

# **MID-Term Questions**

Premier University Chittagong

Department of Computer Science and Engineering

Mid Term Examination (Spring-2019)

3<sup>rd</sup> Semester

Course Title: Basic Economics

Course Code: ECO201

Total Marks: 20

Time: 1 hour

(Answer any two from following questions. Figures in right indicates full marks)

1. Demand and supply in a market is describe by the following equations

$$Q_d = 66 - 3P$$

$$Q_s = -4 + 2P$$

- a. Solve algebraically to find equilibrium P and Q 4
- b. How would a per unit sales tax  $t$  affect this equilibrium and comment on how the tax is shared between producer and consumer. 6

2. Explain following cases with graph

- a. What will happen to demand line if income increase with all other things remain constant? 5
- b. Between butter and vegetable oil, if there is an increment in price of butter what will happen to the demand line of vegetable oil? 5

3. Describe change in equilibrium quantity if

- a. wage rate abated and level of wealth increase 5
- b. price of raw material increased and preference for that good is goes down 5

**Premier University**  
**Department of Computer Science & Engineering**  
**3<sup>rd</sup> Semester Mid-Term Exam, April 2019**  
**Course Title: Data Structure**  
**Course Code: CSE 221**

**Time: 1 Hour**

**Total Marks: 20**

**Answer any two questions.**

1. a. What is a data structure? Mention the names of linear data structures. **02**  
b. Let **DATA** is a linear array with the following elements: **06**  
**DATA: 99, 88, 77, 66, 55, 44, 33**  
Apply **Bubble Sort** Algorithm and show all passes to sort the elements in **ascending order**.  
c. How many comparisons and interchanges are required in all passes to sort the elements in ascending order in **DATA** array? **02**
2. a. Let **MARK** is a linear array with the following elements: **05**  
**MARK: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100**  
Apply **Binary Search** Algorithm and show all steps to find the element 75 in **MARK** array.  
b. Apply **Selection Sort** Algorithm and show the passes in a table to sort the elements of **DATA** array given in 1(b). **05**
3. a. Write down different types of data structure operations. **02**  
b. Find the table and corresponding graph for the second pattern matching algorithm where the pattern is **P = xyxyxy**. **08**



**PREMIER UNIVERSITY, CHITTAGONG**  
**Department of Computer Science & Engineering (CSE)**  
**3<sup>rd</sup> Semester (Section C) Mid Term Exam, April 2019**

**Course Code: CSE 211**  
**Marks: 20**

**Title: Object Oriented Programming**  
**Time: 1.00 Hour**

There are **three** questions. Answer two of them. Figures in the right-hand margin indicate full marks.

1. a) Differentiate between method overloading and method overriding in Java 5  
b) "Although abstract classes cannot be used to instantiate objects, they can be used to create object references". Do you agree with the statement? Justify your answer with example. 5

2. a) Considering Java's access control mechanism, fill in the blank cell of the following table with **Yes** or **No**. 4

	Private	No Modifier	Protected	Public
Same class				
Same package subclass				
Same package non-subclass				
Different package subclass				
Different package non-subclass				

- b) Write down three uses of the keyword "**final**". 3  
c) What are the difference between **class** and **abstract class**? 3

3. a) Consider a company where all the employees fall under any of the three categories: entry level, mid-level and senior level. You have to create five classes under the same package. One is common base class **Employee** and has the instance variable: **no\_of\_working\_hours\_per\_day** (default access). The classes **EntryLevel**, **MidLevel** and **SeniorLevel** are other three classes which have one instance variable: **salary**. The fifth class is named **Main** to include the main method. The salary of a mid-level employee is 1.5 times and the salary of a senior level employee is 3 times of the salary of an entry level employee. It is to be mentioned that these three classes (**EntryLevel**, **MidLevel** and **SeniorLevel**) inherit the class **Employee** to inherit the accessible properties of **Employee** class. The program should take the input for number of working hours per day for an employee (For any level of employee the no. of working hours per day is same) and the salary of an entry level employee in the main method and then it should print the output of the salary and no. of working hours per day of an entry level, mid-level and senior level employee. 10

# Premier University, Chittagong

Department of Computer Science and Engineering

3<sup>rd</sup> Semester Mid-term Examination, April'2019

Course Code: MAT 201, Course Title: Engineering Mathematics III

Time: 50 mins, Full Marks: 20

[N.B. - (i) Answer any *two* questions; ]

- 1
  - a) State and prove Cauchy-Riemann equations.
  - b) Test C-R equations for the following functions  $f(z) = \frac{1}{z}$
- 2
  - a) State and Prove Cauchy's Integral Formula
  - b) Evaluate the complex integral for  $\int_C \frac{\cos \pi z^2}{(z-1)(z-2)} dz$  where  $C$  is  $|z| = 2$
- 3
  - a) Evaluate  $\int_C \frac{e^{-z}}{(z+2)^5} dz$
  - b) State and prove Cauchy's Integral theorem.
  - c) Prove that the function  $u = x^3 - 3xy^2 + 3x^2 - 3y^2 + 1$  satisfies the Laplace's equation.

**Premier University**  
**Department of Computer Science & Engineering**  
**3<sup>rd</sup> Semester Midterm Exam, February 2019**  
**Course Title: Digital Electronics**  
**Course Code: CSE - 311**

**Time: 1 Hour**

**Total Marks: 20**

**Answer any four (4) from the following questions:**

**Q.1 a.** What is a combinational circuit? Design a full adder circuit with two half adders and an OR gate. **5**

**b.** Solve the following expression using Tabulation method. **5**

$$F(w,x,y,z) = \sum (0,1,2,8,10,11,14,15)$$

**c.** Implement the following Boolean function with NAND gates for both  $F$  and  $F'$  **5**

$$F(x,y,z) = \sum (0,6)$$

**d.** Simplify the Boolean function using don't care condition: **5**

$$F = B'C'D' + BCD' + ABCD'$$

$$d = B'CD' + A'BCD'$$

**e.** Simplify the following Expressions : **5**

i)  $F(A,B,C,D,E) = \sum (0,1,4,5,16,17,21,25,29)$

ii)  $F(w,x,y,z) = \sum (0,2,3,12,13,14)$

