

**Course No: ITGD2201**  
**Course Title: Computer Science II**  
**Date: 23/05/2011**  
**No. of Questions: 4 Questions**  
**Time: 2 hours**  
**Using Calculator (Yes)**

University of Palestine



**Final Exam**  
**2<sup>nd</sup> semester 2010/2011**  
**Total Grade: 50**

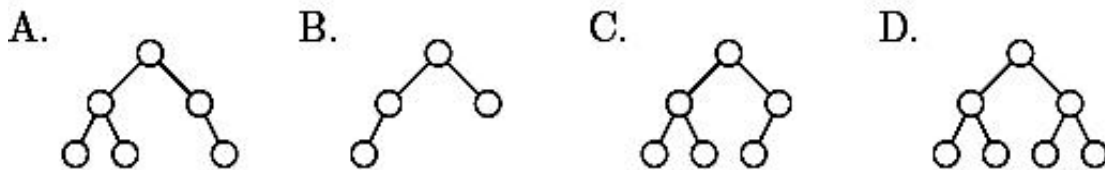
**Instructor Name: Ms. Eman Alajrami**  
**Student No.: \_\_\_\_\_**  
**Student Name: \_\_\_\_\_**  
**College Name: IT**  
**Dep. / Specialist: \_\_\_\_\_**  
**Using Dictionary (No)**

**First Question** **No. of Branches (3)** **(6/50)**

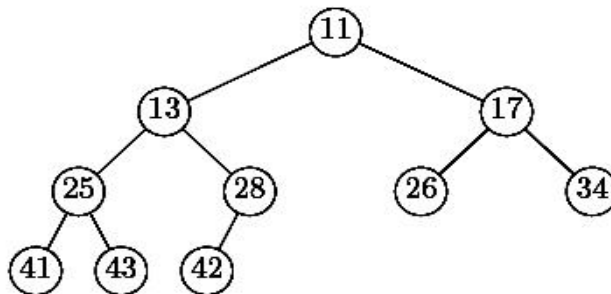
**Q1 B1**

Answer the following questions:

1) Which of the choices below is **Not** a complete binary tree? Circle the choice.



2) What is the value in the sixth node in the inorder traversal of the tree shown below?



Answer is: .....

3) Suppose that a certain binary tree on seven nodes has in-order traversal **PQRSTUV** and postorder traversal **QRPTUVS**.

What is the last character in its preorder traversal?

Answer is: .....

Course No: ITGD2201  
Course Title: Computer Science II  
Date: 23/05/2011  
No. of Questions: 4 Questions  
Time: 2 hours  
Using Calculator (Yes)

University of Palestine



Final Exam  
2<sup>nd</sup> semester 2010/2011  
Total Grade: 50

Instructor Name: Ms. Eman Alajrami  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: IT  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

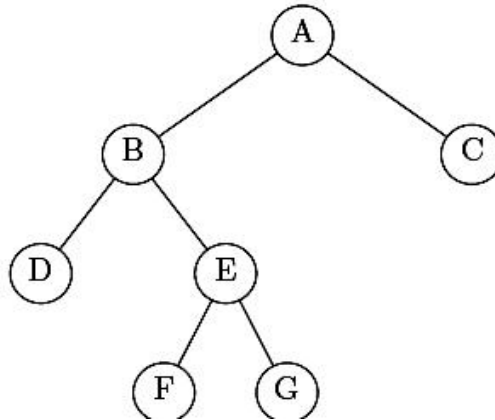
Second Question

No. of Branches (1)

(14/50)

**Q2 B1**

Given the following Binary Tree, Solve the following Questions?



- a) What are the ancestors of node E? .....
- b) What are the descendants of node B? .....
- c) What is the height of the tree? .....
- d) What is the maximum possible number of nodes at the level of node G?-----
- e) What is the result of visiting this tree using inorder traversal?  
.....
- f) What is the result of visiting this tree using preorder traversal?  
.....
- g) What is the result of visiting this tree using postorder traversal?  
.....

Course No: ITGD2201  
Course Title: Computer Science II  
Date: 23/05/2011  
No. of Questions: 4 Questions  
Time: 2 hours  
Using Calculator (Yes)

University of Palestine



Final Exam  
2<sup>nd</sup> semester 2010/2011  
Total Grade: 50

Instructor Name: Ms. Eman Alajrami  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: IT  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

**Third Question**

**No. of Branches (2)**

**(15/50)**

**Q3 B1** Consider the following fully parenthesized arithmetic expression:

**(5/15)**

$$(1 - (((3+4) * (5-6)) / (7*9)))$$

Draw an expression tree for this expression

**Q3 B2**

**(10/15)**

Write an algorithm to search of an item in a Binary Search Tree (BST).

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

Course No: ITGD2201  
Course Title: Computer Science II  
Date: 23/05/2011  
No. of Questions: 4 Questions  
Time: 2 hours  
Using Calculator (Yes)

University of Palestine



Final Exam  
2<sup>nd</sup> semester 2010/2011  
Total Grade: 50

Instructor Name: Ms. Eman Alajrami  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: IT  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

**Fourth Question** **No. of Branches (1)** **(15/50)**

Solve Just One of the following Branches (Just One)

**Q4 B1**

**(15/15)**

Write the algorithm of the **Merge Sort**, then apply the steps for the following items:  
85, 24, 63, 45, 17, 31, 96, 50

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

**Course No: ITGD2201**  
**Course Title: Computer Science II**  
**Date: 23/ 05 / 2011**  
**No. of Questions: 4 Questions**  
**Time: 2 hours**  
**Using Calculator (Yes)**

**University of Palestine**



**Final Exam**  
**2<sup>nd</sup> semester 2010/2011**  
**Total Grade: 50**

**Instructor Name: Ms. Eman Alajrami**  
**Student No.:** \_\_\_\_\_  
**Student Name:** \_\_\_\_\_  
**College Name: IT**  
**Dep. / Specialist:** \_\_\_\_\_  
**Using Dictionary (No)**

**Q4 B2**

**(15/15)**

Write the algorithm of the **Quick Sort**, then apply the steps for the following items:  
85, 24, 63, 45, 17, 31, 96, 50

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

**End of Questions**

**Good Luck**