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B. Tech. 6th Semester (CSE) Examination – May, 2026

COMPILER DESIGN

Paper : PCC-CSE-302-G

Time : Three Hours] ***[Maximum Marks : 75***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, selecting ***one*** question from each Section. Question No. **1** is ***compulsory***. All questions carry equal marks.

1. Briefly explain the following terms : $6 \times 2.5 = 15$

(a) Parser

(b) CFG

(c) Input Buffering

(d) Syntax Tree

(e) Errors

(f) Hash Table

SECTION – A

2. Explain the functionality of different phases of compiler with the help of example. 15

3. Explain the following : $2 \times 7.5 = 15$

   (a) Applications of Compiler Technology

   (b) Finite Automata

SECTION – B

4. Explain the working of LL(1)-parser in detail by considering a suitable example. 15

5. Explain the following : $2 \times 7.5 = 15$

   (a) Operator precedence parser

   (b) Role of Parsers

SECTION – C

6. Explain the following parsers in detail : $2 \times 7.5 = 15$

   (a) SLR parser

   (b) LALR parser

7. What do you mean by three address code, quadruples and triples ? Explain with the example. 15

SECTION – D

8. What is Symbol Table ? Explain in detail about its contents and data structure. 15

9. Give a complete description about code optimization and code generation. 15

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B. Tech. 6th Semester (CSE) Examination – May, 2026

ARTIFICIAL INTELLIGENCE

Paper : PCC-CSE-304-G

Time : Three hours] *[Maximum Marks : 75*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, selecting ***one*** question from each Unit. Question No. **1** is ***compulsory***. All questions carry equal marks.

1. (a) Define Artificial Intelligence and write its applications. $2.5 \times 6 = 15$

(b) Differentiate between uninformed and informed search strategies.

(c) What is predicate logic ? Give an example.

(d) State Bayes' Theorem and explain its relevance in reasoning.

(e) What is partial-order planning in AI ?

(f) Define rote learning and explain its limitations in brief.

UNIT – I

2. (a) What is the Breadth-First Search algorithm ? Compare it with Depth-First Search. 8

(b) Explain the A* search algorithm with a suitable example and show how it is optimal and complete. 7

3. (a) Describe Genetic Algorithms in detail. Illustrate the steps involved with an example. 8

(b) What is Hill Climbing ? Explain its limitations. 7

UNIT – II

4. (a) Explain propositional logic and its role in knowledge representation with examples. 8

(b) What are semantic nets ? Describe their structure with a diagram. 7

5. (a) Discuss the issues in knowledge representation and challenges in implementing KR systems. 8

(b) What is a rule-based system ? Give an example and explain the components of a rule-based system. 7

UNIT – III

6. (a) Explain Bayesian belief networks and describe with a simple network. 8

   (b) What is Dempster-Shafer theory ? Discuss with an example relevant to decision-making. 7

7. (a) Describe partial-order planning. What makes it different from total-order planning ? 8

   (b) Explain the concept of conditional probability with respect to uncertain reasoning in AI. 7

UNIT – IV

8. (a) Explain the different types of learning in AI with suitable examples. 8

   (b) Describe the architecture and working of a neural network. 7

9. (a) What are expert systems ? Explain their structure and applications. 8

   (b) Write a short note on the current trends and future scope of Artificial Intelligence. 7

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B. Tech. 6th Semester (CSE) Examination – May, 2026

ADVANCED JAVA

Paper : PCC-CSE-306-G

Time : Three Hours] *[Maximum Marks : 75*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, selecting ***one*** question from each Section. Question No. 1 is ***compulsory***. All questions carry equal marks.

1. Write the notes on following : $2.5 \times 6 = 15$

(a) Request Dispatcher.

(b) Scripting elements of JSP.

(c) Aware interfaces in struts.

(d) Uses of Java mail API.

(e) Android Widgets

(f) Criteria Query Language

SECTION – A

2. What is Httpservlet Interface ? Write a servlet code to send request to server and get response from server using Httpservlet Interface. 15

3. Explain the life cycle of JSP. How JSP is different from servlet technology. 15

SECTION – B

4. What is MVC model in struts 2 ? Define and explain various components of struts 2. 15

5. What is Java mial API ? Write the various steps used in sending email with attachment and receiving mail with attachment. 15

SECTION – C

6. (a) Explain the Architecture of Hibernate. 10

(b) What is HB Log 4j ? 5

7. (a) Write various dependency injection methods in spring. 7.5

(b) Explain various applications of spring. 7.5

SECTION – D

8. Explain Android Architecture and its various building blocks. 15

9. Write in detail about creational, structural and behavioral design patterns. 15

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B. Tech. 6th Semester (CSE) Examination – May - 2026

MOBILE AND WIRELESS COMMUNICATION

Paper : ESC-CSE-308-G

Time : Three hours] *[Maximum Marks : 75*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all. Question No. **1** is ***compulsory***. Attempt ***one*** question from each Unit. All questions carry equal marks.

1. Attempt ***all*** parts : $2.5 \times 6 = 15$

(a) Define Wireless Local Loop (WLL) and mention its applications.

(b) Differentiate between FDMA and TDMA in wireless communication.

(c) What is handover in GSM ? Why is it required ?

(d) Explain the purpose of IEEE 802.11 standard in Wireless LAN.

(e) What is Mobile IP tunneling ?

(f) List the advantages of satellite communication systems.

