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https://www.100test.com/kao_ti2020/138/2021_2022__E8_AE_A1_E7_AE_97_E6_9C_BA_E7_c98_138301.htm (61)

What is the decimal value of the following 32-bit two 's complement number?

1111 1111 1111 1111 1111 1111 1100 A) -8 B) -4 C) 4 D) 8 (62)

How many subsets does A have? Let $A = \{E, O, A, W, P, V, B\}$ A) 12 B) 36 C)

64 D) 128 (63) Suppose $V_1 = \langle R, + \rangle$, $V_2 = \langle R, \cdot \rangle$, where R is the set of real numbers,

, and are respectively addition and multiplication. Let $f: R \rightarrow R$ and

$f(x) = ex$, which of the following propositions is true? A) f is a

surjective homomorphism from V_1 to V_2 B) f is an injective

homomorphism from V_1 to V_2 C) f is an isomorphism from V_1 to

V_2 D) None of the above (64) P(n) is the predicate ' if 4 divides n

then 2 divides n ' . What is the truth value of P(12)? A) T B) F C) T

D) None of the above (65) An algorithm to solve a given problem

has time complexity $T(n) = n \log_2 n - (n-1)$ Given that the algorithm

takes 0.8 second for a problem in which $n=1024$, how long should it

take for a problem in which $n=4096$? (2 Points) A) 39 seconds B) 3.9

seconds C) 3.9 minutes D) 0.8 seconds (66) What is the definition of

a Path? A) A sequence of vertices and the edges formed by each

successive pair of vertices. B) A walk with distinct vertices. C) A walk

with distinct edges. D) None of the above (67) The figure below

shows a record used for recording information about a named event.

Which of the following statement is incorrect? (2 Points) VAR r:

record event:array[1..10] of char. place:array[1..20] of record

pname:array[1..15] of char. date: array[1..5] of record mo:1..12.

day:1..31. year:integer end end end. A) This is a one-dimensional array of records, also called a table. B) This is so called record of arrays. C) The event can occur in up to 20 places and on up to 5 different dates in each place. D) A reference to `r.place[i].date[j].mo` will access the month of the *j*th occurrence, in the *i*th place, of the event named in `r.event`.

(68) Which of the following statements is true regarding simple sort techniques? (2 Points)

A) Exchange sort is frequently referred to as a bubble sort. B) Exchange sort is the least expensive C) If random data are in an array that is to be sorted, an Insertion Sort will give the best performance for large elements with small sort items. D) Both Insertion Sort and Selection Sort require $O(n)$ moves.

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