Q.1) Max Marks: 1

Let (A, R) be a poset and B a subset of A. Which of the following statements is/are true?
S1: If b is the greatest element of B, then b is a maximal element of B
S2: If b is the greatest element of B, then b is LUB of B

A **S1 only**

B **S2 only**

C **Both S1 and S2** Correct Option

Solution: (C)

Explanation:

S1 :

An element $b \in B$ is a *greatest element* of B if for every $b' \in B, b' \preceq b$. An element $b \in B$ is a maximal element of B if $b \in B$ and there does not exist $b' \in B$ such that $b \neq b'$ and $b \preceq b'$. Therefore if b is a greatest element, then there does not exist $b' \in B$ such that $b \neq b'$ and $b \preceq b'$, implies that b is a maximal element.

S2:

An element $b \in A$ is upper bound for B if for every element $b' \in B$, $b' \preceq b$. An element $b \in A$ is a least upper bound (lub) for B if b is an upper bound and for every upper bound b' of B, $b \preceq b'$. Therefore, if b is a greatest element, then b is clearly an upper bound. Since $b \in B$, it must be the case that $b \preceq b'$ for every upper bound b'. Therefore, b is *lub*.

D **Neither S1 nor S2**

Q.2) Max Marks: 1

The number of ways that all the letters of the word SWORD can be arranged such that no letter is in its original position

A **44** Correct Option

Solution: (A)

Solution: 44

If no word has to appear in its original position then we are supposed to count the number of derangements, the no of derangements is given by !5.
!5= 5! ((1/(2!) - (1/(3!)) +(1/(4!))-(1/(5!)))=60-0+5-1=44.

B **32**

C **28**

D **20**

Q.3) Max Marks: 1

What will be the output of the following program? Assume that you are running this program in the little-endian processor.

```
#include<stdio.h>
int main()
{
   short a=512;
   char *ptr;
   ptr = (char*)&a;
   printf("%d", *ptr);
   return 0;
}
```

Choose the correct option for the above question.

A **128**

B **256**

C **512**

D **0** Correct Option

Solution: (D)

Solution: Ans is 0
Since the little-endian processor is used so the least significant byte is stored in the smallest address.
If we are storing this in the memory using the little-endian form then,

short a=512; // here a is declared as short takes 2-byte memory and initialized with 512.
If we write the binary value of 512 then it will be like that.
512 = 00000010, 00000000

char *ptr; // character pointer ptr is declared.
ptr = (char*)&a; // by this line a is type casted into character pointer from short so now *ptr points to only single byte.

printf("%d", *ptr); // print(ptr) will print 0 only as we are printing it as an integer.

So here the answer will be 0.

Q.4) Max Marks: 1

Consider the following code.

