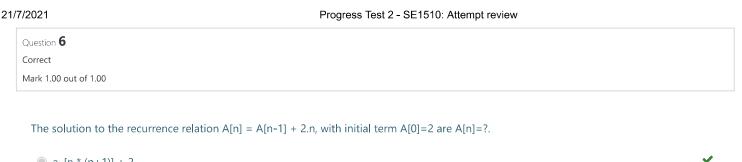
Home / My courses / tring2-SU21-MAD101 / Progress Test 2 / Progress Test 2 - SE1510 Started on Tuesday, 22 June 2021, 12:36 PM State Finished Completed on Tuesday, 22 June 2021, 1:52 PM **Time taken** 1 hour 15 mins Marks 29.00/30.00 **Grade 9.67** out of 10.00 (97%) Question 1 Correct Mark 1.00 out of 1.00 Determine the smallest big-O of the function: $(n^n + n2^n + 5^n)(n! + 5^n)$ a. O(n^n⋅n!) b. O(n^n) o. O(n!) d. O(n^n·5^n) The correct answer is: $O(n^n \cdot 5^n)$ Question ${\bf 2}$ Correct Mark 1.00 out of 1.00 Determine whether each of these functions is $O(x^2)$. $a. f(x) = x^2 + 1000$ b. f(x) = 17x + 11 \bigcirc c. $f(x) = x \log x$ \Box d. f(x) = x^4/2 The correct answers are: f(x) = 17x + 11, $f(x) = x^2 + 1000$, $f(x) = x \log x$



Question 3	
Correct	
Mark 1.00 out of 1.00	
Determine the smallest big-O of the function: $(2^n + n^2)(n^3 + 3^n)$	
○ a. O(n^6)	
○ c. O(5^n)	
○ d. O(n^5)	
The correct answer is: O(6^n)	
Question 4	
Correct	
Mark 1.00 out of 1.00	
How many strings are there of four lowercase letters that have the letter x in them?	
○ a. 15625	
O b. 17576	
○ c. 36286	
□ d. 66351 ✓	
TI	
The correct answer is: 66351	
Question 5	
Correct	
Mark 1.00 out of 1.00	
How many strings of eight English letters are there that start with X, if no letter can be repeated?	
■ a. 2,422,728,000	
○ b. 127,512,000	
o c. 6,375,600	
O d. 43,609,104,000	
The correct answer is: 2,422,728,000	



- a. [n * (n+1)] + 2
- b. 3 * (n^2)
- o. 4*n + 7
- d. 5 * (n+1)/2

The correct answer is: [n * (n+1)] + 2

Question 7

Incorrect

Mark 0.00 out of 1.00

How many digit-strings of length 10, start with 44 and end with 9?

- \bigcirc a. $10^8 + 10^9 10^7$
- o b. 10^7
- \circ c. 2^8 + 2^9 2^7
- Od. 2^7

The correct answer is: 10^7

Question 8

Correct

Mark 1.00 out of 1.00

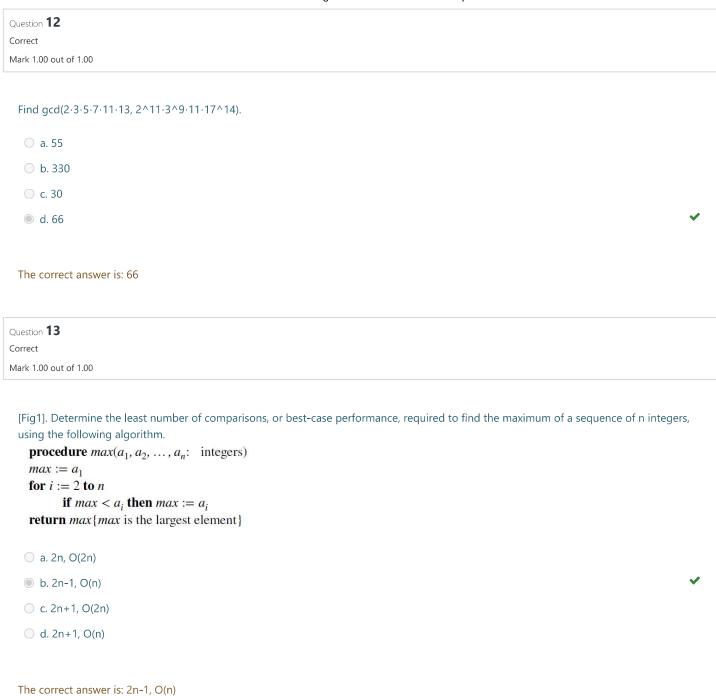
Find a formula for $1 \cdot 1! + 2 \cdot 2! + ... + n \cdot n!$, where n is a positive integer.

