Placement Classes

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Computer Science

Automata and Programming

Question 0:-

There is a new data-type which can take as values natural numbers between (and including) 0 and 25. How many minimum bits are required to store this datatype.

Op 1: 4

Op 2: 5

Op 3: 1

Op 4: 3

Correct Op : 2

Question 1:-

A data type is stored as an 6 bit signed integer.Which of the following cannot be represented by this data type?

Op 1: -12

Op 2: 0

Op 3: 32

Op 4: 18

Correct Op : 3

Question 3:-

A language has 28 different letters in total. Each word in the language is composed of maximum 7 letters. You want to create a data-type to store a word of this language. You decide to store the word as an array of letters. How many bits will you assign to the data-type to be able to store all kinds of words of the language.

Op 1: 7

Op 2: 35

Op 3: 28

Op 4: 196

Correct Op : 2

Question 4:-

A 10-bit unsigned integer has the following range:

Op 1: 0 to 1000

Op 2: 0 to 1024

Op 3: 1 to 1025

Op 4: 0 to 1023

Correct Op : 4

Question 5:-

Rajni wants to create a data-type for the number of books in her book case. Her shelf can accommodate a maximum of 75 books. She allocates 7 bits to the datatype. Later another shelf is added to her book-case. She realizes that she can still use the same data-type for storing the number of books in her book-case. What is the maximum possible capacity of her new added shelf?

Op 1: 52

Op 2: 127

Op 3: 53

Op 4: 75

Correct Op : 1

Question 6:-

A new language has 15 possible letters, 8 different kinds of punctuation marks and a blank character. Rahul wants to create two data types, first one which could store the letters of the language and a second one which could store any character in the language.The numberof bits required to store these two data-types will respectively be:

Op 1: 3 and 4

Op 2: 4 and 3

Op 3: 4 and 5

Op 4: 3 and 5

Correct Op : 3

Question 7:-

Parul takes as input two numbers: a and b. a and b can take integer values between 0 and 255. She stores a, b and c as 1byte data type. She writes the following code statement to process a and b and put the result in c.

c = a + 2*b

To her surprise her program gives the right output with some input values of a and b, while gives an erroneous answer for others. For which of the following inputs will it give a wrong answer?

Op 1: a = 10 b = 200

Op 2: a = 200 b = 10

Op 3: a = 50 b = 100

Op 4: a = 100 b = 50

Correct Op : 1

Question 8:-

Prashant takes as input 2 integer numbers, a and b, whose value can be between 0 and 127. He stores them as 7 bit numbers. He writes the following code to process these numbers to produce a third number c.

c = a - b

In how many minimum bits should Prashant store c?

Op 1: 6 bits

Op 2: 7 bits

Op 3: 8 bits

Op 4: 9 bits

Correct Op : 3

Question 9:-

Ankita takes as input 2 integer numbers, a and b, whose value can be between 0 a nd 31. He stores them as 5 bit numbers. He writes the following code to process th ese numbers to produce a third number c.

c = 2*(a - b)

In how many minimum bits should Ankita store c?

Op 1: 6 bits

Op 2: 7 bits

Op 3: 8 bits

Op 4: 9 bits

Correct Op : 2

Question 10:-

A character in new programming language is stored in 2 bytes. A string is represen- ted as an array of characters. A word is stored as a string. Each byte in the memory has an address. The word "Mahatma Gandhi" is stored in the memory with starti- ng address 456. The letter 'd' will be at which memory address?

Op 1: 468

Op 2: 480

Op 3: 478

Op 4: 467

Correct Op : 3

Question 11:-

Stuti is making a questionnaire of True-false questions. She wants to define a data-

type which stores the response of the candidate for the question. What is the most-suited data type for this purpose?

Op 1: integer

Op 2: boolean

Op 3: float

Op 4: character

Correct Op : 2

Question 12:-

What will be the output of the following pseudo-code statements:

integer a = 456, b, c, d =10

b = a/d

c = a - b

print c

Op 1: 410

Op 2: 410.4

Op 3: 411.4

Op 4: 411

Correct Op : 4

Question 13:-

What will be the output of the following pseudo-code statements:

integer a = 984, b, c, d =10

print remainder(a,d) // remainder when a is divided by d

a = a/d

print remainder(a,d) // remainder when a is divided by d

Op 1: 48

Op 2: Error

Op 3: 84

Op 4: 44

Correct Op : 1

Question 14:-

What will be the output of the following code statements?

integer a = 50, b = 25, c = 0

print (a > 45 OR b > 50 AND c > 10)

Op 1: 1

Op 2: 0

Op 3: -1

Op 4: 10

Correct Op : 1

Question 15:-

What will be the output of the following code statements?

integer a = 50, b = 25, c = 5

print a * b / c + c

Op 1: 120

Op 2: 125

Op 3: 255

Op 4: 250

Correct Op : 3

Question 16:-

What will be the output of the following code statements?

integer a = 10, b = 35, c = 5

print a * b / c - c

Op 1: 65

Op 2: 60

Op 3: Error

Op 4: 70

Correct Op : 1

Question 17:-

integer a = 10, b = 35, c = 5

Comment about the output of the two statements?

print a * b + c / d

print c / d + a * b

Op 1: Differ due to left-to-right precedence

Op 2: Differ by 10

Op 3: Differ by 20

Op 4: Same

Correct Op : 4

Question 18:-

integer a = 40, b = 35, c = 20, d = 10

Comment about the output of the following two statements:

print a * b / c - d

print a * b / (c - d)

Op 1: Differ by 80

Op 2: Same

Op 3: Differ by 50

Op 4: Differ by 160

Correct Op : 1

Question 19:-

What will be the output of the following code statements?

integer a = 10, b = 35, c = 5

print a * b / c - c

Op 1: 65

Op 2: 60

Op 3: Error

Op 4: 70

Correct Op : 1

Question 20:-

integer a = 60, b = 35, c = -30

What will be the output of the following two statements:

print (a > 45 OR b > 50 AND c > 10)

print ((a > 45 OR b > 50) AND c > 10)

Op 1: 0 and 1

Op 1: No error, the program is correct.

