

**Code: 4G141**

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2018

**Computer Organization**

( Common to CSE &amp; IT )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

\*\*\*\*\*

**UNIT-I**

1. a) Explain about multi processors and multi computers. 7M  
 b) What is meant by odd parity and even parity? Explain them. 7M

**OR**

2. a) Distinguish between error detection and correction codes 7M  
 b) Registers R1 and R2 of a computer contain the decimal values 12000 and 6000 respectively. What is the effective address of the memory operand in each of the following instructions?  
 i) MOV 20 (R1), R5                      ii) STORE R5, 30 (R1, R2)  
 iii) LOAD #3000, R5                      iv) ADD - (R2), R5 7M

**UNIT-II**

3. a) What is an addressing mode? List various addressing modes and write brief notes on each. 8M  
 b) For the pattern  $X = (A+B)*(C+D)$ , explain three-, two-, one- and zero-address instructions by giving the syntax. 6M

**OR**

4. a) Explain the Memory reference instructions with suitable examples? 7M  
 b) Briefly explain the arithmetic logic shift unit. 7M

**UNIT-III**

5. What are the design goals while designing the Control Unit? Explain the Hardwired control and Micro programmed control. Mention their advantages and disadvantages. 14M

**OR**

6. a) What is microprogramming? Compare hard-wired control and micro-programmed control. 7M  
 b) What are the two methods to reduce the number of microinstructions needed by the control unit? Explain, in detail, with suitable examples. 7M

**UNIT-IV**

7. a) Perform the 2's complement multiplication for the signed integer operands:  $(-13) * (-10)$  using Booth's recoding scheme 7M  
 b) Derive and explain an algorithm for adding and subtracting 2 floating point binary numbers. 7M

**OR**

8. a) Explain division algorithm with example 7M  
 b) Explain different types of mapping functions in cache memory. 7M

**UNIT-V**

9. a) What are handshaking signals? Explain the handshake control of data transfer during input and output operation. 7M  
 b) What is meant by instruction pipeline? Explain 7M

**OR**

10. What is Direct Memory Access (DMA)? What is the need for DMA? Explain the working of DMA. Also mention its advantages. 14M

\*\*\*\*

Hall Ticket Number :																			
----------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

<b>R-14</b>
-------------

**Code: 4G441**

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2018

**Database Management Systems**

( Common to CSE & IT )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

\*\*\*\*\*

**UNIT-I**

- 1. a) Explain the responsibilities of Database Administrator. 7M
- b) When would you store data in a DBMS instead of in operating system file? 7M

**OR**

- 2. a) What is transaction? What guarantees does a DBMS offer w.r.t transactions? 7M
- b) Explain the differences between external, internal and conceptual schemas. How are these different schema layers related to the concepts of logical and physical data independence. 7M

**UNIT-II**

- 3. a) Construct an E-R diagram for a car insurance company with a set of customers, each of whom owns a number of cars. Each car has a number of recorded accidents associate with it. Determine the entities and relationships that exists between the entities. 8M
- b) Define the following terms:
  - i) Relationship ii) Relationship set iii) Descriptive attribute 6M

**OR**

- 4. a) What are integrity constraints? Define the terms primary key constraint and foreign key constraint. How are these constraints expressed in SQL? 6M
- b) How can we translate an E-R diagram into SQL statements to create tables? How are entity sets mapped into relations? How are relationship sets mapped? 8M

**UNIT-III**

- 5. a) What is a trigger? What re its three parts? What are the differences between row-level and statement-level triggers? 6M
- b) Consider the following relations:
  - Student(snum: integer, sname: string, major: string, level: string, age: integer)
  - Class(name: string, meets at: string, room: string, fid: integer)
  - Enrolled(snum: integer, cname: string)
  - Faculty(fid: integer, fname: string, deptid: integer)Enrolled has one record per student-class pair such that the student is enrolled in the class.  
Write the following queries in SQL.
  - i. Find the names of all Juniors (level = JR) who are enrolled in a class taught by I. Teach. 8M
  - ii. Find the age of the oldest student who is either a History major or enrolled in a course taught by I. Teach. 8M