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
   float *ptr = (float *)malloc(sizeof(float));
   ptr = NULL;
   free(ptr);
}
```

This is suffered by which of the following problem.

A **Memory leak** Correct Option

Solution: (A)

Solution: Ans is a Memory leak
A memory leak occurs when programmers create a memory in heap and forget to delete it. Here, this code will be suffered by the problem of memory leak as
float *ptr = (float *)malloc(sizeof(float)); // we are creating memory using malloc function
ptr = NULL; // and then dereferencing pointer by assigning null value to it and memory location is still not free.
free(ptr); // no action will occur on this statement.

So, here we are unable to access the memory location which is created by malloc function to ptr and after dereferencing ptr, we will not be able to access that location so the problem of memory leak will occur as we have created a memory and not freeing it. So the answer is a memory leak.

B **Dangling pointer**

C **Compile-time error**

D **None of the above**

Q.5) Max Marks: 1

Which of the predicate logic statement is the correct translation for the following statement:
Sometimes a man is just a man
Given,
C(x) = x is a man
O(x) = x is something other than a man

A **For all x [C(x) --> ~O(x)]** Correct Option

Solution: (A)
Explanation:
The statement is a tricky statement.
The message that it conveys is that while the man may often think to be more than just a man (superhuman, legends), this isn't always true: sometimes they are nothing other than what they appear to be. As far as the man can go, it's clear that we have universal quantification here: this sentence is making a claim about all men.
Unfortunately, the only way that we can capture all this extra meaning in the system we have developed so far is to do so by brute force, and in a way that completely ignores the contribution of sometimes, as shown in the following logical representation:
For all x [C(x) --> ~O(x)]
C(x) = x is a man
O(x) = x is something other than a man
This formula says that "everything that is a man is nothing other than a man", which is an almost accurate paraphrase of the sentence we started with.

B **There exists x[C(x) --> O(x)]**

C **There exists x[C(x) --> ~O(x)]**

D For all x [C(x) --> O(x)]

Q.6) Max Marks: 1

The least number of times a fair coin must be tossed so that the probability of getting at least one head is at least 0.8 is

A 7

B 6

C 5

D 3 Correct Option

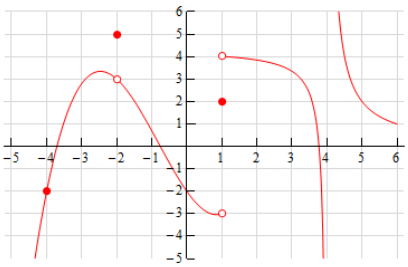
Solution: (D)

Solution: 3
Given, A fair coin is tossed and we are looking for at least one occurrence of heads, let the random variable X denote the number of occurrences of heads when the coin is tossed n times.

P(X>=1) >=0.8
=1-P(X=0) >=0.8
=P(X=0) <=0.2
=C(n,0)(½)^n<=0.2
=(½)^n<=⅕.
The least value of n which satisfies the above inequality is 3.

Q.7) Max Marks: 1

The number of points of discontinuity of the given function represented by the below graph in the interval (-4,6] are____



Correct Answer

Solution: (3)
Solution: 2
As we can see from the graph which has holes at x=--2and x=1 and at x=4 it is not defined the function is not defined, these are points of discontinuity for the given function.

Q.8) Max Marks: 1

The following statement in C declares.
float *(*fun[3]) (int, float)

A **An array of 3-pointers to functions, each function takes two arguments as int and float type and returns a float pointer.** Correct Option

Solution: (A)

Solution:
Float *(*fun[3]) (int, float) : An array of 3-pointers to functions, each function takes two arguments of int and float type and returns a float pointer.
Float *(*fun)(int, float) : pointer to a function, the function takes two arguments of int and float types and returns a float pointer.
Float *(int, float): A pointer function with two arguments int and float and returning float pointer at the end.

B **Pointer to a function, the function takes two arguments as int and float types and returns a float pointer.**

C **A pointer function with two arguments int and float and returning float pointer at the end.**

D **None of these.**

Q.9) Max Marks: 1

Consider the following program fragment.

```
#include <stdio.h>
int main()
{
   int x, y, z;
```

```
    scanf ("%d %d %d", &x, &y, &z);
    if(x>y)
    if(y>z)
    printf("GATE");
    else printf("APPLIED");
    return 0;
}
```

What should be the input sequence for x, y, z so that output of the program will be "APPLIED"

A) 3, 4, 5

B) 5, 4, 3

C) 3, 5, 4

D) 5, 3, 4 — Correct Option

Solution: (D)

Solution: Ans is 5, 3, 4

For the given code, if we want to print "APPLIED" then first if condition must be true and second if condition must be failed so that it can go to the else part and then "APPLIED" can be printed.
We are going with the code:
int x, y, z; // x, y, z are declared as integer type.
scanf ("%d %d %d", &x, &y, &z); // asking for input for x, y and z
if(x>y) // this if condition must be true so x value must be greater than y. = x>y
if(y>z) // this if condition must be failed then only we can go to the else part. = z>y
printf("GATE"); // skipped as condition failed.
else printf("APPLIED"); // it will be printed.
So,
x> y and z> y so when we check with the options then we get options 5, 3, 4 is in the correct sequence of printing "APPLIED". So the answer is 5, 3, 4

Q.10) Max Marks: 1

How many simple labeled graphs with n vertices are there?

A) n!

B) nC2

C) 2^(nC2) — Correct Option

Solution: (C)

Explanation:

Each of the nC2 edges can either be included in the graph or not included. That is, there are 2 possibilities for each edge, and hence 2^(nC2) different simple labelled graphs.

D) None of the above

Q.11) Max Marks: 1

Consider the following code of two dimensional array.

