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B.Sc. (Part-II) (Semester -IV) (New) Examination, May - 2015

## COMPUTER SCIENCE

### Relational Database Management System (Paper -VII)

Sub. Code: 63711

Day and Date : Monday, 18 - 05 - 2015

Total Marks : 50

Time :3.00 p.m. to 5.00 p.m.

- Instructions :
- 1) All questions are compulsory.
  - 2) Figures to right indicate full marks.
  - 3) Draw diagram whenever necessary.

Q1) Select correct alternative and rewrite the statement: [10]

- a) The organization of data into relation tables is known as \_\_\_\_\_ view of the database.
- i) physical
  - ii) logical
  - iii) both (i) and (ii)
  - iv) none of these
- b) A \_\_\_\_\_ key is a column or columns in a table whose value are the same as the primary key in another table.
- i) primary
  - ii) secondary
  - iii) foreign
  - iv) none of these
- c) Primary key constraints and unique constraints are the part of \_\_\_\_\_ integrity constraint.
- i) entity
  - ii) domain
  - iii) check
  - iv) none of these
- d) \_\_\_\_\_ a real world role played by a named domain.
- i) relational
  - ii) tuple
  - iii) attribute
  - iv) domain

- e) In mysql keywords may be entered in \_\_\_\_\_.
- i) lower case                      ii) upper case
- iii) both (i) and (ii)              iv) none of these
- f) In mysql \_\_\_\_\_ means waiting for next line of multiple line command.
- i) `_>`                                      ii) `->`
- iii) `>`                                      iv) `/*`
- g) Command use to show list of tables in mysql is \_\_\_\_\_.
- i) list tables;                              ii) show tables;
- iii) show databases                      iv) none of these
- h) \_\_\_\_\_ symbol can be use to show select operation in relational algebra.
- i)  $\sigma$                                       ii)  $\pi$
- iii) U                                      iv) X
- i) Left, right and full are the types of \_\_\_\_\_ Join.
- i) inner                                      ii) outer
- iii) both (i) and (ii)                      iv) none of these
- To display message on the screen in pl/sql the command is \_\_\_\_\_.
- i) `dbms.output.put_line`              ii) `dbms.output.put_line`
- iii) `dbms_output.put_line`              iv) none of these

Q2) Solve

- a) D
- b) D
- c) V

Q3) Solve

- a) V
- b) V
- c) V
- d) V
- e) V
- f) H

Q2) Solve the following questions (Any Two):

[20]

- a) Discuss in brief about databases security and environment threats.
- b) Discuss the FOR and WHILE loop in pl/sql with suitable example.
- c) What is cursor? Discuss its types.

Q3) Solve the following questions (Any Four):

[20]

- a) Write in brief about Cartesian product.
- b) Write definition of relation, attribute, tuple and domain.
- c) What is sub-query? give suitable example.
- d) Write a pl/sql block to print the numbers from 1 to 10 in reverse order.
- e) What is trigger? Write its types.
- f) How specific record can be searched in mysql?

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**B.Sc. (Part - II) (Semester - III) Examination, November - 2014**  
**COMPUTER SCIENCE (Paper - VI) (New)**  
**Object Oriented Programming Using C++ ✓**  
**Sub. Code : 63611**

Day and Date : Friday, 14 - 11 - 2014

Time : 3.00 p.m. to 5.00 p.m.

Total Marks : 50

- Instructions : 1) All questions are compulsory.  
 2) Figures to the right indicate full marks.

- Q1) Select correct alternative and rewrite the statement. [10]
- a) The insulation of data from direct access by unauthorized functions is called \_\_\_\_\_.
- i) Inheritance ii) Data hiding  
 iii) Polymorphism iv) Message passing
- b) \_\_\_\_\_ stream is used to display output.
- i) Cin ii) Main  
 iii) Cout iv) None of these
- c) \_\_\_\_\_ is a special type of function which accepts private data of any class.
- i) Friend ii) Destructor  
 iii) Constructor iv) None of these
- d) The destructor is used for \_\_\_\_\_.
- i) Creating an object ii) Initialize variable  
 iii) Delete an object iv) None of these
- e) \_\_\_\_\_ is a special member function of class used for automatic initialization of object.
- i) Friend ii) Inline  
 iii) Constructor iv) None of these

f) \_\_\_\_\_ provides facility of hiding data or functions.

