WEST BENGAL STATE UNIVERSITY

B.Sc. General PART-II Examinations, 2017

COMPUTER SCIENCE-GENERAL

PAPER-CMSG-III-A

Time Allotted: 2 Hours | Full Marks: 50

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.

1. Answer any ***five*** questions from the following: 2×5 = 10

   (a) What do you mean by integrity constraint?

   (b) What is transitive dependency?

   (c) What do you mean by spurious tuple?

   (d) What is data model? Mention the names of two data models.

   (e) What is alpha testing?

   (f) What is operational feasibility?

   (g) What is Super Key?

   (h) What is DFD?

Group-A

Answer any ***one*** question from the following 8×1 = 8

2. (a) Which life cycle model would you follow for developing software for each of the following applications? Justify your selection of model with the help of an appropriate reason. 2+2

   (i) A Game

   (ii) A Text Editor

(b) What do you understand by software reliability? 1

(c) Why is testing important? 3

3. (a) What do you mean by Black box and White box testing? 4

(b) How does ER diagram helpful to develop a software project? 4

4. (a) What is reverse engineering? 2

(b) What is legacy product? 2

(c) Briefly describe the contents of the good SRS document. 4

Group-B

Answer any ***four*** questions from the following 8×4 = 32

5. (a) What are the advantages of DBMS over traditional File Processing System? 4+(1+3)

(b) Why is normalization done? Describe the anomalies.

6. (a) Briefly describe ANSI/SPARC model. 5+3

(b) Explain projection operation with respect to relational algebra.

7. (a) Distinguish between Index Sequential and Hash File Organization. 4+2+2

(b) Define check constraint in RDBMS.

(c) What do you mean by DBA?

8. Suppose that one decompose the schema R = (A, B, C, D) into (A, B, C) and (A, D, E). Show that this decomposition is lossless decomposition, if the following set F of FDs holds – 8

$A \rightarrow BC,\ CD \rightarrow E,\ B \rightarrow D,\ E \rightarrow A$

9. Consider the following relational schema: 2×4 = 8

STUDENT (<u>STUDENT ID</u>, STUDENT_NAME)

IS_QUALIFIED (<u>FACULTY ID</u>, <u>COURSE ID</u>, DATE_QUALIFIED)

FACULTY (<u>FACULTY ID</u>, FACULTY_NAME)

SECTION (<u>SECTION ID</u>, <u>COURSE ID</u>)

COURSE (<u>COURSE ID</u>, COURSE_NAME)

IS_REGISTERED (<u>STUDENT ID</u>, <u>SECTION ID</u>, SEMESTER)

Perform the following queries using appropriate SQL.

(i) Display the course ID and course name for all courses with an ISM prefix.

(ii) Display the class roster, including student name, for all students enrolled in section 2714 of ISM 4212.

(iii) List all the students who were not enrolled in any courses during Semester I-2016.

(iv) List all faculties who qualified between 1st June 2000 and 31st December 2010.

10. Write short notes on (any ***two***): 4×2 = 8

(a) Network Data Model

(b) Hash file organization

(c) Data Dictionary

(d) Weak entity set.