**OR**

6. a) Explain commit, rollback and savepoint in PL/SQL. 5M
- b) Consider the following schema:  
 Suppliers(sid: integer, sname: string, address: string)  
 Parts(pid: integer, pname: string, color: string)  
 Catalog(sid: integer, pid: integer, cost: real)
- The Catalog relation lists the prices charged for parts by Suppliers. Write the following queries in SQL:
1. Find the pnames of parts for which there is some supplier.
  2. Find the snames of suppliers who supply every part.
  3. Find the snames of suppliers who supply every red part. 9M

## UNIT-IV

7. a) Show that if a relation schema is in BCNF, then it is also in 3NF. 7M
- b) Why some functional dependencies are called trivial? 7M

**OR**

8. a) What is schema refinement? Explain the problems caused by redundancy. 6M
- b) What is functional dependency and multivalued dependency? Explain 4NF with an example. 8M

## UNIT-V

9. a) Explain ACID properties. 7M
- b) How are transactions created and terminated in SQL? Explain why savepoints and chained transactions are useful. 7M

**OR**

10. a) How is data organized in a hash-based index? When would you use a hash-based index? 7M
- b) What are the main differences between ISAM and B+ tree indexes? 7M

\*\*\*

**Code: 4GC42**

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2018

**Probability and Statistics**

( Common to CE, ME and IT )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

\*\*\*\*\*

**UNIT-I**

- 1. a) A box contains n tickets marked 1 through n. Two tickets are drawn in succession without replacement. Determine the probability that the number on the tickets are consecutive integers. 7M
- b) In a factory, machine A produces 40% of the output and machine B produces 60%. On the average, 9 items in 1000 produced by A are defective and 1 item in 250 produced by B is defective. An item drawn at random from a day's output is defective. What is the probability that it was produced by A or B? 7M

**OR**

- 2. a) A fair coin is tossed until a head or five tails occurs. Find the expected number E of tosses of the coin. 7M
- b) Calculate expectation and variance of X, if the probability distribution of the random variable X is given by

X	-1	0	1	2	3
f	0.3	0.1	0.1	0.3	0.2

7M

**UNIT-II**

- 3. a) Ten coins are thrown simultaneously. Find the probability of getting at least six heads. 7M
- b) Fit a Poisson distribution to the following data

x	0	1	2	3	4	5	Total
f	142	156	69	27	5	1	400

7M

**OR**

- 4. a) Find the mean and standard deviation of a normal distribution in which 7% of items are under 35 and 89% are under 63. 7M
- b) A sales tax officer has reported that the average sales of the 500 business that he has to deal with during a year is Rs. 36,000 with a standard deviation of 10,000. Assuming that the sales in these business are normally distributed, find the percentage of business the sales of which are likely to range between Rs. 30,000 and Rs. 40,000. 7M

**UNIT-III**

- 5. A population consists of six numbers 4, 8, 12, 16, 20, 24. Consider all samples of size two which can be drawn without replacement from this population. Find a) The population mean, b) The population standard deviation, c) The mean of the sampling distribution of means, d) The standard deviation of the sampling distribution of means. 14M

**OR**

- 6. a) The mean voltage of a battery is 15 and S.D is 0.2. Find the probability that four such batteries connected in series will have a combined voltage of 60.8 or more volts. 7M
- b) A sample of 10 cam shafts intended for use in gasoline engines has an average eccentricity of 1.02 and a standard deviation of 0.044 inch. Assuming the data may be treated a random sample from a normal population, determine a 95% confidence interval for the actual mean eccentricity of the cam shaft? 7M

## UNIT-IV

7. a) An oceanographer wants to check whether the depth of the ocean in a certain region is 57.4 fathoms, as had previously been recorded. What can he conclude at the 0.05 level of significance, if readings taken at 40 random locations in the given region yielded a mean of 59.1 fathoms with a standard deviation of 5.2 fathoms? 7M
- b) The mean life of a sample of 10 electric bulbs was found to be 1456 hours with S.D. of 423 hours. A second sample of 17 bulbs chosen from a different batch showed a mean life of 1280 hours with S.D. of 398 hours. Is there a significant difference between the means of two batches? 7M

