Patan Multiple Campus
Mid-Term Examination-2081

Subject: Economics (ECO155) F.M.: 40
Faculty: BIT Time: 2:00 hrs. P.M.: 16
Semester: I/II

Long answer questions

Attempt only **ONE** question. [1*10=10]

1. Define equilibrium of a consumer according to indifference curve approach. Explain with figure.
2. Explain the short sun equilibrium of a firm in monopoly market.

Short answer questions

Attempt only **SIX** questions. [6*5=30]

3. How economics helps to human beings to fulfill unlimited wants with the limited resources? Explain.
4. Define economic system. Explain about the characteristics of free market economy or Capitalism.
5. Differentiate nominal and real GDP.
6. Suppose Ram purchases 10 units of X, 15 units of Y, and 20 unit of Z at the price of XYZ are 45, 35, and 25 respectively at his income 25000 per month. As income of Ram increases to 35000 per month he purchases 15 units of X 10 units of Y and 30 units of Z. Then identify the nature of X, Y, and Z commodities with its income elasticity.
7. Let the production function $Q=80L - 2L^2$, price of product = $ 100, wage rate = $ 40, fixed cost = $40000. Compute output maximizing units of labour and output. What will be the profit?
8. Describe the component of measuring national income with income method.
9. Consider the following table and find TC, AFC, AVC, AC, and MC for each output level when total fixed cost is Rs. 100.

Output	0	1	2	3	4	5	6	7	8
TVC	0	12	22	30	40	60	90	140	240

Patan Multiple Campus
Mid-Term Examination-2081

Subject: Microprocessor & CA | F.M.: 40
Faculty: BIT | Time: 2:00 hrs. | P.M.: 16
Semester: I/II

SET-B

Long Answer Questions

Attempt any one question. [1 x 10 = 10]

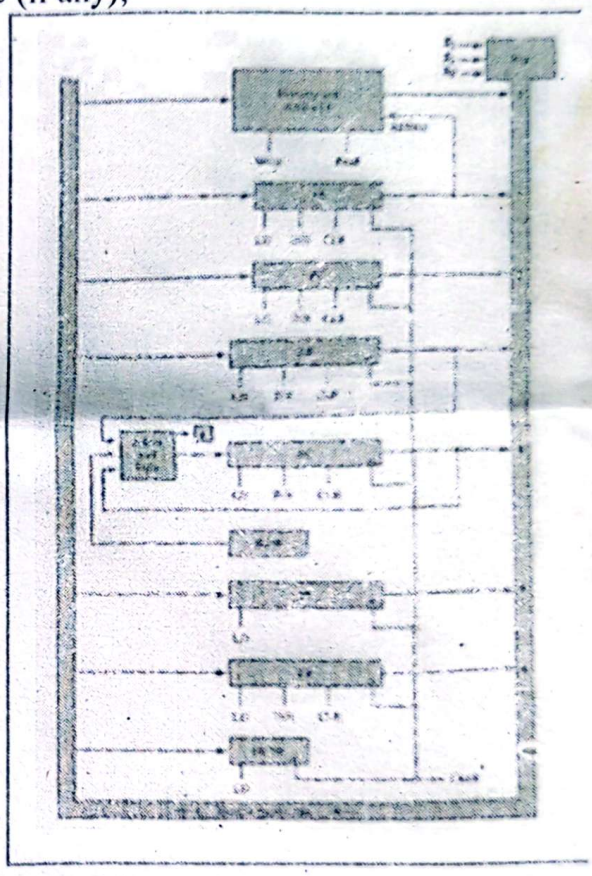
1. The following register transfers are to be executed in the system of Fig. For each transfer, specify:

a. the binary value that must be applied to bus select inputs S2, S1 and S0;
b. the register whose LD control input must be active (if any);
c. a memory read or write operation (if needed); and the operation in the adder and logic circuit (if any).

a. AR <- PC
b. IR <- M[AR]
c. M[AR] <- TR

S_2, S_1, S_0	Load (LD) Register	Memory	Adder/Transfer

MUX OUT connected to register to as follows:
Memory = 7, AR = 1, PC=2, DR=3, AC=4, IR=5, TR=6



2. Explain rotate and branch instruction of 8085 microprocessor with examples.

Short Answer Questions

Attempt Any Six questions. [6 x 5 = 30]

3. Explain the classifications of the organization of a computer by M. J. Flynn.
4. Explain the different states of Fetch and Execution Cycle of SAP-1 instructions.
5. Explain the difference between main memory and Control Memory of Microprogrammed control unit.
6. Explain special purpose register of 8085 microprocessor in brief.
7. Define addressing mode. Write differences between register direct and register indirect addressing mode.
8. Define micro operation. Explain different types of shift micro operation in brief.
9. Write an assembly language program to subtract two 8- bit data values stored in memory location 8050 and 8051 and store the result of subtraction in memory location 8052 and borrow (if any) in memory location 8053.

