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Total No. of Pages : 02

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B.Tech. (Computer Science & Engineering) (Sem.–6)

CLOUD COMPUTING

Subject Code : BTCS612/18

M.Code : 79254

Date of Examination : 16-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

   a) Grid Computing

   b) Benefits of Cloud Computing

   c) IT as a service

   d) Hypervisors

   e) API

   f) Elasticity

   g) Load Balancing

   h) Azure

   i) Need for Cloud Migration

   j) IaaS.

SECTION-B

2. Write a note on the Driving factors and applications of Cloud Computing.

3. **Explain in detail :**

   a) Multitenancy

   b) Pros of Visualization

4. Write down Selection criteria followed for cloud deployment.

5. Explain in detail various Cloud Deployment Models

6. Briefly explain principal security dangers to cloud computing.

SECTION-C

7. An existing IT Service Company B123.Ltd (Imaginary name) spans multiple Cities; suggest the Cloud deployment model for B123 .Ltd. Explain the Pros and Cons of your suggested Deployment Model over other available models.

8. Compare various cloud service delivery models.

9. Explain different types of Hypervisors and their limitations in detail.

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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech (CSE) (Sem.–6)

COMPILER DESIGN

Subject Code : BTCS601-18

M.Code : 79249

Date of Examination : 18-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

a) What is meant by ambiguous grammar?

b) What are syntax errors, give two examples?

c) What is an Interpreter?

d) Give some compiler construction tools.

e) Differentiate between compiler and interpreter.

f) Remove left recursion S-- → Aa/b, A-- → Ac/Sd/e.

g) What is Basic Block? Write its use.

h) Define the two parts of compilation and its function.

i) Define Ambiguous Grammar.

j) What is DAG?

SECTION-B

2. Explain Language Processing System with neat diagram.

3. What are issues in Lexical Analysis?

4. Explain various Errors encountered in different phases of compiler.

5. Construct Stack Implementation of Shift-Reduce Parsing for the grammar below:
   E-- → E+E E-- → E*E E-- → (E) E-- → id
   For the given input string id1 + id2 * id3.

6. Construct LL(1) grammar for tile sentence S- → iEts|iEtSeS |a E-- → b

SECTION-C

7. Explain the following w.r.t code generation phase:
   a) Input to code generator
   b) Target Program
   c) Memory Management
   d) Instruction Selection
   e) Register Allocation
   f) Evaluation Order

8. Discuss different Storage Allocation Strategies.

9. Explain Principal Sources of Optimization with example.

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Total No. of Pages : 02

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B.Tech.(CSE) (Sem.–6)

MOBILE APPLICATION DEVELOPMENT

Subject Code : BTCS-620-18

M.Code : 79258

Date of Examination : 09-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

   a) List the features of Android 14 SDK.

   b) How will you set up a JDK?

   c) How is Android SDK different than JDK?

   d) What are the intents?

   e) How voice user interfaces (VUI) are used in mobile applications?

   f) What are the activities and services in the Android application?

   g) List any four open-source mobile application development tools.

   h) What are system permissions?

   i) Which Android tool is used to design user interfaces?

   j) What is multithreading in mobile applications?

SECTION-B

2. How mobile databases are integrated with mobile applications. Give one example by integrating SQLite database with your mobile user application.

3. Explain different types of user-interface designs.

4. What is Android Application Framework? What is the role of activity manager and notification manager in this framework?

5. Explain with example the role of activities, services, broadcast receivers and content provider in application development.

6. How an mobile agent works? Give advantages of mobile agents in a mobile application.

SECTION-C

7. How multimedia framework is used to author multimedia content in mobile web applications. Discuss different components of Android multimedia framework.

8. How voice communication and message communication are implemented in Android applications. Give various tools and APIs provided in Android to send and receive voice and text messages applications.

9. Discuss file systems architecture used in the Android system. What access methods and permissions are incorporated to transmit secure data-sharing on mobile applications.

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B.Tech.(AI&ML / AI&DS / Block Chain / CSE / CS / CSD / DS / IT / Robotics & Artificial Intelligence / Internet of Things and Cyber Security including Block Chain Technology) (Sem.–6)

MATHEMATICS-III

Subject Code : BTAM-302-23

M.Code : 94630

Date of Examination : 07-01-2025

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. **Write briefly :**

a) What do you mean by Skewness?

b) Give an example of a random experiment.

c) A die is thrown at random. Find the probability that the number on it is greater than 4.

d) Define Poisson distribution.

e) Write down the mean and variance of binomial distribution.

f) Write down the steps of method of least square to fit a straight line of the form $y = a + bx$, where a and b are constants.

g) What do you mean by correlation?

h) Define Standard Error of a sampling distribution of a statistic.

i) What do you mean by a small sample and a large sample. Give example of each.

j) When do we use Chi-square test?

SECTION-B

2. Calculate the first four moments of the following distribution about the mean :

x:	0	1	2	3	4	5	6	7	8
f:	1	8	28	56	70	56	28	8	1

3. a) A card is drawn from a well-shuffled pack of playing cards. What is the probability that it is either a spade or an ace?

   b) Prove that the probability of the impossible event is zero.

4. In a normal distribution, 31% of the items are under 45 and 8% of items are over 64. Find the mean and standard deviation of the distribution.

5. By using the method of least squares, find the straight line of the form $y = a + bx$ that fits the following data :

x	100	120	140	160	180	200
y	0.45	0.55	0.60	0.70	0.80	0.85

6. A random sample of size 16 has 53 as mean. The sum of squares of the deviation from mean is 135. Can this sample be regarded as taken from the population having 56 as mean?

SECTION-C

7. Define binomial distribution. Fit a binomial distribution to the following data:

x:	0	1	2	3	4
y:	28	62	46	10	4

8. A sample of 12 fathers and their eldest sons gave the following data about their heights in inches :

Father	65	63	67	64	68	62	70	66	68	67	69	71
Son	68	66	68	65	69	66	68	65	71	67	68	70

Calculate the coefficient of rank correlation.

9. What is Chi-square test? A die is thrown 90 times with the following results :

Face	1	2	3	4	5	6	**Total**
Frequency	10	12	16	14	18	20	90

Use Chi-square test to test whether these data are consistent with the hypothesis that the die is unbiased. Given that $\chi^2_{0.05} = 11.07$ for 5 degrees of freedom.

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B.Tech. (CSE) (Sem.–6)

MACHINE LEARNING

Subject Code : BTCS-618-18

M.Code : 79257

Date of Examination : 22-12-2024

Max. Marks : 60

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

a) Define machine learning and explain its importance.

b) Write the key elements of Reinforcement learning.

c) Why do we need data integration in a machine learning process?

d) What is the purpose of splitting data into training and test sets?

e) What is multiple linear regression, and how does it differ from simple linear regression?

f) What is polynomial regression?

g) Explain the logistic function and its role in logistic regression.

h) Explain the concept of a hyperplane in the context of SVMs.

i) Name common activation functions used in Artificial Neural Networks.

j) What is the purpose of the selection operation in a genetic algorithm?

SECTION-B

2. Explain the concept of Supervised learning along with its advantages and disadvantages.

3. Write a detailed note on Data Cleaning.

4. Write a detailed note on Simple linear regression.

5. Write a detailed note on need and applications of clustering.

6. Explain in detail about Apriori algorithm.

SECTION-C

7. Write a detailed note on various issues in Machine Learning.

8. Write a detailed note on following feature scaling techniques along with their advantages and disadvantages.

   a) Normalization

   b) Standardization

9. **Write a detailed note on following algorithms:**

   a) Random Forest classification

   b) Logistic Regression

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