KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Mechanical Engineering

B. Sc. Engineering 2nd Year 2nd Term Examination, 2016

Hum 2205

(Economics and Accounting)

Time: 3 Hours Total Marks: 210

N.B.: i) Answer any THREE questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.

SECTION-A

1(a) Define the nature and scope of economics. Discuss the importance of the study of Economies in practical life. 10

1(b) Assume that scientific inventions have double the productivity of society's resources in butter production without altering the productivity of gun manufacture. Redraw society's production frontier. 13

1(c) Why demand curve is downward slope from left to right. Explain. 12

2(a) What is utility? Explain the relation between total utility and marginal utility. 10

2(b) Suppose the demand function is $\theta_d = 20 - 5$ p and supply function is $0_s = 10$ p. Estimate the equilibrium price, equilibrium quantity and total revenue received by producers. 15

2(c) What is inflation? Explain the main causes of inflation. 10

3(a) What is indifference curve? Discuss the characteristics of indifference curve. 15

3(b) Draw the cost curves for a typical firm. For a given price, explain how the competitive firm chooses the level of output that maximizes profit. Under what condition will a firm shutdown temporarily? Explain. 20

4(a) Explain the four components of GDP. Why is it desirable for a country to have a large GDP? 15

4(b) What is national savings, private savings and public savings? 09

4(c) Describe a change in tax code that might increase private savings. If this policy were implemented, how would it affect the market for loanable funds? 11

SECTION-B

5(a) What is Accounting? How can you use Accounting knowledge as an Engineer? 10

5(b) What is Accounting equation? 05

5(c) Ahmed's Repair shop was started on May 1 by Navid Ahmed. A summary of May transactions are presented below: 20

(i) Invested Tk. 10,000 cash to start the repair shop.
(ii) Purchase equipment for Tk. 5,000 cash.
(iii) Paid Tk. 400 cash for May office rent.
(iv) Paid Tk. 500 cash for supplies.
(v) Incurred Tk. 250 of advertising cost in the Bangladesh Times on account.
(vi) Received Tk. 5,100 in cash from customers for repair service.
(vii) Withdrew Tk. 1,000 cash for personal use.
(viii) Paid part time employee salaries Tk. 2,000.
(ix) Paid utility bills Tk. 140.
(x) Provided repair service on account to customers Tk. 750.
(xi) Collected cash of Tk. 120 for services billed in transaction (*x*).

Instructions: Prepare a tabular analysis of the transactions.

6 The following trial balance and additional data are of Gazi Corporation Ltd:

Trial Balance

Account Title	Debit (Tk.)	Credit (Tk.)
Cash	2,40,000	
Accounts receivable	70,000	
Supplies	60,000	
Prepaid insurance	90,000	
Furniture	2,20,000	
Accumulated depreciation-Furniture		20,000
Accounts payable		30,000
Gazi, capital		4,00,000
Gazi, drawing	80,000	
Service revenue		7,00,000
Advertising expense	20,000	
Salaries expense	2,40,000	
Rent expense	90,000	
Miscellaneous expense	40,000	
	11,50,000	11,50,000

Additional data:

(i) An inventory shows that Tk. 20,000 of the supplies on hand at the end of year.
(ii) The balance of prepaid insurance for three years.
(iii) Depreciation expense for the year on furniture is Tk. 19,000.
(iv) Salaries expense incurred but unpaid at the end of the year are Tk. 16,000.

Instructions:

(a) Prepare an income statement, 15
(b) Prepare an owner's equity statement, and 05
(c) Prepare a balance sheet. 15

7(a) Define cost accounting. 05

7(b) What is ledger? What are the difference between journal and ledger? 10

7(c) Draw a statement of cost of goods sold and income statement from the following particulars. 20

		Tk.
Beginning inventory:	Materials	2,00,000
	Work in process	60,000
	Finished goods	5,000
Ending inventory:	Materials	1,80,000
	Work in process	50,000
	Finished goods	15,000
Material Purchased		5,00,000
Direct labour		1,50,000
Factory overhead		1,00,000
Selling expense		20,000
Sales		8,00,000

8(a) What is economic order quantity? 05

8(b) Distinguish between ordering cost and carrying cost. 10

8(c) The following information has been gathered with regard to materials: 20

Normal usage (in units)	200
Minimum usage (in units)	100
Maximum usage (in units)	250
Re-order quantity (in units)	750
Re-order period (in months)	3 to 4

Calculate for each component: (i) Re-order level, (ii) Maximum level, (iii) Minimum level, and (iv) Average stock level.

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Department of Mechanical Engineering
B. Sc. Engineering 2nd Year 2nd Term Examination, 2016
ME 2221
(Computer Programming)

Time: 3 Hours. Full Marks: 210

N.B. i) Answer any THREE questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.
iii) Assume reasonable data if any missing.

SECTION – A

1(a) What is meant by computer programming and programming language? Briefly describe the features and applications of C programming. 11

1(b) What is an operator and an operand? Describe several different types of operators that are included in C with examples. 12

1(c) Explain the following terms with detail examples: 12
(i) Variable (ii) Expression (iii) Statement (iv) Identifier

2(a) Differentiate with example: 08
(i) For loop and while loop.
(ii) While loop and do-while loop.

2(b) Write a program in C using 'do-while' to read 100 numbers and calculate the average of the numbers which are greater than 35. 12

2(c) Find the sum of the series: 15
$1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} - \frac{1}{6} + \cdots \quad upto\ n\ terms$
using C program.

3(a) Write a function to calculate the factorial of a number and use this function to calculate the factorial of n numbers. 15

3(b) Write a C program that will print 10 numbers in ascending order. 15

3(c) Write down the purposes of scanf and printf in C language. 05

4(a) In what way does an array differ from an ordinary variable? What condition must be satisfied by all elements of any given array? 06

4(b) Write a C program using 2D array to compute and print the following information from the data table, which shows the value of sales of three items by four sales persons. 18
(i) Total value of sales by each person,
(ii) Total value of each item sold,
(iii) Grand total of sales.

	Item 1	Item 2	Item 3
Person 1	310	275	365
Person 2	210	190	325
Person 3	405	235	240
Person 4	260	300	380

4(c) From a list of 1000 names, five character each, find how many are 'KARIM' using C program. 11

SECTION – B

5(a)	Define user-defined function and write the declaration syntax.	08
5(b)	Write a C program to reverse a string.	12
5(c)	Write a C function to check whether a number is prime. Now display the prime numbers between 2 and 50 by calling it within a loop in the main() function.	15
6(a)	What is recursion? What advantages is there to use recursion? State the strategy of recursion.	05
6(b)	Create a function to compute the area of a circle and use the function to find the area of 20 circles with radii given using C program.	15
6(c)	Use recursive call to evaluate the sine of x define by the series- $\sin(x) = f(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots$ Input the value of x and number of terms in your program. Compare the results with the built-in sine function.	15
7(a)	Differentiate between structure and union.	06
7(b)	Write a C program to store information of n numbers of account holders in a bank using structure.	14
7(c)	Write a C program to read marks of n students and store it in a file.	15
8(a)	What is a structure? How does a structure differ from an array? Describe the syntax for defining the composition of a structure. How can structure variables be declared?	10
8(b)	What are the primary advantages of using data file?	05
8(c)	Write a C program using structure to calculate the total marks of 10 students from the corresponding marks of attendance, class tests, and final exam marks. Print a table to show the name, roll number and total marks obtained by each of 10 students.	20