Roll No. ☐☐☐☐☐☐☐

18-CS-42

M.Sc. IV SEMESTER [MAIN/A.T.K.T.] EXAMINATION
APRIL - MAY, 2018

COMPUTER SCIENCE
Paper - II
[Design and Analysis of Algorithm]

[Max. Marks : 75]   [Time : 3:00 Hrs.]   [Min. Marks : 27]

Note : Candidate should write his/her Roll Number at the prescribed space on the question paper.
Student should not write anything on question paper.
Attempt five questions. Each question carries an internal choice.
Each question carries **15 marks.**

Q. 1 a) What is asymptotic notation ? Explain each.   (5 marks)

b) Explain Heap Sort Algorithm. Create a Min-Heap and Max-Heap for the following list .   (10 marks)
$L = \{G, F, D, C, B, A, H, I, J, K\}$

OR

a) Explain divide and conquer technique design a recursive algorithm for binary search.   (10 marks)

b) Solve the following recurrence relation -   (5 marks)

i) $T(n) = 2 T (n/2) + c$

ii) $T(n) = T(n/3) + T (2n/3) + n$

Q. 2 a) What is Dynamic Programming ? Explain with example.   (8 marks)

b) Write algorithm for matrix chain multiplication.   (7 marks)

OR

a) Explain 0/1 Knapsack problem in brief.   (8 marks)

b) Write algorithm for fibonacci number.   (7 marks)

Q. 3 Write difference between dynamic programming and greedy algorithm with example.   (15 marks)

OR

Q. 4 a) What do you mean by JSP implicit object. Write an example of out implicit object. (8 marks)

b) Differentiate between Business logic and presentation logic. (7 marks)

OR

a) Why do we use Javabeans ? Write in brief about BDK. (8 marks)

b) Explain in detail about JSP life cycle. (7 marks)

Q. 5 a) How to handle various exception in JSP ? Explain. (8 marks)

b) Write in detail about MVC java design pattern. (7 marks)

OR

a) What is JSTL stands for ? How to build custom tag library in JSP ? (8 marks)

b) What are the different types of errors available with JSP ? (7 marks)

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