- a. (n − 1)! + 1
- b. (n + 1)! − 1
- \circ c. (n-1)!-1
- Od. (n + 1)! + 1

The correct answer is: (n + 1)! - 1

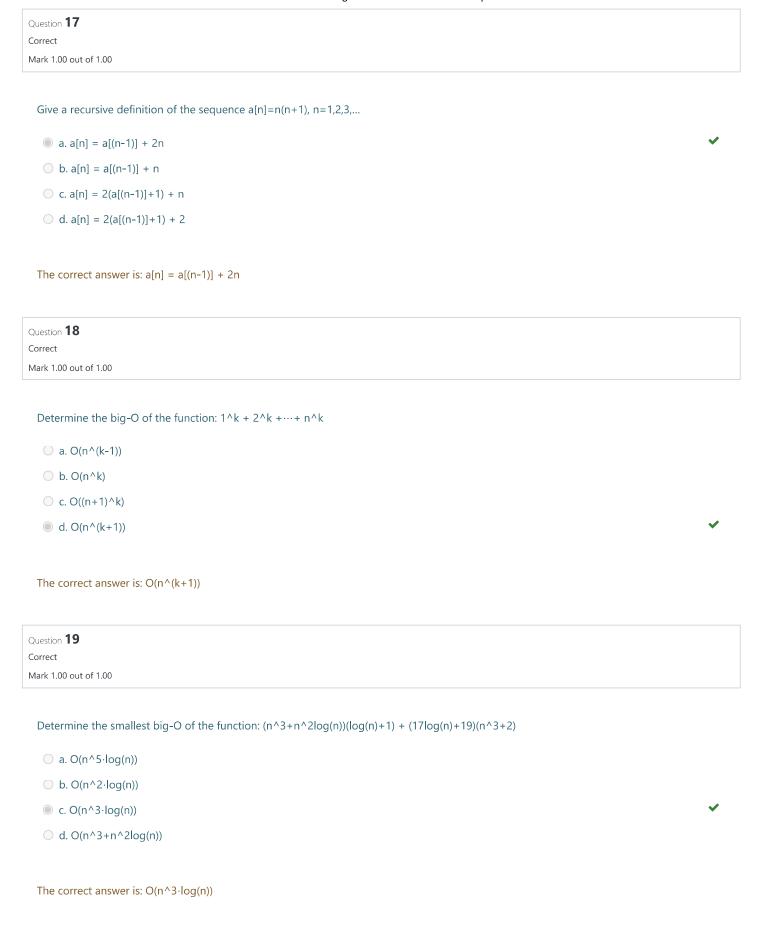
Question 9	
Correct	
Mark 1.00 out of 1.00	
Determine the big-O of the function: $2^x + 17$	
○ a. O(x)	
○ b. O(x^2)	
	~
○ d. O(1^x)	
The correct answer is: O(3^x)	
Question 10 Correct	
Mark 1.00 out of 1.00	
What time does a 24-hour clock read 137 hours after it reads 21:00?	
What time does a 24 hour clock read 157 hours after refeats 21.50.	
a. 10:00	
● b. 14:00	~
○ c. 16:00	
○ d. 06:00	
The correct answer is: 14:00	
Question 11 Correct	
Mark 1.00 out of 1.00	
How many bit-strings of length 10, either start with 00 or end with 1?	
○ a. 2^9 + 2^8	
○ b. 2^10	
O c. 2^7	
	~
The correct answer is: 2^9 + 2^8 - 2^7	