- i) A class
- ii) An object
- iii) Pointers in C ++
- iv) None of these

g) The operator << is known as \_\_\_\_\_ operator.

- i) Extraction
- ii) Insertion
- iii) Binary
- iv) Scope resolution

h) \_\_\_\_\_ is not a reserved word in C ++.

- i) Mutable
- ii) Default
- iii) Readable
- iv) Volatile

i) \_\_\_\_\_ is a collection of variables of different data types.

- i) Structure
- ii) Class
- iii) Array
- iv) Both a and c

j) The constructor that cannot takes argument is called \_\_\_\_\_ constructor.

- i) Copy
- ii) Parameterised
- iii) Default
- iv) Destructor

Q2) Attempt any TWO of the following

[20]

- a) What are the different concepts used in a object oriented programming?
- b) What is friend function? How to declare common friend for two classes?
- c) How to use arrays of objects in a C ++ program? Explain with suitable example

Q3) Attempt

- a) Ex
- b) Ho
- c) W
- d) Ex
- e) W
- f) W

Q3) Attempt any Four of the following

[20]

- a) Explain class declaration with suitable example.
- b) How to define member function outside a class? Explain.
- c) What is difference between constructor and destructor?
- d) Explain different types of operators in C ++.
- e) What is data encapsulation?
- f) Write a program to overload unary ++ operator.



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**B.Sc. (Part - II) (Semester - III) (Revised) Examination, November - 2014**  
**COMPUTER SCIENCE (Paper - V) (New)**  
**Fundamental of Software Engineering** ✓  
**Sub. Code : 63611**

**Day and Date : Thursday, 13 - 11 - 2014**

**Total Marks : 50**

**Time : 3.00 p.m. to 5.00 p.m.**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Draw diagram whenever necessary.
  - 3) Figure to right indicate full marks.

**Q1) Select correct alternative and rewrite the sentence.**

**[10]**

- a) Environment is \_\_\_\_\_ with in which an organization operates.
  - i) Subsystem
  - ii) Suprasystem
  - iii) Output
  - iv) None
- b) The major objective of the system is to produce \_\_\_\_\_.
  - i) Input
  - ii) Output
  - iii) Feedback
  - iv) Control
- c) Rectangle can be used to show the entity in \_\_\_\_\_.
  - i) Data flow diagram
  - ii) Entity relationship diagram.
  - iii) Both i) and ii)
  - iv) None
- d) In \_\_\_\_\_ system output is unknown.
  - i) Deterministic
  - ii) Probabilistic
  - iii) Both i) & ii)
  - iv) None of these
- e) System Development Life Cycle (SDLC) contain \_\_\_\_\_ phases.
  - i) Requirement analysis
  - ii) System analysis
  - iii) System design
  - iv) All of these
- f) Designing the database is a part of \_\_\_\_\_ phase in SDLC.
  - i) Testing
  - ii) Implementation
  - iii) Analysis
  - iv) Design

- g) In 3 NF transitive dependency will be removed means dependency between \_\_\_\_\_.
- i) Non - key attributes                      ii) Key attributes  
iii) Both i) & ii)                              iv) None of these
- h) \_\_\_\_\_ is the most significant way of gathering the data without disturbing the regular routine of the organization.
- i) Interview                                      ii) Observation  
iii) Questionnaire                              iv) All of these
- i) The system which does not interact with environment is called as \_\_\_\_\_
- i) Open system                                  ii) Close system  
iii) DSS    iv) All of these
- j) \_\_\_\_\_ can be used to show the process in DFD.
- i) Rectangle                                      ii) Circle  
iii) Ellipse    iv) None of these

**Q2) Solve any TWO**

[20]

- a) Discuss the different types of systems.
- b) Write the case study of system for library information system.
- c) Write the general consideration while designing the input and output and also discuss its different types.

