

TCS : Placement : Aptitude Academy

1) Match the following:

1. Male - Boy ---> a. A type of
2. Square - Polygon ---> b. A part of
3. Roof - Building ---> c. Not a type of
4. Mushroom - Vegetables ---> d. A superset of

Ans. 1- d, 2- a, 3- b, 4- c

2) $G(0) = -1$, $G(1) = 1$, $G(N) = G(N-1) + G(N-2)$, $G(6) = ?$ ans.3

3) Which set of data exhibits a higher Standard Deviation?

(a) 9, 0, -9, 9, 0, -9 (b) 9, 9, 9, 0, 9, 9 (c) -9, -9, -9, -9, -9, -9 (d) 9, 9, 9, 9, 9, 9 (e) 9, -9, 9, -9, 9, -9

Ans: e.....take mean(sum of all/no. of elmnts), take difference of all from mean, now apply formula $(s.d)^2 = (\text{sum of } (diff)^2 / n)$

4) In Chennai, temperature at noon varies according to $-t^2/2 + 8t + 3$, where t is elapsed time. Find how much temperature more or less in 4pm to 9pm.

Ans. (put 9 & 4 in eq. n subtract)

5) Number of faces, vertices and edges of a cube

Ans. 6, 12, 8

6) Largest prime nos in n -bits register(n may be 5 to 9)

Ans: Largest prime no in 9-bit register—509

Largest prime no in 8-bit register—251

Largest prime no in 7-bit register—127

Largest prime no in 6-bit register—61

Largest prime no in 5-bit register—31

7) Largest prime no 3 digit

Ans: 997

8) . The size of a program is N. And the memory occupied by the program is given by $M = \text{square root of } 3000N$. If the size of the program is increased by 1% then how much more memory now occupied?

Ans: 0.5 %

9) Evaluate the expression

$M(843,11) + R(5.8) + T(7.7) - R(3.4)$ where M stands for Modulo arithmetic, R stands for Round-off operation and T stands for Truncation Operation

(a)15 (b)13 (c) 17 (d)16 (e)12

Ans C

In R() if the digit after decimal point is 5 or more then round the digit to next whole int. In T() leave the part after decimal point

So $7+6+7-3=17$

10) Find the value of $@@+25 - ++@16$, where @ denotes "square" and + denotes "square root". Ans.

621

After – sign, for $++@16$ start from RHS so $++256$ then $+16$ then 4

For $@@+25$then $@@5$ then $@25$ then then 625

Now $625-4=621$

11) . A power cable is run by the bank of the river of 900 meters width. A cable is made from power unit to power a plant opposite to that of the river and 3000mts away from the power unit. The cost of the cable below water is Rs. 5/- per meter and cost of cable on the bank is Rs.4/- per meter. Find the point downstream where the cable is to cut across the river.

Ans: 2100m

Some times they may ask the total cost. $(900*5 + (3000-900)*4)$ Once again confirm this..i m nt sure.

12) Find the singularity matrix from a given set of matrices?

Ans. Whose $(\det(A))=0$

13) $(\text{Momentum} * \text{Velocity}) / (\text{Acceleration} * \text{distance})$ find units.

Ans. mass

Momentum means $\text{mass} * \text{velocity}$. convert into its units, velocity means m/s ..so $(\text{kg.m.m}) / (\text{s.s})$ Acc. m/s^2 , distance m

Now substitute the values , cancel out , remains kg i.e. Mass

14) A man, a woman, and a child can do a piece of work in 6 days. Man only can do it in 24 days. Woman can do it in 16 days and in how many days child can do the same work? Ans. 8 days

15) . In a two-dimensional array, $X(9,7)$, with each element occupying 2 bytes of memory, with the address of the element $X(1,1)$ is 3000, find the address of $X(8,5)$?

Ans: 3106

16) 3 questions were on identifying the nature of the graph i.e. $y=\log x, y=\tan x$

17) Three independent mechanisms A, B and C have been incorporated for power saving in a plant producing respectively 30%, 40% and 10% efficiency. Assuming that they operate independently, what is the net power efficiency achieved?

(a) 62.2% (b) 68% (c) 61% (d) 64% (e) 56%

18) Find the fourth row, having the bit pattern as an integer in an 8-bit computer, and express the answer in its decimal value.

A 0 0 0 0 1 1 1 1

B 0 0 1 1 0 0 1 1

C 0 1 0 1 0 1 0 1

(A OR(B AND C)) ?

Ans: B AND C

1 AND 1=1 else 0

1 OR 0/1=1

So B AND C--à 00010001 This OR A->00011111

19) An aircraft takes off from A (89° N Lat, 20° E) at 6.00 AM local time to B (50° S , 40° W). If the flying time is 10 hours what is the local time of landing at B? Ans:12:00pm don't take care of N & S.E & W matters only.

1° change == 4mins

Here 20° +40° =60°

So $60 \times 4 = 240$ mins.....4hrs

If time change not considered then After 10 hrs it will reach at the same place after 6:00+10:00=4:00pm
Going from east to west so subtract 4hrs from 4:00pm...

4:00pm-4hrs=12:00pm

(if plane is going from west to east then then Add those hrs)

20) 11. Select the odd one out

a. SMTP b.WAP c. SAP d.ARP

ans : c

21). Select the odd man out.

a. Java b.Lisp c. Smalltalk d.Eiffel

Ans: b

22). Which of the following are orthogonal pairs?

a. $3i+2j$ b. $i+j$ c. $2i-3j$ d. $-7i+j$ ans: a

& c(bcz dot product is zero)

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