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Questions to be Challenged in

GATE 2020

Computer Science & IT

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Date of Exam : 08/02/2020 (Afternoon)

Q.7 Which one of the following regular expressions represents the set of all binary strings with an odd number of 1's?

(a) ((0 + 1)* 1(0 + 1)*1)*10*
(b) (0*10*10*)*0*1
(c) 10* (0*10*10*)*
(d) (0*10*10*)*10*

Ans. (*)

- Regular expression in option (a) can create odd number of 1's as well as even number of 1's and hence it is incorrect.
- Regular expression in option (b) is incorrect because it will force the strings to end with 1 and a string of odd number of 1's need not to end with 1.
- Regular expression in option (c) will force it to start with 1 and hence it is incorrect.
- Regular expression in option (d) is incorrect as it does not generate strings '01' or 1 or more 0 followed by 1 which is having an odd number of 1's.

  Note: Option (d) would be correct only when if the expression were **(0*10*10*)*10* + (0*10*)** means **(0*10*)** missing from the option. Hence option (d) is also incorrect.

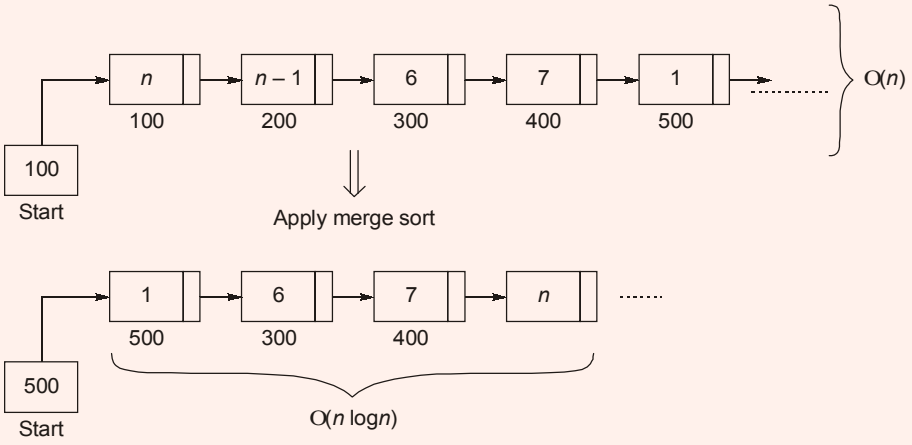
GATE Ans. Key (d)

Q.16 What is the worst case time complexity of inserting n elements into an empty linked list, if the linked list needs to be maintained in sorted order?

(a) $\Theta(n)$
(b) $\Theta(n \log n)$
(c) $\Theta(n^2)$
(d) $\Theta(1)$

Ans. (b)

Insert element at the beginning of linked list, take $O(1)$



GATE Ans. Key (c)

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