**Q3) Attempt any FOUR**

[20]

- a) Explain in brief about testing.
- b) What is Data Dictionary?
- c) Discuss in brief Entity relationship diagram.
- d) Write in brief about decision table.
- e) What is feasibility study?
- f) What is normalization? Write 1NF, 2NF, 3NF.



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**B.Sc. (P)**
**Day and Date**  
**Time : 3.00**
**Instructions :****Q1) Select**

a)

b)

c)

d)



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**B.Sc. (Part-II) (Semester-III) (New) Examination, May- 2015**  
**COMPUTER SCIENCE (Revised)**

**Fundamental of Software Engineering (Paper - V)**

**Sub. Code: 63611**

**Day and Date : Friday, 29 - 05 - 2015**

**Total Marks : 50**

**Time : 3.00 p.m. to 5.00 p.m.**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Draw diagram whenever necessary.
  - 3) Figures to the right indicate full marks.

**Q1) Select correct alternative and rewrite the sentence. [10]**

- a) \_\_\_\_\_ is the element of the system, which will check and again give to the input for modification if required.
- i) Control
  - ii) Environment
  - iii) Feedback
  - iv) All of these
- b) \_\_\_\_\_ are the characteristics of system.
- i) Organization
  - ii) Interdependence
  - iii) Integration
  - iv) All of these
- c) \_\_\_\_\_ is the most significant way of gathering the data without disturbing the regular routine of the organization.
- i) Interview
  - ii) Observation
  - iii) Questionnaire
  - iv) all of these
- d) The system which does not interact with environment is called as \_\_\_\_\_.
- i) Open system
  - ii) close system
  - iii) DSS
  - iv) all of these
- e) \_\_\_\_\_ can be use to show the entity in ERD.
- i) Rectangle
  - ii) Circle
  - iii) Ellipse
  - iv) none of these

- f) TPS stands for \_\_\_\_\_.
- Transfer processing system
  - Transaction processing system
  - Transaction producing system
  - All of these
- g) During the feasibility study financial study about the system will be conduct in the \_\_\_\_\_.
- Technical feasibility
  - Economic feasibility
  - Operational feasibility
  - none
- h) In \_\_\_\_\_ system output is unknown.
- Deterministic
  - Probabilistic
  - both 1&2
  - none
- i) Relation between the entity can be shown by 1:1, 1:M, M:M which can be shown using the \_\_\_\_\_ technique.
- Data flow diagram
  - Decision table
  - Decision tree
  - None of these
- j) \_\_\_\_\_ is the element of the system that interact in actual transformation of input into output.
- Output/Input
  - Environment
  - Processor
  - Control

**Q2) Solve any Two :**

[20]

- Discuss the different characteristics and qualities of software developed using software engineering.
- What is normalization? Explain in detail 1NF, 2NF, 3NF with suitable example.
- What is software testing? Explain in brief white box, black box, alpha and beta testing.

Q3) Attempt any FOUR :

- a) Write the role of system analyst in brief.
- b) How decision tree helps to take decision in the system.
- c) What do you mean by feasibility study?
- d) What is change over? explain it in brief.
- e) What is the role system development tool in system design?
- f) What is data dictionary?



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Total No. of Pages : 3

**B.Sc. (Part - III) (Semester - V) Examination, April - 2015**

**MATHEMATICS**

**Real Analysis (Paper - IX)**

**Sub. Code : 54876**

**Day and Date : Saturday , 25 - 04 - 2015**

**Time : 3.00 p.m. to 5.00 p.m.**

**Total Marks : 40**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Figures to the right indicate full marks.

**Q1) Select the correct alternative for each of the following: [8]**

a) If a function  $f$  is bounded and integrable in  $[a, b]$  and  $k$  is a number such that  $|f(x)| \leq k, \forall x \in [a, b]$  then  $\left| \int_a^b f(x) dx \right| \leq$  \_\_\_\_\_.

i)  $k|b-a|$

ii)  $\frac{(b+a)}{k}$

iii)  $k|b+a|$

iv)  $\frac{(b-a)}{k}$

b) If  $f$  and  $g$  are two real valued functions then  $\min(f, g) =$  \_\_\_\_\_.

