



# Punjab Technical University

Maximum Marks: 90

Time: 90Mins.

## Entrance Test for Enrollment in Ph.D Programme

### *Important Instructions*

- ➔ Fill all the information in various columns, in Capital letters, with blue/black point pen for attempting the questions
- ➔ Use of calculators is not allowed.
- ➔ Make attempt by writing the answer in capital Letters in the box against each question number.
- ➔ All questions are compulsory. Each Question has only one right answer. No Negative marking for wrong answers.
- ➔ Questions attempted with two or more options/answers will not be evaluated.

Stream: .....Engineering .....

Discipline .....Computer Science Engineering.....

Name .....

Fathers Name .....

Date .....17-05-2015.....

Roll Number .....

Signature of Candidate: .....

Signature of Invigilator .....

1. The following sequence of operation is performed on stack :  
push(1), push(2), pop, push(1), push(2), pop, pop, pop, push(2), pop.  
The sequence of popped out values are?  
A. 2,2,1,1,2  
B. 2,2,1,2,2  
C. 2,1,2,2,1  
D. 2,1,2,2,2
2. Suppose we're debugging a quicksort implementation that is supposed to sort an array in ascending order. After the first partition step has been completed, the contents of the array are in the following order: 3, 9, 1, 14, 17, 24, 22, 20. Which of the following statements is correct about the partition step?  
A. The pivot could have been either 14 or 17  
B. The pivot could have been 14, but could not have been 17  
C. The pivot could have been 17, but could not have been 14, 3.  
D. Neither 14 nor 17 could have been the pivot

3. When inorder traversing a tree resulted E A C K F H D B G; the preorder traversal would return
- FAEKCDBHG
  - FAEKCDHGB
  - EAFKHDCBG
  - FEAKDCHBG
4. Given two sorted lists of size  $m$  and  $n$  respectively. The number of comparisons needed in the worst case by the merge sort algorithm will be?
- $mn$
  - $\max(m,n)$
  - $\min(m,n)$
  - $m+n-1$
5. Which of the following is the last step in modelling class interactions, behaviours, and states that support the use-case scenarios?
- Transforming the "analysis" use cases to "design use cases"
  - Identifying class behaviour and responsibilities.
  - Identifying and classifying use-case design classes
  - Model object states.
6. \_\_\_\_\_ is the measure of how well a solution meets the identified system requirements to solve the problem and take advantages of the opportunities envisioned for the system.
- operational feasibility
  - technical feasibility
  - schedule feasibility
  - legal feasibility
7. In which of the following scheduling policies does context switching never takes place?
- Round-robin
  - Shortest job first (non pre-emptive)
  - Pre-emptive scheduling
  - All of these
8. Formula for Effective Access Time is (Where,  $m_a$  = memory access time,  $p$  = probability of page fault)
- $(1-p) \times m_a + p \times \text{page fault time}$
  - $(1+p) \times m_a + p \times \text{page fault time}$
  - $(1-p)^2 \times m_a + p \times \text{page fault time}$
  - None of the Above
9. A multilevel page table is preferred in comparison to a single level page table for translating virtual address to physical address because
- it reduces the memory access time to read or write a memory location
  - it helps to reduce the size of page table needed to implement the virtual address space of a process
  - it is required by the translation look aside buffer
  - it helps to reduce the number of page faults in page replacement algorithms