Op 2: Statement 1

Op 3: Statement 4

Op 4: statement 6

Correct Op : 3

Question 21:-

Shashi wants to make a program to print the sum of the first 10 multiples of 5.She writes the following program, where statement 5 is missing:

```
integer i = 0
integer sum = 0
while ( i <= 50 )
{
sum = sum + i
-- MISSING STATEMENT 5 --
}
```

print sum

Which of the following will you use for statement 5?

Op 1: i = 5

Op 2: i = 5 * i

Op 3: i = i + 1

Op 4: i = i + 5

Correct Op : 4

Question 22:-

Shantanu wants to make a program to print the sum of the first 7 multiples of 6. He writes the following program:

```
integer i = 0 // statement 1

integer sum // statement 2

while ( i <= 42 ) // statement 3

{

sum = sum + i // statement 4

i = i + 6;

}

print sum // statement 6
```

Does this program have an error? If yes, which one statement will you modify to correct the program?

Op 1: Statement 1

Op 2: Statement 2

Op 3: Statement 3

Op 4: Statement 4

Correct Op : 2

Question 23:-

Sharmili wants to make a program to print the sum of all perfect cubes, where the

value of the cubes go from 0 to 100. She writes the following program:

```
integer i = 0, a // statement 1
integer sum = 0;
a = ( i * i * i )
while ( i < 100 ) // statement 2
{
sum = sum + a // statement 3
i = i + 1
a = ( i * i * i ) // statement 4
}
print sum
```

Does this program have an error? If yes, which one statement will you modify to correct the program?

Op 1: Statement 1

Op 2: Statement 2

Op 3: Statement 3

Op 4: Statement 4

Op 5: No error

Correct Op : 2

Question 24:-

Bhavya wants to make a program to print the sum of all perfect squares, where the value of the squares go from 0 to 50. She writes the following program:

```
integer i = 1, a // statement 1
integer sum = 0
while ( a < 50 ) // statement 2
{
```

sum = sum + a // statement 3

i = i + 1

a = (i * i); // statement 4

}

print sum

Does this program have an error? If yes, which one statement will you modify to correct the program?

Op 1: Statement 1

Op 2: Statement 2

Op 3: Statement 3

Op 4: Statement 4

Correct Op : 1

Question 25:-

Vijay wants to print the following pattern on the screen:

2

2 4

2 4 6

2 4 6 8

He writes the following program:

integer i = 1, j=2 // statement 1

while (i <= 4) // statement 2

{

j = 2;

while (j <= ?) // Statement 3

{

print j

print blank space

j = j + 2

}

print end-of-line \takes the cursor to the next line

i = i + 1

}

What is the value of ? in statement 3 ?

Op 1: 8

Op 2: i

Op 3: 2*i

Op 4: 4

Correct Op : 3

Question 26:-

Shravanti writes the following program:

integer i = 0, j

while (i < 2)

{j = 0;

while (j <= 3*i)

{print j

print blank space

j = j + 3}

print end-of-line \takes the cursor to the next line

i = i + 1

}

What will be the output of the program?

Op 1:

0

0 3

Op 2:

0 3

0 3 6

Op 3:

0

0 3 6

0 3 6 9

Op 4:

0 3 6

0 3 6 9

0 3 6 9 12

Correct Op : 1

Question 27:-

Vijay wants to print the following pattern on the screen:

1

1 2

1 2 3

He writes the following program:

integer i = 1 // statement 1

while (i <= 3)

{

int j // Statement 2

while (j <= i) // Statement 3

{

print j

print blank space

j = j + 1 // Statement 4

}

print end-of-line \takes the cursor to the next line

i = i + 1

}

Will this program function correctly? If not which one statement will you modify to make the program function correctly?

Op 1: Statement 1

Op 2: Statement 2

Op 3: Statement 3

Op 4: Statement 4

Op 5: Program does not have error.

Correct Op : 2

Question 28:-

Charu writes the following program:

integer i = 1, j, a

while (i <= 4)

{

j = 1;

a = 0;

while (a <= 5*i)

{

a = 2^j;

print a

print blank space

j = j + 1

}

print end-of-line \takes the cursor to the next line

i = i + 1

}

What will be the output of the program?

Op 1:

2

2 4

2 4 8

2 4 8 16

Op 2:

2 4

2 4 8

2 4 8 16

2 4 8 16 32

Op 3:

2 4

2 4 8

2 4 8

2 4 8 16

Op 4:

2

2 4

2 4

2 4 8 16

Correct Op : 3

Question 29:-

Himanshu wants to write a program to print the larger of the two inputted number. He writes the following code:

int number1, number 2

input number1, number 2

if (??) // Statement 1

print number1

else print number2

end if

Fill in the ?? in statement 1.

Op 1: number1>number2

Op 2: number2>number1

Op 3: number2 equals number1

Op 4: number1 <= number2

Correct Op : 1

Question 30:-

Shalini wants to program to print the largest number out of three inputted numbers. She writes the following program:

int number1, number 2, number3, temp;

input number1, number2, number3;

if (number1>number2)

temp = number1

else

temp = number2

end if

if (??) // Statement 1

temp = number3

end if print temp

Fill in the ?? in Statement 1

Op 1: number3 > number2

Op 2: number3 > temp

Op 3: number3 < temp

Op 4: number3 > number1

Correct Op : 2