```
#include <stdio.h>
int main()
{
   unsigned int x[3][3] = {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}};
   printf("%u, %u, %u", **(x+2), *(*x+2), *(*(x+2)+2));
}
```

Choose the correct option for the given code.

A) 1 3 9

B) 1 4 7

C) 7 7 9

D) 7 3 9 — Correct Option

Solution: (D)

Solution: Ans is 7 3 9

Here, a two-dimensional array is of 3 rows and 3 columns is given and we know that in C programming, data is stored in row-major order. So these are stored as follows:

1	2	3
4	5	6
7	8	9

printf("%u, %u, %u", **(x+2), *(*x+2), *(*(x+2)+2));// this statement will work as:

**(x+2)= cross 2 rows then go to the content of 3rd row i.e.7.

*(*x+2)= go to the first row and then move further 2-pointer then print the content of it i.e. 3.

((x+2)+2)= cross 2-rows then go to 3rd row and then cross 2-elements and then print the content of 3rd i.e. 9.

So output will be 7 3 9.

Q.12) Max Marks: 1

A committee of 5 is to be formed from 6 boys and 5 girls. The number of ways that the committee can be formed so that the committee contains at least one boy and one girl is

A 248

B 455 Correct Option

Solution: (B)

Solution:455

Since the committee contains at least one boy and one girl, the members of the committee may
be of the following ways

i) 1 boy, 4 girls ii) 2 boys, 3 girls ii) 3 boys, 2 girls iv) 4 boys, 1 girl

The number of ways of forming the committee are: C(6,1)C(5,4) + C(6,2)C(5,3)+ C(6,3)C(5,2)+ C(6,4)C(5,1)=6*5+15*10+20*10+15*5=455

= 6 x 5 + 15 x 10 +20 x 10 15 x 5 30+ 150 + 200 + 75
= 455

C 720

D 1025

Q.13) Max Marks: 1

Determine which of the following statements are valid arguments.

S1: If x is a positive real number, then x^2 is a positive real number. Therefore, if a^2 is positive, where a is a real number, then a is a positive real number.

S2: If x^2 != 0, where x is a real number, then x!=0. Let 'a' be a real number with a^2 != 0; then a != 0.

A S1 only

B S2 only Correct Option

Solution: (B)

Explanation:

S1:
This is invalid. It is the fallacy of affirming the conclusion or fallacy of the converse.
Letting a = -2 provides a counter-example.

The fallacy of the converse:

$$\frac{P \to Q, Q}{\therefore P}$$

S2:
This is valid; it is modus ponens.

Modus ponens:
The rule of logic which states that if a conditional statement ('if *p* then *q* ') is accepted, and the antecedent (*p*) holds, then the consequent (*q*) may be inferred.

$$\begin{array}{l} p \\ p \to q \\ \hline \therefore q \end{array}$$

C Both S1 and S2

D Neither S1 nor S2

Q.14) Max Marks: 1

The probability that India wins a cricket match against England is given to be 1/3. I India and England play, 3 matches, what is the probability that India will lose all the three matches are

A **8/27** Correct Option

Solution: (A)

Solution:
Let A be the event that India wins the match.
P(A`)=1-P(A)=1-⅓=⅔
All three matches are independent events, therefore, the probability of losing all three times =(⅔)^3=8/27.

B **6/9**

C **5/6**

D **1/9**

Q.15) Max Marks: 1

Evaluate the absolute value of the following limit

$$\lim_{h\to 3}\frac{6+h-h^2}{\sqrt{5h-6}-\sqrt{h+6}}$$

Correct Answer

Solution: (7.5)

Solution: 7.5

Direct substitution results in a $\frac{0}{0}$ indeterminate form, so we use the rationalisation method:

$$\begin{aligned}\lim_{h\to 3}\frac{6+h-h^2}{\sqrt{5h-6}-\sqrt{h+6}} &= \lim_{h\to 3}\frac{6+h-h^2}{\sqrt{5h-6}-\sqrt{h+6}}\cdot\frac{\sqrt{5h-6}+\sqrt{h+6}}{\sqrt{5h-6}+\sqrt{h+6}}\\ &= \lim_{h\to 3}\frac{(6+h-h^2)\left(\sqrt{5h-6}+\sqrt{h+6}\right)}{(5h-6)-(h+6)}\\ &= \lim_{h\to 3}\frac{(6+h-h^2)\left(\sqrt{5h-6}+\sqrt{h+6}\right)}{4h-12}\\ &= \lim_{h\to 3}\frac{-(h-3)(h+2)\left(\sqrt{5h-6}+\sqrt{h+6}\right)}{4(h-3)}\\ &= \lim_{h\to 3}\frac{-(h+2)\left(\sqrt{5h-6}+\sqrt{h+6}\right)}{4}\\ &= \frac{-5(3+3)}{4}\\ &= -\frac{15}{2}.\end{aligned}$$

Absolute Value=15/2=7.5

Q.16) Max Marks: 2

