
B. 35
C. 30
D. 40

8. Replace the question mark :
14 : 9 :: 26 : ?

A. 12
B. 13
C. 31
D. 15

9. Complete the series : 17,27,37,56,__

A. 49
B. 57
C. 78
D. 62

10. In the question, three out of 4 alternatives contains letters of alphabet placed in particular form. Find one that doesn’t belong to the group.

A. ZS12
B. PM4
C. RJ16
D. FD12

11. Pointing to a photograph of a boy Suresh said, "He is the son of the only son of my mother." How is Suresh related to that boy?

A. Brother
B. Uncle
C. Cousin
D. Father

12. If A + B means A is the mother of B; A - B means A is the brother B; A % B means A is the father of B and A x B means A is the sister of B, which of the following shows that P is the maternal uncle of Q?

A. Q - N + M x P
B. P + S x N - Q
C. P - M + N x Q
D. Q - S % P

13. A, B, C, D and E are sitting on a bench. A is sitting next to B, C is sitting next to D, D is not sitting with E who is on the left end of the bench. C is on the second position from the right. A is to the right of B and E. A and C are sitting together. In which position A is sitting ?

A. Between B and D
B. Between B and C
C. Between E and D
D. Between C and E

14. **Question :** In which year was Rahul born ?
Statements :

I. Rahul at present is 25 years younger to his mother.

II. Rahul's brother, who was born in 1964, is 35 years younger to his mother.

A. I alone is sufficient while II alone is not sufficient

B. II alone is sufficient while I alone is not sufficient

C. Either I or II is sufficient

D. Neither I nor II is sufficient

E. Both I and II are sufficient

15. **Question :** How many children does M have ?

Statements:

I. H is the only daughter of X who is wife of M.

II. K and J are brothers of M.

A. I alone is sufficient while II alone is not sufficient

B. II alone is sufficient while I alone is not sufficient

C. Either I or II is sufficient

D. Neither I nor II is sufficient

E. Both I and II are sufficient

TECHNICAL

1. Predict the output of below program:

```
#include <stdio.h>
 int main()
 {
 int arr[5];
 // Assume that base address of arr is 2000 and size of integer
    // is 32 bit
 arr++;
 printf("%u", arr);

 return 0;
 }
```

A. 2002

B. 2004

C. 2020

D. Error

2. Predict the output of following program?

```
#include "stdio.h"
int main()
{
  char arr[100];
  printf("%d", scanf("%s", arr));
  /* Suppose that input value given for above scanf is "FossCamp" */
  return 1;
}
```

A. 8

B. 9

C. 1

D. 100

3. What is the output of following program?

```
# include <stdio.h>
 void fun(int x)
 {
 x = 30;
 }

 int main()
{
 int y = 20;
 fun(y);
 printf("%d", y);
 return 0;
}
```

A. 30

B. 20

C. Compiler Error

D. Runtime Error

4. What is the output of following program?

```
 # include <stdio.h>

 int main()
{
 char str1[] = "LCCSJCE";
 char str2[] = {'L', 'C', 'C', 'S', 'J', 'C', 'E'};
 int n1 = sizeof(str1)/sizeof(str1[0]);
 int n2 = sizeof(str2)/sizeof(str2[0]);
 printf("n1 = %d, n2 = %d", n1, n2);
 return 0;
}
```

A. n1 = 8, n2 = 7

B. n1 = 7, n2 = 8

C. n1 = 8, n2 = 8

D. n1 = 7, n2 = 7

5. Predict the output :

```
#include <stdio.h>
int main()
{
 printf("%d", main);
 return 0;
}
```

A. Address of main function

B. Compiler Error

C. Runtime Error

D. Some random value

6. Predict the output :

```
#include <stdio.h>
int main()
{
    int (*ptr)(int ) = fun;
    (*ptr)(3);
    return 0;
}
int fun(int n)
{
   for(;n > 0; n--)
      printf("LCC ");
   return 0;
}
```

A. LCC LCC LCC

B. Compiler Error

C. Runtime Error

D. LCC LCC

7. Let A be a square matrix of size n x n. Consider the following program. What is the expected output?

```
C = 100
for i = 1 to n do
for j = 1 to n do
{
   Temp = A[i][j] + C
   A[i][j] = A[j][i]
   A[j][i] = Temp - C
}
for i = 1 to n do
for j = 1 to n do
   Output(A[i][j]);
```