↑



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	uestion 14	
	orrect ark 1.00 out of 1.00	
	What are the quotient and remainder when 1,234,567 is divided by 1001?	
	○ a. 334, 1233	
	O b. 1233, 233	
	○ c. 233, 1233	
	d. 1233, 334	~
	The correct answer is: 1233, 334	
	uestion 15	
	ark 1.00 out of 1.00	
IVI	and 1.00 out of 1.00	
	Determine the pairwise relatively prime.	
	☑ a. 21,34,55	~
	□ b. 14,17,85	
	☑ c. 17,18,19,23	~
	☑ d. 25,41,49,64	~
	The correct answers are: 17,18,19,23, 25,41,49,64, 21,34,55	
Qu	uestion 16	
	orrect ark 1.00 out of 1.00	
IVI	ark 1.00 out of 1.00	
	How much time does an algorithm take to solve a problem of size n if this algorithm uses $2n^2 + 2^n$ operations, each requiring 10^-9 seconds, with $n=10$?	
		~
	○ b. 1.05·10^-3	
	○ c. 1.224·10^-3	
	○ d. 1.05·10^-6	
	The correct answer is: 1.224·10^-6	



Question 20	
Correct Mark 1.00 out of 1.00	
Mark 1.00 out of 1.00	
Determine the big-O of the function: $(x^3 + 2x)/(2x + 1)$	
○ a. O(2x)	
b. O(x^2)	~
○ c. O(2^x)	
○ d. O(x^1)	
The correct answer is: O(x^2)	
21	
Question 21 Correct	
Mark 1.00 out of 1.00	
If $f1(x)$ is $O(g1(x))$ and $f2(x)$ is $O(g2(x))$, then $(f1+f2)(x)$ is	
a. O(max{g1(x), g2(x)})	~
○ b. O((g1+g2)(x))	
○ c. O(min{g1(x), g2(x)})	
○ d. O((g1*g2)(x))	
The correct answer is: O(max{g1(x), g2(x)})	
The correct answer is. O(max(g)(x), g2(x)))	
Question 22 Correct	
Mark 1.00 out of 1.00	
Determine the integer primes.	
✓ a. 113	~
✓ b. 107	~
✓ c. 101	· •
□ d. 143	•
G 4. 173	
The correct answers are: 101, 107, 113	

Question 23	
Correct	
Mark 1.00 out of 1.00	
Convert 1010110101 from binary notation to decimal notation.	
○ a. 677	
b. 693	~
○ c. 661	
O d. 565	
The correct answer is: 693	
Question 24	
Correct	
Mark 1.00 out of 1.00	
Find the value of A[4] for the recurrence relation $A[n] = 2.A[n-1] + 3$, with $A[0] = 6$.	
○ a. 221	
b. 141	~
○ c. 65	
O d. 320	
The correct answer is: 141	
Question 25 Correct	
Mark 1.00 out of 1.00	
Given the message "BRX PHHW", encrypted by Caesar cipher. Which is the orginal message?	
a. YOU MEET	~
○ b. THE PARK	
○ c. MEET YOU	
O d. PARK THE	
The country was in VOLIMET	
The correct answer is: YOU MEET	

Question 26
Correct
Mark 1.00 out of 1.00
Determine whether each of these functions is $O(x^2)$.
a. $f(x) = 2^x$
✓ b. $f(x) = LxJ \cdot \Gamma x T$
\Box d. f(x) = x^4/2
The correct answers are: $f(x) = Lx J \cdot \Gamma x T$, $f(x) = x \log x$
Question 27
Correct Mark 1.00 out of 1.00
Mark 1.00 Out of 1.00
How many positive integers between 1000 and 9999 inclusive are divisible by 5 but not by 7?
○ a. 965
○ b. 1256
⊚ c. 1543
O d. 1250
The correct answer is: 1543
The correct answer is. 1545
Question 28
Correct Mark 1.00 out of 1.00
In a multiple chaice question paper of 15 questions the anguers can be one of A.P.C. or D. The number of different ways of anguering the
In a multiple-choice question paper of 15 questions, the answers can be one of A, B, C or D. The number of different ways of answering the question paper are
○ a. 87228×4^6
○ c. 23650×4^9
○ d. 54160×4^8
The correct answer is: 65536×4^7

Question 29	
Correct Mark 1.00 out of 1.00	
Find a formula for 1^3+2^3++n^3, where n is a positive integer.	
a. [n(n+1)/2]^2	~
○ b. [n(n+1)/3]^2	
○ c. [n(n+1)/3]^3	
○ d. [n(n+1)/2]^3	
The correct answer is: [n(n+1)/2]^2	
Question 30	
Correct	
Mark 1.00 out of 1.00	
Which of the following is the biggest algorithm-complexity?	
○ a. O(n^2)	
○ b. O(1000^n)	
○ c. O(n * log(n))	
	~
The correct answer is: O(n!)	
▼ Exercises-05	
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