```
#include <stdio.h>

#include <string.h>

int main()

{

char s1[]="Gate";

char s2[]="Applied";

if(printf("%d  ",strlen(s1)-strlen(s2))>=0)

puts(s1);

else

puts(s2);



return 0;

}
```

Choose the correct option.

A -3 Gate — Correct Option

Solution: (A)

Solution: Ans is -3 Gate

Here, we are comparing lengths of strings by subtracting lengths of these two strings. But we need to keep in mind that function strlen() returns size_t data type that is long unsigned int. So when we convert this value to int then it will become some positive value that will be greater than 0.
char s1[]="Gate"; // declaring character array and initializing it with a string "GATE"

char s2[]="Applied"; // / declaring character array and initializing it with a string "Applied"

if(strlen(s1)-strlen(s2)>=0)//

strlen(s1) = strlen("GATE")= 4

strlen(s1) = strlen("Applied")= 7

strlen(s1)-strlen(s2) = 4-7 = -3

-3 > = 0 // here we are comparing two different data types so we will convert them into one same data type.

puts(s1); // condition will be true so s1 is printed as puts(s1) behaves same as printf() statement.

So, the answer will be -3 Gate.

B -3 Applied

C 3 Gate

D 3 Applied

Q.17) Max Marks: 2

Which of the following statements is/are False
S1: G is a group with identity element e. Suppose that for any non-identity elements a,b,c of G, we have abc = cba. Then G is an abelian group.

S2: if G is a finite group of even order, then the number of elements of G of order 2 is even.

A S1 only

B S2 only — Correct Option

Solution: (B)

Explanation:
S1:

To show that G is an abelian group we need to show that

$$ab = ba$$

for any elements $a, b \in G$.
There are several cases we need to consider. Let us start with an easy case.
If $a = e$ or $b = e$, then we have $ab = ba$.

The next case to consider is $ab = e$. In this case, we have $b = a^{-1}$, and hence $ba = e = ab$.

The last case is $a \neq e, b \neq e, ab \neq e$.
Since $ab \neq e$, the inverse $(ab)^{-1}$ is not the identity as well.
We use the given relation $abc = cba$ with $c = (ab)^{-1}$. We have

$$\begin{aligned} e &= ab(ab)^{-1} \\ &= (ab)^{-1}ba \qquad \text{by the relation } (*) \end{aligned}$$

Multiplying this equality by ab on the left we obtain

$$ab = ba.$$

Therefore, for any elements $a, b \in G$ we have proved $ab = ba$, and thus G is an abelian group.

S2:
First observe that for $g \in G$,

$$g^2 = e \iff g = g^{-1}.$$

where e is the identity element of G.
Thus, the identity element e and the elements of order 2 are the only elements of G that are equal to their own inverse elements.

Hence, each element x of order greater than 2 comes in pairs $\{x, x^{-1}\}$.
So we have

$$G = \{e\} \cup \{ \text{ elements of order 2 } \} \cup \{x_1, x_1^{-1}, x_2, x_2^{-1}, \ldots, x_k, x_k^{-1}\},$$

where x_i are elements of order greater than 2 for $i = 1, 2, \ldots, k$.