A. Transpose of matrix A

B. Adding 100 to the upper diagonal elements and subtracting 100 from diagonal elements of A

C. The matrix A itself

D. None of the above

8. What is the output of following program?

```
#include<stdio.h>
void swap(char *str1, char *str2)
{
  char *temp = str1;
  str1 = str2;
  str2 = temp;
}
int main()
{
  char *str1 = "LCC SJCE";
  char *str2 = "FOSS CAMP";
  swap(str1, str2);
  printf("str1 is %s, str2 is %s", str1, str2);
  return 0;
}
```

A. str1 is FOSS CAMP, str2 is FOSS CAMP

B. str1 is FOSS CAMP, str2 is LCC SJCE

C. str1 is LCC SJCE, str2 is LCC SJCE

D. str1 is LCC SJCE, str2 is FOSS CAMP

9. What is the output of following program?

```
#include <stdio.h>
int main()
{
        float c = 5.0;
        printf ("Temperature in Fahrenheit is %.2f", (9/5)*c + 32);
        return 0;
}
```

A. Temperature in Fahrenheit is 41.00

B. Temperature in Fahrenheit is 37.00

C. Temperature in Fahrenheit is 0.00

D. Compiler Error

10. A program P reads in 500 integers in the range [0..100] exepresenting the scores of 500 students. It then prints the frequency of each score above 50. What would be the best way for P to store the frequencies?

A. An array of 50 numbers

B. An array of 100 numbers

C. An array of 500 numbers

D. A dynamically allocated array of 550 numbers

11. Predict the output :

```
#include <stdio.h>
int main()
{
    if (sizeof(int) > -1)
        printf("Yes");
    else
        printf("No");
    return 0;
}
```

A. Yes

B. No

C. Compiler Error

D. Runtime Error

12. What is the return value of following function for arr[] = {9, 12, 2, 11, 2, 2, 10, 9, 12, 10, 9, 11, 2} and n is size of this array.

```
int fun(int arr[], int n)
{
int x = arr[0];
for (int i = 1; i < n; i++)
   x = x ^ arr[i];
return x;
}
```

A. 9

B. 0

C. 2

D. 12

13. What does the following function do?

```
int fun(unsigned int n)
{
   if (n == 0 || n == 1)
     return n;
   if (n%3 != 0)
     return 0;
   return fun(n/3);
}
```

A. It returns 1 when n is a multiple of 3, otherwise returns 0

B. It returns 1 when n is a power of 3, otherwise returns 0

C. It returns 0 when n is a multiple of 3, otherwise returns 1

D. It returns 0 when n is a power of 3, otherwise returns 1

14. Output of following Java program?

```
class Main {
    public static void main(String args[]) {
        System.out.println(fun());
    }
    int fun()
    {
        return 20;
    }
}
```

A. 20

B. 1

C. Compiler Error

D. Runtime Error

ALGORITHM

For First Year Students :
Extract number from string (Example : Given a string - “print 20 and 30”, the output should be -> 20 30).

For Second Year Students :
Given an array of distinct integers, print all the pairs having positive value and negative value of a number that exists in the array. (Example : Given array a=[1,8,5,6,-8,9,-1], then print –> 1 -1 8 -8

For Third Year Students :
Given an input string and a dictionary of words, find out if the input string can be segmented into a space-separated sequence of dictionary words. (Example : If the given dictionary is {“LCC”,”SJCE”,”Presents”,”FOSS”,CAMP”,”2017”} and the string “FOSSCAMP2017”, you need to print 1 since the string can be formed from the dictionary.For “FOSSCAMPING” print 0 since it cannot be obtained from the dictionary. Using Brute Force will fetch you no marks.

PUZZLE

There are 4 persons (A, B, C and D) who want to cross a bridge in night.

A takes 1 minute to cross the bridge.

B takes 2 minutes to cross the bridge.

C takes 5 minutes to cross the bridge.

D takes 8 minutes to cross the bridge.

There is only one torch with them and the bridge cannot be crossed without the torch. There cannot be more than two persons on the bridge at any time, and when two people cross the bridge together, they must move at the slower person’s pace. What is the minimum time with which all of them can cross the bridge.

ANSWER :

EXPLANATION :