Started on State	•
State	Finished
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Completed on	Thursday, 19 October 2023, 7:44 AM
Time taken	30 mins
Marks	14.00/15.00
	9.33 out of 10.00 (93%)
Feedback	Congratulations on your performance! 🕉
Question 1	
Complete	
Mark 1.00 out of 1.00	
How many one-to	-one functions from a set of 2 elements to a set of 5 elements?
Trow many one to	one functions from a set of 2 elements to a set of 5 elements.
Answer: 20	
Question 2	
Question 2 Complete	
Complete	
Complete Mark 1.00 out of 1.00	e integers not exceeding 100 and are divisible by neither 6 nor 9?
Complete Mark 1.00 out of 1.00	e integers not exceeding 100 and are divisible by neither 6 nor 9?
Complete Mark 1.00 out of 1.00 How many positiv	e integers not exceeding 100 and are divisible by neither 6 nor 9?
Complete Mark 1.00 out of 1.00 How many positiv Select one:	e integers not exceeding 100 and are divisible by neither 6 nor 9?
Complete Mark 1.00 out of 1.00 How many positiv Select one: a. 88 b. 78	e integers not exceeding 100 and are divisible by neither 6 nor 9? e other choice is correct.
Complete Mark 1.00 out of 1.00 How many positiv Select one: a. 88 b. 78	
Complete Mark 1.00 out of 1.00 How many positiv Select one: a. 88 b. 78 c. None of th	
Complete Mark 1.00 out of 1.00 How many positiv Select one: a. 88 b. 78 c. None of th d. 68	
How many positiv Select one: a. 88 b. 78 c. None of th d. 68 e. 58	

Select one:

b. (i)

O d. (ii)

c. Both (i), (ii).

a. None of the other choices is correct

Question **4**Complete Mark 1.00 out of 1.00

Find the output of:

Greedy Change-Making Algorithm

Input: 1068 cents

Output: The number of coins of each type: Quarters (25 cents), Dimes (10 cents), Nickles (5 cents), Pennies (1 cent)

Select one:

- a. 42, 1, 1, 3
- b. 42,1,0,8
- c. None of the other choices is correct
- d. 41,4,0,3
- e. 43,0,1,2

Question **5**

Complete

Mark 1.00 out of 1.00

How many solutions are there to the equation

$$x_1 + x_2 + x_3 = 12,$$

where x_1, x_2, x_3 are nonnegative integers such that $x_2 \leq 3$ and $x_3 \leq 3$?

Select one:

- a. None of the other choices is correct
- b. 16
- oc. 24
- od. 20
- e. 12

Question **6**

Complete

Mark 1.00 out of 1.00

Find a recursive definition for

$$S(n)=n^2-1,\ n=1,2,3,\dots$$

Select one:

$$ext{ @ a. } S(1)=0$$
; $S(n+1)=S(n)+2n+1$ for $n\geq 1$

$$igcirc$$
 b. $S(1)=0$; $S(n+1)=S(n)+n^2+2n+1$ for $n\geq 1$

oc. None of the other choices is correct

$$igcup$$
 d. $S(1)=0$; $S(n+1)=S(n)+n^2$ for $n\geq 1$

$$igcup$$
 e. $S(1)=0$; $S(n+1)=S(n)+2$ for $n\geq 1$

How many divisions are needed when using Euclidean algorithm to find the greatest common divisor of $a=846$ and $b=2382$. Answer: 5 Operator 8 Complete Mark 100 out of 1.00 procedure XYZ($\alpha_1, \dots, \alpha_n$; integers) $k:=0$ for $i:=1$ to n do if $a_i \mod 2=0$ then $k:=k+a_i$ Find output value of k if input is $1, 2, 3, 7, 8, 6, 9, 12, 11$. Select one: a. 28 b. None of the other choices is correct c. 30 d. 32 e. 26 Wark 1.00 out of 1.00 21, 34, 55 are pairwise relatively prime. Select one: True True True	Complete	
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○ c. 30 ○ d. 32 ○ e. 26 Complete Mark 1.00 out of 1.00 21, 34, 55 are pairwise relatively prime. Select one: True		
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Complete Mark 1.00 out of 1.00 $ 21,34,55 \text{ are pairwise relatively prime.} $ Select one:	⊖ e. ∠(
$21, 34, 55 \text{ are pairwise relatively prime.} \\$ Select one:	Question 9	
$21,34,55 \ \text{are pairwise relatively prime.}$ Select one:		
Select one: True	Mark 1.00 out	of 1.00
True	21, 34, 55	are pairwise relatively prime.
True	Select one	
○ False		
	False	

Question **7**

Which of the following algorithms are recursive?

procedure **XYZ**(n, P: integers)

$$s := 0;$$

$$\quad \text{for } j := 1 \text{ to } n$$

$$s := s + j^2$$
;

return n

procedure **ABC**(n, P: integer)

if
$$n=1$$
 then $ABC(1):=1$;

else
$$ABC(n) := ABC(n-1) + n^2$$
;

Select one:

- a. None of them
- b. Both of them
- c. (i)
- d. (ii)

Question 11

Complete

Mark 1.00 out of 1.00

Rearrange the steps in the correct order of a proof by induction of the proposition

$$1+3+5+\dots+(2n-1)=n^2,$$

foe n positive integer.

Assume that the proposition is true for n = k.

Then the proposition is also true for n=k+1 since

$$1+3+5+\cdots+(2(k+1)-1)=1+3+5+\cdots+(2k-1)+(2k+1)=k^2+2k+1=(k+1)^2.$$

The proposition is true for n=1 since $1=1^2$.

By induction, the proposition is true for all n positive integer.

Step 2

Step 3

Step 1

Step 4

Question **12**

Complete

Mark 1.00 out of 1.00

Find the smallest integer n such that $f(x) = O(x^n)$.

 2^x

Does not exist

 $2x^3 \ln(x)$

 $(x^3 - x^2 + x - 1)^3$ 9

	pair of rabbits (one of each sex) is placed on an island. A pair of rabbits does not breed until they are 2 month of	
they are	2 month old they will produce 3 pairs of rabbits each month. Find the number of pairs of rabbits after 5 months.	
Answer:	55	
uestion 14		
Complete		
/Jark 1.00 ou	t of 1.00	
How ma	nny bit strings of length seven either begin with two 0s or end with three 1s?	
Select or	ne:	
a.	44	
O b.	48	
O c.	52	
O d.	40	
О е.	None of the other choices is correct	
Question 15		
Complete		
Mark 1.00 οι	t of 1.00	
Cirro-		
Given	$f(n) = 2.f(\sqrt{n})^2 + 1, f(2) = 1.$	
Find $f(1)$.6).	
Angwar	19	
Answer:		

Question **13**