As we noted above, the elements x_i, x_i^{-1} are distinct.
Thus the third set contains an even number of elements.

Therefore we have

$$\underbrace{G}_{\text{even}} = \underbrace{\{e\}}_{\text{odd}} \cup \{ \text{ elements of order 2 } \} \cup \underbrace{\{x_1, x_1^{-1}, x_2, x_2^{-1}, \ldots, x_k, x_k^{-1}\}}_{\text{even}}$$

It follows that the number of elements of G of order 2 must be odd.

C **Both S1 and S2**

D **None of these**

Q.18) Max Marks: 2

Let G be a group. Suppose that the number of elements in G of order 5 is 28. The number of distinct subgroups of G of order 5 is ___

Correct Answer

Solution: (7)

Explanation:

Let g be an element in G of order 5.
Then the subgroup $\langle g \rangle$ generated by g is a cyclic group of order 5.
That is, $\langle g \rangle = \{e, g, g^2, g^3, g^4\}$, where e is the identity element in G.

Note that the order of each non-identity element in $\langle g \rangle$ is 5.

Also, if h is another element in G of order 5, then we have either $\langle g \rangle = \langle h \rangle$ or $\langle g \rangle \cap \langle h \rangle = \{e\}$.
This follows from the fact that the intersection $\langle g \rangle \cap \langle h \rangle$ is a subgroup of the order 5 group $\langle g \rangle$, and thus the order of $\langle g \rangle \cap \langle h \rangle$ is either 5 or 1.

On the other hand, if H is a subgroup of G of order 5, then every non-identity element in H has order 5.

These observations imply that each subgroup of order 5 contains exactly 4 elements of order 5 and each element of order 5 appears in exactly one of such subgroups.

As there are 28 elements of order 5, there are 28/4 = 7 subgroups of order 5.

Q.19) Max Marks: 2

Which of the following statements is/are false?

S1: If gof is bijective then both g and f must be bijective.
S2: If f is a bijection, then $f(S \cap T) = f(S) \cap f(T)$

A **S1 only** Correct Option

Solution: (A)

Explanation:

S1:
If gof is bijective it is not necessary that both g and f are bijective, f should be one one and g should be onto.
An example :
f={(1,4), (2,5), (3,6)}
g={(4,8),(5,9),(6,10),(7,10)}
gof={(1,8), (2,9), (3,10)}
gof is a bijection but neither g is a bijection nor f. But g has to be one one and f has to be onto.

S2:
Since $f(S \cap T) \subseteq f(S) \cap f(T)$ for a function f, we need to prove that $f(S) \cap f(T) \subseteq f(S \cap T)$ for a bijection f.

Let y be an arbitrary element of $f(S) \cap f(T)$.

Then there is an element x_1 in S and an element x_2 in T such that $y = f(x_1) = f(x_2)$.

Since f is a bijection, it is an injection.
Hence if $f(x_1) = f(x_2)$, then $x_1 = x_2$.
Hence $x_1 (= x_2) \in S \cap T$.
Hence $y (= f(x_1) = f(x_2)) \in f(S \cap T)$.
Hence $f(S) \cap f(T) \subseteq f(S \cap T)$ if f is a bijection.

B **S2 only**

C **Both S1 and S2**

D None of the above

Q.20) Max Marks: 2

Consider the following given code.