Patan Multiple Campus
Mid-Term Examination-2081

Subject: Discrete Structures F.M.: 40
Faculty: BIT Time: 2:00 hrs P.M.: 16
Semester: I/II

SET-B

Group "A"

Attempt any one question. (10*1=10)

1. Define linear homogeneous recurrence relation. What is the solution of the recurrence relation $a_n=6a_{n-1}-9a_{n-2}$ with initial conditions $a_0=1$ & $a_1=6$? (2+8)
2. What is undirected graph? How graph can be represented? Explain with example.(2+8)

Group "B"

Attempt any six questions. (5*6=30)

3. What is conjunction and disjunction with truth table? (5)
4. Explain any two rule of inference. (5)
5. What is congruent modulo? Determine whether 20 is congruent to 8 modulo 6 and 25 is congruent to 17 modulo 5. (3+2)
6. Explain trial division with example? Using trial division, show that 101 is prime. (2+3)
7. What is Euler path? Compare it with Hamilton path. (2+3)
8. What is the minimum number of students required in a discrete mathematics class to be sure that at least six will receive the same grade, if there are five possible grades, A, B, C, D and F. (5)
9. What is pigeon hole principle? Explain generalized pigeon hole principle. (2+3)

Tribhuvan University
Patan Multiple Campus
Bachelor in Information Technology (BIT)
Mid-Term Examination-2081

Subject: BIT153 Object-Oriented Programming
Year/Sem: 1st/II **F.M.: 40**
Time: 2hrs **P.M: 16**

Section-A
Group-A

Attempt any two questions: **(1 x 10 = 10)**

1. Write any four features of object-oriented programming. What is Constructor? Explain different types of constructor with suitable example.
2. What do you mean by overloading of a function? When do we use this concept? Explain with suitable example.

Group-B

Attempt any six questions: **(6 x 5 = 30)**

3. What is inline function? Explain its usage with an example.
4. What is static variable? Illustrate the use of static variable using suitable example.
5. Write a C++ program to illustrate dynamic allocation and de-allocation of memory using new and delete.
6. What is friend function? Illustrate the use of friend function using suitable example.
7. Write a program that uses a class Time with data member hour and minutes. Include functions in class to take input and output as well as the function to add the two objects of Time that returns the sum. Display the sum of two Time objects.
8. Write a program to concatenate two strings using operator overloading.
9. Write a C++ program to calculate the percentage of a student using multi-level inheritance. Accept the marks of three subjects in base class. A class will be derived from the above-mentioned class which includes a function to find the total marks obtained and another class derived from this class which calculates and displays the percentage of student.

PATAM MULTIPLE CAMPUS
Mid Term Exam – 2081

Bachelor Level / First Year / Second Semester / Science
Bachelors in Information Technology
Subject: Basic Statistics (STA154)

Full Marks: 40
Pass Marks: 16
Time: 2 hrs.

Set-A

Group-A **1x10=10**

Attempt any **ONE** questions.

1. Define dispersion. A sample of 50 students. Each of two marks Mathematics and Statistics is taken and their average mark is recorded.

Life(No. of years)	0 - 5	5 - 10	10 - 15	15 - 20	20 – 25
Mark in Mathematics	6	10	20	12	2
Mark in Statistics	12	17	8	10	3

Which of these two marks shows greater consistency in performance?

2. Define normal distribution and standard normal distribution. The distribution of monthly incomes of 5,000 employees of a certain industrial unit was found to be normally distributed with mean of Rs. 2000 and s.d. of Rs. 200. Estimate (a) the range of incomes of the middle 60% employees, (b) the lowest income of richest 10% employees, and (c) the highest of poorest 10% employees.

Group-B

Attempt any **SIX** questions. **6x5=30**

3. What do you mean by Statistics? Describe the role of Statistics in information technology.

4. The standard deviation of a symmetric distribution is 7. Compute the possible value of fourth central moment for the distribution to be (i) mesokurtiç (ii) platykurtic, and (iii) leptokurtic.

5. In a bolt factory, machines A, B and C manufactures 25%, 35% and 40% of the total respectively. Of their output 5% 4% and 2% are defective bolts. A bolt is drawn at random from the product and is found to defective. What is the probability that it was manufactured from the machine B?

6. Define random variable. A jewelry dealer is interested in purchasing gold necklace for which probabilities are 0.18, 0.22, 0.33 and 0.27 respectively that it will be able to sell it for a profit of Rs. 5000, Rs. 8000, breakeven and sell for a loss of Rs. 3000. Find expected profit and variance of profit?

7. Define Poisson distribution. An automatic machine makes paper clips from coils of wire. On the average, 1 in 400 paper clips is defective. If the paper clips are packed in boxes of 100, assuming that the process follows Poisson distribution, what is the probability that any given box of clips will contain, (i) no defective, (ii) one or more defective, and, (iii) less than two defective?

8. Define correlation. The following observations of yields of wheat and used fertilizers of farmers are given bellow:

Yields	120	150	130	140	135	115	110	200	80
Fertilizes	15	16	20	22	24	10	20	25	10

(i) Find Karl-Pearson's correlation coefficients and interpret it.

(ii) Find probable error and test for significance.

(iii) Find coefficient of determination and interpret it.

9. Define regression. The following observations of yields of wheat and used fertilizers of farmers are given bellow:

BP	100	105	120	140	135	115	125	130	90
Age	15	16	20	22	24	10	20	25	10

(i) Construct appropriate estimate equation of BP and age.
(ii) Estimate the value of blood pressure when age is 24.
(iii) Interpret the slope of regression coefficient.
(iv) Determine the coefficients of determination and interpret it.

BEST OF LUCK!!!