OR

8. a) A manufacturer claimed that at least 95% of the equipment which he supplied to a factory conformed to specifications. An examination of a sample of 200 pieces of equipment revealed that 18 were faulty. Test his claim at 5% level of significance. 7M
- b) The mean life time of a sample of 25 fluorescent light bulbs produced by a company is computed to be 157 hours with a S.D. of 120 hours. The company claims that the average life of the bulbs produced by the company is 1600 hours using the level of significance of 0.05. Is the claim acceptable? 7M

## UNIT-V

9. a) The following random samples are measurements of the heat-producing capacity (in millions of calories per ton) of specimens of coal from two mines:

Mine 1:	8,260	8,130	8,350	8,070	8,340	---
Mine 2:	7,950	7,890	7,900	8,140	7,920	7,840

Use the 0.02 level of significance to test whether it is reasonable to assume that the variances of the two populations samples are equal. 7M

- b) A pair of dice are thrown 360 times and the frequency of each sum is indicated below:

Sum	2	3	4	5	6	7	8	9	10	11	12
Frequency	8	24	35	37	44	65	51	42	26	14	14

Would you say that the dice are fair on the basis of the Chi-square test at 0.05 level of significance? 7M

OR

10. a) An instructor has two classes A and B in a particular subject. Class A has 16 students while class B has 25 students. On the same examination, although there was no significant difference in mean grades, class A has a standard deviation of 9 while class B has a standard deviation of 12. Can conclude at the 0.01 level of significance that the variability of class B is greater than that of A? 7M
- b) A firm manufacturing rivets wants to limit variations in their length as much as possible. The lengths (in cms) of 10 rivets manufactured by a new process are

2.15	1.99	2.05	2.12	2.17
2.01	1.98	2.03	2.25	1.93

Examine whether the new process can be considered superior to the old if the old population has standard deviation 0.145 cm? 7M

\*\*\*

Hall Ticket Number :

--	--	--	--	--	--	--	--	--	--	--

Code: 4G142

SS

III B.Tech. I Semester Supplementary Examinations November 2018

**Software Engineering**

( Information Technology )

**Substitute Subject**

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

\*\*\*\*\*

**UNIT-II**

- 1 a) What is the role of Software in real time Environment?
- b) Is Software is a Layered Technology? Explain CMMI?

**OR**

2. a) Define Software Engineering? Explain Software Myths?
- a) What are the Drawbacks Present in Waterfall Model? Explain about the Spiral Model?

**UNIT-II**

3. a) Explain difference between Functional and Non-functional Requirements?
- b) Define the following
  - i) Risk Refinement
  - ii) RMMM Plan

**OR**

4. a) Explain About Requirement Validation?
- b) Explain About Elicitation and Analysis Process of Requirement Engineering?

**UNIT-III**

5. a) Define Design Quality? Explain Pattern based software in Design Engineering?
- b) Explain Design Principles and Design Guidelines for Class based Components?

**OR**

6. a) What is Architecture? Explain a Brief taxonomy of Architectural Styles?
- b) Define the following
  - i) Design Classes
  - ii) Functional Independence
  - iii) Refactoring

**UNIT-IV**

7. a) Explain about the Design Issues for Interface Design Steps?
- b) Explain about the System testing?

**OR**

8. a) Explain about the Golden Rules in User Interface design?
- b) Give a Brief information about the Black-Box testing, White-Box Testing and Unit Testing?

**UNIT-V**

9. a) Explain ISO 9126 Quality factors? And Also Explain Architectural Design Metrics and Component Level Design Metrics?
- b) Explain Software Measurement for Process and Project Metrics?

**OR**

10. a) Explain ISO 9000 Quality Standards and Software Quality Assurance?
- b) Explain about Metrics For Source Code and Metrics for Testing And Metrics for Maintenance?

\*\*\*