```
#include <stdio.h>
int main()
{
int x=149;
x=-(~x);
printf("%d ", x);
x=~(-x);
printf("%d", x);
   return 0;
}
```

What will be the sum of both the x values which are printed out.

A 149

B 150

C 299 Correct Option

Solution: (C)

Solution: 299

Whenever ~(negation) is used in the C programming for getting 1's complement of the given value. We can also use a trick for getting exact value directly that's ~(x) = -x-1

```
int x=149; // here x is declared as integer with initial value 149
x=-(~x); // -(~149) = -(-149-1) = -(-150) =150
printf("%d ", x);// 150 will be printed. So now x=150
x=~(-x); // ~(-150) = -(-150) - 1 = 150-1 = 149
printf("%d", x);  // 149 is printed here.
```

Sum of both the x values = 150+149 = 299
So option C is the correct answer.

D 300

Q.21) Max Marks: 2

Which of the following is a solution to the following system of linear equations?

7x+3y+2z=40
3x+11y+7z=78
23x+39y+23z=234

A x=3, y=5, z=2

B x=2, y=3, z=17/2

C x=1, y=3, z=12

D None of the these Correct Option

Solution: (D)

Solution:

The augmented coefficient is given as follows

$$\left(\begin{array}{ccc|c} 7 & 3 & 2 & 40 \\ 3 & 11 & 7 & 78 \\ 23 & 39 & 23 & 234 \end{array}\right)$$

Applying the row transformation $R_3 \to R_3 - 2R_1 - 3R_2$ we get the following matrix

$$\left(\begin{array}{ccc|c} 7 & 3 & 2 & 40 \\ 3 & 11 & 7 & 78 \\ 0 & 0 & 0 & -80 \end{array}\right)$$

The last row is eliminated which means that the 3rd equation is linearly dependent on the first and the second equation, therefore the given system of equations has infinite number of solutions.

Q.22) Max Marks: 2

Which of the following statements is/are correct?

S1: A simple graph has 20 vertices. Any two distinct vertices u and v are such that deg(u) + deg(v) >= 19. The graph is connected.

S2: A graph G is regular of degree r, where r is odd, then the G has an even number of vertices

A S1 only

B S2 only

C **Both S1 and S2** Correct Option

Solution: (C)
Explanation:
S1: Suppose the graph is disconnected, with k >= 1 vertex in one component, and 20-k vertices in another. Then the maximum possible degree for a vertex in the first component is (k-1), and in the second is (19-k). Therefore, if a vertex u is in the first component, and a vertex v is in the other component, deg(u) + deg(v) <= (k-1) + (19-k) = 18. But deg(u) + deg(v) >= 19 for all distinct vertices u and v. We have a contradiction, and so the graph must be connected.

S2: Let n be the number of vertices. Then, since each vertex has degree r, the sum of the degrees is n x r, and this must be an even number (by the hand-shaking lemma). Now, r is odd, and so n must be even.

D **Neither S1 nor S2**

Q.23) Max Marks: 2

Which of the following relations is/are a partial order :
I:

$(N \times N, \preceq)$, where $(a, b) \preceq (c, d)$ if and only if $a \leq c$.

II:

$(N \times N, \preceq)$, where $(a, b) \preceq (c, d)$ if and only if $a \leq c$ and $b \geq d$.

A **I only**

B **II only** Correct Option

Solution: (B)

Explanation:

I.

This is not a partial order because the relation is not antisymmetric; for example, $(1, 4) \preceq (1, 8)$ because $1 \leq 1$ and similarly, $(1, 8) \preceq (1, 4)$, but $(1, 4) \neq (1, 8)$.

II.

This is a partial order.

Reflexive: For any $(a, b) \in N \times N$, $(a, b) \preceq (a, b)$ because $a \leq a$ and $b \geq b$.

Antisymmetric: If $(a, b), (c, d) \in N \times N$, $(a, b) \preceq (c, d)$ and $(c, d) \preceq (a, b)$, then $a \leq c$, $b \geq d$, $c \leq a$ and $d \geq b$. So $a = c$, $b = d$ and hence, $(a, b) = (c, d)$.

Transitive: If $(a, b), (c, d), (e, f) \in N \times N$, $(a, b) \preceq (c, d)$ and $(c, d) \preceq (e, f)$, then $a \leq c$, $b \geq d$, $c \leq e$ and $d \geq f$. So $a \leq e$ (because $a \leq c \leq e$) and $b \geq f$ (because $b \geq d \geq f$) and, therefore, $(a, b) \preceq (e, f)$.

This is not a total order; for example, $(1, 4)$ and $(2, 5)$ are incomparable.

C **Both I and II**

D **None of the above**

Q.24) Max Marks: 2

A, B, C are 3 newspapers published from a city. 20% of the population read A, 16% read B, 14% read C, 8% both A and B 5% both A and C, 4% B and C, and 2% read all the three. The percentage of the population who read at least one paper is

A **25**

B **0.25**

C **35** Correct Option

Solution: (C)

Solution: 35

P(A) =20/100
P(B) =16/100
P(C) =14/100
P(A ∩ B)=8/100
P(B ∩ C)=4/100
P(C ∩ A)=5/100
P(A ∩ B ∩ C)=2/100
Buy using the principle of inclusion and exclusion
P(A ∪ B ∪ C)=P(A)+P(B)+P(C)-P(A ∩ B)-P(B ∩ C)-P(C ∩ A)+P(A ∩ B ∩ C)
=20/100+16/100+14/100-8/100-4/100-5/100+2/100
=35/100=35%.

D 0.35

Q.25) Max Marks: 2

Consider the following code.