i)  $\frac{|f+g|+f-g}{2}$

ii)  $\frac{-|f-g|+f+g}{2}$

iii)  $\frac{|f-g|+f+g}{2}$

iv)  $\frac{|f-g|+f-g}{2}$

c) If  $s = \{s_n\}_{n=1}^{\infty} \in \ell^2$  and  $t = \{t_n\}_{n=1}^{\infty} \in \ell^2$  then \_\_\_\_\_.

i)  $\|s+t\|_2 \geq \|s\|_2 + \|t\|_2$

ii)  $\|s+t\|_2 > \|s\|_2 + \|t\|_2$

iii)  $\|s+t\|_2 \leq \|s\|_2 + \|t\|_2$

iv)  $\|s+t\|_2 = \|s\|_2$

d) If  $\phi'(x) = f(x)$  for all  $x \in$  domain of the function  $f$  then \_\_\_\_\_

i)  $f(x)$  is called an integral of  $\phi(x)$

ii)  $f'(x)$  is called an integral of  $\phi(x)$

iii)  $\phi'(x)$  is called an integral of  $f(x)$

iv)  $\phi(x)$  is called an integral of  $f(x)$

e) The sequence  $1, 1, 1, 1, 1, \dots$  is \_\_\_\_\_

i) divergent

ii) not  $(C, 1)$  summable

iii) oscillatory

iv)  $(C, 1)$  summable

f) If  $f$  is a function from  $A$  into  $B$  and if range of  $f = B$  then  $f$  is called \_\_\_\_\_ function.

i) onto

ii) one-one & onto

iii) one-to-one

iv) none of these

g) If  $\{s_n\}_{n=1}^{\infty}$  is a sequence of real numbers that is not bounded above then

$$\limsup_{n \rightarrow \infty} s_n = \frac{(n-d)}{n}$$

i)  $-\infty$

ii) l.u.b.  $\{s_n, s_{n+1}, s_{n+2}, \dots\}$

iii) g.l.b.  $\{s_n, s_{n+1}, s_{n+2}, \dots\}$

iv)  $\infty$

h) The theorem that if  $\{a_n\}_{n=1}^{\infty}$  is non increasing sequence of positive numbers

and if  $\sum_{n=1}^{\infty} a_n$  converges, then  $\lim_{n \rightarrow \infty} n a_n = 0$  is called \_\_\_\_\_

i) Leibnitz's theorem

ii) Pringsheim's theorem

iii) Abel's theorem

iv) Dirichlet's theorem

Q2) Atten

a)

b)

c)

Q3) Atten

a)

b)

c)

d)

e)

f)

Q2) Attempt any **two** of the following:

- Prove that a non-decreasing sequence which is bounded above is convergent.
- Define conditional convergence and absolute convergence of a series. If series  $\sum_{n=1}^{\infty} a_n$  converges absolutely, then prove that  $\sum_{n=1}^{\infty} a_n$  converges.
- If  $f$  and  $g$  are both bounded and integrable on  $[a, b]$ , then prove that  $f \cdot g$  is also bounded and integrable over  $[a, b]$ .

Q3) Attempt any **four** of the following:

- If  $\{s_n\}_{n=1}^{\infty}$  is a convergent sequence of real numbers, then prove that  $\limsup_{n \rightarrow \infty} s_n = \lim_{n \rightarrow \infty} s_n$ .
- If  $f: A \rightarrow B$  and  $X \in A$  and  $Y \in B$  then prove that  $f(X \cap Y) \subset f(X) \cap f(Y)$ .
- Show that the series  $\sum_{n=1}^{\infty} \frac{n!}{n^n}$  converges.
- Prove that countable union of countable sets is countable.
- Show that  $f$  is not integrable in any interval, if  $f(x) = \begin{cases} 0, & \text{where } x \text{ is rational} \\ 1, & \text{where } x \text{ is irrational} \end{cases}$ .
- Prove that the series  $\sum_{n=1}^{\infty} \frac{1}{n(n+1)}$  converges.