

Total No. of Questions : 6]

SEAT No. :

P5198

[Total No. of Pages : 2

BE/Insem.-599
B.E. (Information Technology)
BUSINESS INTELLIGENCE
(2012 Pattern) (Elective - II) (Semester - I)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:-

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data, if necessary.*

- Q1)** a) Define business intelligence and its need for any enterprise. [4]
b) The price of crude oil is \$80 per barrel which was previously \$70 per barrel. Petrol prices are also likely to increase 2p per litre. Distinguish the terms data, information and knowledge with the help of given situation. [6]

OR

- Q2)** a) Describe different OLAP architectures. [6]
b) Define OLAP. Explain its importance over Relational database. [4]
- Q3)** a) Explain difference between star schema and snowflake schema for data warehouse modeling with example. [6]
b) Explain transaction, recurring/periodic snapshot types of dimensional modeling. [4]

OR

- Q4)** a) Surya enterprise supplies goods to SBT Inc. The office address of it was Mumbai, Maharashtra. So, the original entry in the supplier lookup table has the following record : Supp_id =456, Supp_name= "Surya Enterprise", State = "Maharashtra". At a later date, it's office moved to Kochi, Kerla on October, 2016. How should SBT Inc. now modify its Supplier table to reflect this change? Devise three ways to handle this scenario. [6]
b) Explain different types of facts. [4]

P.T.O.

- Q5)** a) What is ETL? Explain ETL architecture. [6]
b) Explain the need of data profiling and enrichment. [4]

OR

- Q6)** a) Define loading concept in ETL. Explain different types of loading with the help of Example. [6]
b) How NULL values are handled in ETL process. State any two ways. [4]



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SEAT No. :

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B.E./Insem.-598
B.E. (Information Technology)
CLOUD COMPUTING
(2012 Pattern) (Elective - I) (Semester - I)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:-

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Assume suitable data, if necessary.*

- Q1)** a) Compare Public Cloud and Private Cloud. [3]
b) Describe in brief any three characteristics of cloud computing. [3]
c) What do you mean by service scalability over the cloud? Explain. [4]

OR

- Q2)** a) With the help of diagram explain four dimensions of cloud cube model. [6]
b) Discuss the key guidelines given by NIST related to managing security and privacy issues in cloud computing. [4]

- Q3)** a) Explain with diagram difference between process, host and native virtual machine. [6]
b) Describe in brief Pitfalls of Virtualization. [4]

OR

- Q4)** a) Compare Type I and Type II hypervisors with the help of diagram. [6]
b) Compare KVM hypervisor with Xen hypervisor. [4]

P.T.O.

- Q5) a)** Describe following principles of cloud computing [8]
- i) Federation
 - ii) Independence
 - iii) Isolation
 - iv) Elasticity
- b) Enlist any four features of federation type. [2]

OR

- Q6) a)** Describe Internal Threats with reference to RESERVOIR architecture. [7]
- b) Enlist performance related issues of HPC in the cloud. [3]



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SEAT No. :

P5190

[Total No. of Pages : 2

B.E./Insem.-591

B.E. Information Technology (Semester-I)

INFORMATION AND CYBER SECURITY

(2012 Pattern)

Time : 1 Hour]

[Maximum Marks : 30

Instructions to the candidates:

- 1) Solve Q.1 or Q.2 Q.3 or Q.4 Q.5 or Q.6.
- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

- Q1)** a) List and briefly define categories of passive and active security attacks. [6]
- b) What are two problems with the one-time pad? [4]

OR

- Q2)** a) Determine the value of X using Chinese remainder theorem. [6]
- $x = 3 \pmod{5}$
 $x = 7 \pmod{8}$
 $x = 5 \pmod{7}$
- b) Differentiate between the following: [4]
- i) Secret splitting and secret sharing
 - ii) Authentication and authorization

- Q3)** a) Let the given data be -Prime numbers $p=11$, $q=19$ and the plain text to be sent is 40. Assume public key e as 23. Using RSA algorithm determine the cipher text for the given plain text. Also perform reverse process of finding the plain text from the cipher text (use extended Euclidean algorithm to solve d) [6]
- b) Explain CFB mode. And also how many blocks are affected by a single bit error in transmission? [4]