```
#include <stdio.h>
int fun(int n)
{
   static int s = 0;
   s = s + n;
   return s;
}
int main()
{
   int i, x;
   scanf("%d", &i);
   while (i > 0)
   {
      x = fun(i);
      i--;
      fun(i);
   }
   printf ("%d ", x);
   return 0;
}
```

Here, a number in i variable is given as input using scanf function then what will be done by the above code.?

A **It is printing the square root of the given number.**

B **It is printing the square of the given number.** Correct Option

Solution: (B)

Solution: Ans is It is printing square of the given number

Here, the code is printing the square of the given number by calling function. In the given code we will start from main() then i =5 and x is just declared.

while (i > 0)
x = fun(i);
i--;
fun(i);
5>0 true
x= fun(5);
Go to function body
	Check while
	4>0
	fun(4)
		Check while
		3>0
		fun(3)
			Check while
			2>0
			fun(2)
				Check while
				1>0
				fun(1)

int fun(int n) 5 static int s =0; s = s + n =0+5=5 return s = 5	fun(4) s=9 s=9+4 = 13 Then go back to the main	fun(3) s=16 s=16+3=19 Go back to the main	fun(2) s=21 s=21+2=23 Go back to main	s=24 s=24+1 = 25 Then go back to check loop condition
Then go back to main() 5-- = 4 fun(4);	4-- = 3	3-- = 2	2-- = 1	1--=0
fun(4) s=5 s=5+4 = 9 Then go back to main	fun(3) s=13 s=13+3 = 16 Then go back to check loop condition	fun(2) s=19 s=19+2 = 21 Then go back to check loop condition	fun(1) s=23 s=23+1 = 24 Then go back to check loop condition	fun(0) s=25 s=25+0 = 25 Then go back to check loop condition

while(0) will be failed and we come out of while loop and 25 will be printed. And if we check this code for any other number then also it is printing square of it so option B is correct.

C **It is printing the cube of the given number.**

D **It is simply printing the number.**

close