

Central University of Haryana
Department of Computer Science and Engineering.

Mid Sem-I Branch: CSE (2nd year) Subject- Discrete structure

Time: 01:00 Hours

MM: 20

Note: All questions are compulsory.

- 1) Write the properties of union and intersection of set. (2 marks)
- 2) A class has 175 students. The following data shows the number of students obtaining one or more subjects. Mathematics 100; Physics 70; Chemistry 40; Mathematics and Physics 30; Mathematics and Chemistry 28; Physics and Chemistry 23; Mathematics, Physics and Chemistry 18. How many students have offered Mathematics alone? (3 marks)
- 3) If $A = \{1, 2, 4\}$, $B = \{2, 4, 5\}$, $C = \{2, 5\}$, then $(A - B) \times (B - C)$ is. (2 marks)
- 4) Prove that if R is an equivalence relation on a set A , then R^{-1} is also an equivalence relation on A . (3 marks)
- 5) What are the different types of relations? Explain with an example. (4 marks)
- 6) Let R be the set of all binary relations on the set $\{1, 2, 3\}$. Suppose a relation is chosen from R at random. The probability that the chosen relation is reflexive. (2 marks)
- 7) How many relations are reflexive or symmetric on a set having three elements? (2 marks)
- 8) Define \star on Z by $a \star b = a + b - ab$. Show that \star is a binary operation on Z which is commutative as well as associative. (2 marks)

Computer Science and Engineering Department
Sessional 1

Time: 60 mins.

Question Paper (B.Tech. 4thsem)

Maximum marks: 5*4=20

Subject: Economics

Subject-Code: BT ECO 507A

Q1. Attempt any two sub parts [2.5 marks each]

- a. Define any two exceptions to the law of demand'?
- b. Define Consumer Surplus?
- c. Differentiate between Substitutes and Complementary goods'?

Attempt any three questions out of four given questions:

Q:2. ? Define Law of demand? And how do the changes in the following factors affect the demand for a commodity: i) Price; ii) Income and iii) Price of the substitute? [5 marks]

Q:3. Explain the various methods for the measurement of Elasticity of demand? [5 marks]

Q:4. Explain the Circular flow of income of Indian Economy? [5 marks]

Q:5. Explain the Law of Diminishing Marginal Utility with suitable example? [5 marks]

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Attempt any four questions: -

Que 1: Suppose R (A B C D E) is relational schema and set of functional dependency:

FDs: A \rightarrow B, B \rightarrow E, C \rightarrow D

Find out if the relation R is in 2NF or not? If not, decompose it in 2NF.

Que 2: What do you mean by anomalies?

Que 3: Consider the relation scheme R = {E, F, G, H, I, J, K, L, M, N} and the set of functional dependencies {{E, F} \rightarrow {G}}, {F} \rightarrow {I, J}, {E, H} \rightarrow {K, L}, K \rightarrow {M}, L \rightarrow {N} on R. What is the key for R?

Que 4: Discuss about database users in detail.

Que 5: Discuss ER diagram with suitable example.

Central University of Haryana
School of Engineering and Technology

Paper Code: BT CS 402

Paper Title: OOP using C++

Time: 1 Hour

Max Marks: 10

Note: Attempt all the five questions, All the questions carry equal marks.

- a. What are the benefits of Object-Oriented Programming?
- b. Differentiate between the Procedure-oriented approach and Object-oriented approach.
- c. How the execution of a C++ program happens?
- d. Differentiate between structure and class.
- e. How preprocessor directives can be classified? Please explain.