P.T.O

OR

- Q4)** a) Draw AES block diagram and explain the steps in details. [6]
b) Explain the avalanche effect. [4]

- Q5)** a) What are the key requirement of message digest and why SHA is more secure than MD5? [6]
b) Explain one way and mutual authentication. [4]

OR

- Q6)** a) Illustrate the Diffie Hellman key exchange protocol. [6]
b) Explain trap-door one-way function with example. [4]



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SEAT No. :

P5192

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B.E./Insem.-593
B.E. (Information Technology) (Semester-I)
MACHINE LEARNING
(2012 Pattern)

Time : 1 Hour]

[Maximum Marks : 30

Instructions to the candidates:

- 1) *Draw neat diagrams wherever necessary.*
- 2) *Assume suitable data, if necessary.*
- 3) *Figures to the right indicate full marks.*

- Q1)** a) Explain supervised learning and unsupervised learning. [5]
b) Explain geometric models. [5]

OR

- Q2)** a) With an example, explain feature as a split and feature as a predictor. [5]
b) Explain grouping and grading models. [5]

- Q3)** a) Calculate true negative rate (tnr), accuracy and pos for the following: [5]

	Predicted+	Predicted-
Actual+	50	25
Actual-	5	20

- b) Explain VC dimension. [5]

OR

- Q4)** a) Prove: precision = $TP/(TP+FP)$ [5]
b) Explain overfitting and underfitting. [5]

P.T.O

- Q5)** a) What is lasso and ridge regression? [5]
b) Explain perceptron. [5]

OR

- Q6)** a) Explain slack variables, hard margin and soft margin. [5]
b) Explain sigmoid function. [5]



Total No. of Questions : 5]

SEAT No. :

P5191

[Total No. of Pages : 2

BE/Insem.-592

B.E. Information Technology (Semester-I)

SOFTWARE MODELING AND DESIGN

(2012 Pattern)

Time : 1 Hour]

[Maximum Marks : 30

Instructions to the candidates:

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4.*
- 2) *Q.5 is compulsory.*
- 3) *Use UML 2.0 notations to draw UML diagrams.*
- 4) *Figures to the right indicate full marks.*

Q1) a) A country has many citizens. One citizen among all can be identified by an Aadhar card. Represent this as a qualified association. Two diagrams are expected. One without qualifier and the other with qualifier. **[5]**

b) An electronic gadget shop has television and washing machines. Television has screen size inches, color, mounting (only wall or table mounts are possible). Televisions come in two types namely LCD and LED. A washing machine has a capacity in litres, color, type of loading (Top or front). A customer can order an electronic gadget. Draw a class diagram for this with attributes and relationships. **[5]**

OR

Q2) a) A book is composed of Table of contents, preface, many chapters and index. Chapters are composed of sections. Convert this using a class diagram. **[5]**

b) Use the class diagram of the above question, to draw the object diagram for a book with table of contents, preface, 3 chapters with three sections each and an index. **[5]**

P.T.O

- Q3)** a) Ticket reservation software provides following facilities to the users namely
- i) Check ticket availability
 - ii) Add passenger details
 - iii) Book ticket
 - iv) Make payment

The payment can be made by credit card or net banking. While booking a ticket, the user may optionally choose a seat of his preference. Draw a suitable use case diagram. [5]

- b) Define state, composite state and concurrent state in the context of state diagram. [5]

- Q4)** a) Show the relationships applicable for use cases using an example. [5]

- b) Insurance system provides vehicle insurance to the owners. Initially, the customers fill the form which has vehicle details and owner's details. This information is submitted to an agent. The agent sends the information to various insurance companies. The companies quote the insurance. The agent selects a best policy and gives it to the owner. Draw an activity diagram with swim lanes and other applicable notations. [5]

- Q5)** Analyze the following description and apply steps to find the candidate analysis classes and attributes from it. List all classes and all attributes separately. The scheduling software facilitates the meetings. When a user (chairperson) arranges a meeting, the software places a meeting entry in the schedule of each attendee. The chairperson uses the scheduler to reserve a room for the meeting, to identify attendees, and to find time on their schedules when everyone is available. The chairperson can indicate whether the attendance for each attendee is required or optional. The system tracks the attendance status for each attendee-whether an attendee has accepted or declined. [10]