UNIT – I

2. (a) Explain the history and market scenario of mobile communication systems. 8

(b) Describe the wireless transmission techniques including signal propagation and antenna types. 7

3. (a) Explain various multiple access techniques : $2 \times 4 = 8$

(i) SDMA

(ii) FDMA

(iii) TDMA

(iv) CDMA

(b) Describe ALOHA and Slotted ALOHA protocol with working diagrams.

UNIT – II

4. (a) Explain the architecture of GSM with a net diagram.

(b) Describe the GSM security mechanisms and new data services. 7

5. (a) Explain the IEEE 802.11 Wireless LAN architecture and physical layer. 8

(b) Discuss Bluetooth architecture, user scenarios, and security features. 7

UNIT – III

6. (a) Explain the Mobile IP architecture and its entities. 7

(b) Describe the process of IP packet delivery and registration in Mobile IP. 8

7. (a) Explain the routing protocols in Mobile Adhoc Networks (MANET) : $4 \times 2 = 8$

(i) DSDV

(ii) Dynamic Source Routing

(b) Describe the performance metrics used in MANET routing protocols. 7

UNIT – IV

8. (a) Explain different types of satellite systems : GEO, MEO, and LEO. 7

(b) Describe the handover process in satellite communication systems. 8

9. (a) Explain the Wireless Application Protocol (WAP) architecture. 8

(b) Discuss Wireless Transport Layer Security (WTLS) and Wireless Transaction Protocol (WTP). 7

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B. Tech. 6th Semester (CSE) (Elective - II) Examination – May, 2026

ADVANCED DATABASE MANAGEMENT SYSTEM

Paper : PEC-CSE-310-G

Time : Three Hours] ***[Maximum Marks : 75***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, selecting ***one*** question from each Unit. Question No. **1** is ***compulsory***. All questions carry equal marks.

1. Short Note : $5 \times 3 = 15$

(a) Differentiate between DBMS & ADBMS.

(b) ACID properties.

(c) Join decomposition

(d) Query optimization

(e) DDBMS & its advantages

UNIT – I

2. (a) Explain difference between database system and file based system. $2 \times 7.5 = 15$

(b) Define and discuss 3 NF and BCNF using suitable example.

3. (a) How time stamp based concurrency control is different from locking scheme ? 10

(b) Explain Armstrong Axioms. 5

UNIT – II

4. (a) Discuss Buffer management logging Schemes. 7

(b) What is concurrency control ? Also discuss conflict serializibility. 8

5. Why recovery is needed in database ? Discuss check point based recovery. 15

UNIT – III

6. (a) Explain design of parallel database. 10

(b) What are advantages of distributed database management over a centralized DBMS ? 5

7. Discuss various Replication techniques of DDBMS by giving their merits & demerits. 15

UNIT – IV

8. Short Note on : $5 \times 3 = 15$

(a) Association

(b) Aggregation

(c) Composition

(d) Generalization

(e) Dependency

9. Compare and contrast object relational database and object oriented Database. 15

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B. Tech. 6th Semester (CSE) (Elective-III) Examination – May, 2026

DISTRIBUTED SYSTEM

Paper : PEC-CSE-316-G

Time : Three Hours] *[Maximum Marks : 75*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, selecting ***one*** question from each Unit. Question No. **1** is ***compulsory***. All questions carry equal marks.

1. Write short note on the following :- $6 \times 2.5 = 15$

(a) Client server model

(b) Clock synchronization

(c) Shared Memory

(d) Thrasing

(e) Naming Transparency

(f) Access Centro in Distributed System.

UNIT – I

2. Define distributed operating system. Explain various goals and design issues of a distributed system. 15

3. What is Remote Procedural call ? Explain RPC in detail with example. 15

UNIT – II

4. What do you mean by clock synchronization ? Explain any two clock synchronization algorithms with example. 15

5. What is real time distributed system ? Explain design issues, Process migration and other related issues in real time distributed system. 15

UNIT – III

6. Explain distributed file system design issue in detail. 15

7. Explain Consistency models with example. 15

UNIT – IV

8. What are various security techniques in Distributed operating system ? Explain. 15

9. Define Distributed web-based systems. Also Explain its Architecture with suitable diagram. 15

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B. Tech. 6th Semester (CSE) (Elective - III) Examination – May, 2026

DATA SCIENCE

Paper : PEC-CSE-320-G

Time : Three Hours] *[Maximum Marks : 75*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, selecting ***one*** question from each Unit. Question No. 1 is ***compulsory***. All questions carry equal marks.

1. Write short notes on : $2.5 \times 6 = 15$

(a) Data collection.

(b) Bar chart.

(c) NLTK.

(d) Prediction problems.

(e) AI & data science.

(f) Clustering.

UNIT – I

2. Describe the concept of Data Science. Also state its applications and related myths. 15

3. (a) Traits of big data. 7.5

(b) Statistical & algorithm modelling. 7.5

UNIT – II

4. Explain the process of data visualization & how matplotlib library is useful to draw line chart & pi chart. 15

5. Define how Numpy and Scikit-learn libraries ar employed in data science. 15

UNIT – III

6. What do you mean by data science methodology ? 15

7. Write short notes on : $7.5 \times 2 = 15$

(a) Business understanding.

(b) Date preparation process.

UNIT – IV

8. What is classification ? Define the kind of problem where such text analytics could be applied. 15

9. Brief notes : $5 \times 3 = 15$

(a) Business analytics

(b) Recommendation systems.

(c) Use of data science in education.
