# U.G. 2nd Semester Examination - 2021

# COMPUTER SCIENCE

**[HONOURS]**

**Generic Elective (GE)**

**Course Code : COM.Sc-H-GE-L-202(A&B)**

Full Marks : 20 Time : 1 Hour

*The figures in the right-hand margin indicate marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**Answer all the questions from selected Option.**

## OPTION–A

## COM.SC-H-GE-L-202A

## (Database Management Systems)

### GROUP–A

1. Answer any **five** questions : 1×5=5

   a) What is data abstraction?

   b) Define candidate key.

   c) What is attribute?

   d) Define data definition language (DDL).

   e) What is integrity of data?

   f) What is data model?

   g) Define logical data independence.



### GROUP-B

Answer any **one** question : 5×1=5

2. What is DBMS? What are the advantages of using DBMS over file-based processing? 2+3=5

3. What do you mean by degree of a relationship? What is cardinality of a relationship? What is a ternary relationship? 2+1+2=5

4. What is multi-valued dependency? Define primary key and foreign key. 2+3=5

### GROUP-C

Answer any **one** question : 10×1=10

5. a) Explain the three-schema architecture.

   b) Explain the roles of a DBA. 5+5=10

6. a) Define functional dependency.

   b) What do you mean by partial functional dependency and full functional dependency?

   c) How does tuple relational calculus differ from domain relational calculus? 2+(2+2)+4=10

7. Write short notes on any **two** of the following: 5×2=10

   a) Network data model

   b) Normalization

   c) SQL queries

## OPTION-B

## COM.SC-H-GE-L-202B

## (Computer System Architecture)

## GROUP-A

1. Answer any **five** questions: 1×5=5

   a) What do you mean by memory read and write operation?

   b) What is virtual memory? What could be the maximum size of virtual memory?

   c) What are the major components of CPU?

   d) Add the two binary number 1111100 and 1010101.

   e) What is 1's complement and 2's complement?

   f) Mention what are the different types of fields that are part of an instruction.

   g) What is the write-through method?

   h) Write down the truth table of Half Subtractor.

## GROUP-B

Answer any **one** question: 5×1=5

2. Explain De-Morgan's Theorems and prove these Theorems using Truth table. 2+3=5



3. Explain briefly memory reference, register reference, input-output instruction. Differentiate between direct and indirect addressing. 3+2=5

4. What is op code? What is instruction code? What do you mean by DMA? 1+2+2=5

## GROUP-C

Answer any **one** question: 10×1=10

5. Explain about programmed input output with flowchart. 10

6. What is write through method and write back method? Explain with block diagram of RAM chip and ROM chip. 3+7=10

7. Write a short note on any **two** of the following: 5×2=10

   a) Assembly language

   b) Computer registers

   c) Multiplexers

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