# B.Tech. (CSE) 6th Semester (G-Scheme) Examination, May–2024

## COMPILER DESIGN

## Paper– PCC-CSE-302-G

*Time allowed : 3 hours]* *[Maximum marks : 75*

**Note:** ***Question No. 1 is compulsory. Attempt five questions in total by selecting one question from each section.***

1. Briefly explain the following terms: 6×2.5=15

   (a) Language Processor

   (b) Predictive Parsing

   (c) Three address code

   (d) Syntax Tree

   (e) Hash Table

   (f) Machine dependent code

## Section-A

2. Discuss the working of different phases of compiler in detail. 15

3. Explain the following: 2×7.5=15

   (a) Compiler Construction Tools

   (b) Input Buffering



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## Section-B

4. Explain the top-down parsing with a suit example.

5. To check whether the given grammar is LL(1 not.

$S \longrightarrow (L)$

$S \longrightarrow a$

$L \longrightarrow SL'$

$L' \longrightarrow \in$

$L' \longrightarrow ,SL'$

## Section-C

6. What is Syntax directed Translation Scheme? explain the implementation of Syntax dire translation.

7. Explain the following parsers in detail:

   (a) LR parser

   (b) Canonical LR parser

## Section-D

8. Write a short note on the following:- 2×7.

   (a) Symbol Table

   (b) Code optimization



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9. Explain the various types of errors generated during the various phases of the compiler. How do we recover from these errors? 15

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**B.Tech. (CSE) 6th Semester (G-Scheme)**
**Examination, May–2024**
**ARTIFICIAL INTELLIGENCE**
**Paper– PCC-CSE-304-G**

*Time allowed : 3 hours]* *[Maximum marks : 75*

***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 Turing Test.

(b) What are the limitations of Depth-first search?

(c) Why hill climbing algorithm is called greedy local search?

(d) What are the knowledge representation issues?

(e) What is the limitation of propositional logic?

(f) How does an inference engine work in rule-based system?

(g) What is the difference between prior and posterior probability?

(h) What is the difference between Bayesian and Dempster-Shafer theory?

(i) What are the standard quantifiers of First-order logic?



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(j) What is the difference between search planning?

(k) Which are the components of the partial- or planning?

(l) What is an Activation Function?

(m) Differentiate between artificial neural netw and biological neural network?

(n) What are the limitations or expert systems in

(o) Define explanation-based learning. 15×1=

2. (a) What is the difference between A* and A algorithms?

(b) Consider a water jug problem. You are given 2 ju a 3-gallon jug and a 4-gallon jug. Neither has measuring marks on it. There is a pump that can used to fill the jugs with water. How can you exactly 2-gallon of water into a 4-gallon jug? St the production rules for the water jug problem 10

## Unit-I

3. (a) Define Encoding in Genetic algorithm. Descri the different encoding methods.

(b) Write short notes on:

(i) Roulette Wheel selection

(ii) Tournament selection





## Unit-II

4. (a) Convert the following statements in Predicate Logic: 10

(i) Not all students like both AI and DS.

(ii) Everyone likes someone.

(iii) Someone ate everything.

(iv) Some girls are intelligent.

(v) Everyone likes rain.

(vi) Jill eats almonds and is still alive.

(vii) Mary eats everything John eats.

(viii) Anything anyone eats and is not killed by is food.

(ix) Mangoes are food.

(x) Bill likes all kinds of food.

(b) How are frames used for knowledge representation? Explain using example. 5

5. (a) Draw the semantic network representing the following knowledge:

Every vehicle is a physical object. Every car is a vehicle. Every car has four wheels. The electrical system is a part of car. The battery is a part of the electrical system. Pollution system is a part of every vehicle. The vehicle is used in transportation. Honda City is a car. 8



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(b) Difference between forward and backwa reasoning.

## Unit-III

6. What is Dempster-Shafer's theory? Explain with suitable example.

7. Explain partial-order planning with a suitab example.

## Unit-IV

8. Why do neural networks need an activation functio Classify different types of neural network activati functions.

9. Explain the architecture or an Expert System. Give three application areas.



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# B.Tech. (CSE) 6th Semester (G-Scheme) Examination, May–2024

## ADVANCED JAVA

## Paper– PCC-CSE-306-G

*Time allowed : 3 hours]* *[Maximum marks : 75*

***Note:*** ***Question No. 1 is compulsory. Attempt any one question from each section A to section D.***

**1.** Write the note on following: 6×2.5=15

(a) Directive Elements of JSP.

(b) Servlet container.

(c) Interceptors in Struts.

(d) Uses of mail API.

(e) Criteria query language.

(f) Android Widgets.

## Section-A

**2.** What is Servlet? Explain the Servlet Life Cycle for Generic Servlet and Http Servlet. 15

**3.** What is JSP, how it is different from servlet? Explain all the implicit objects of JSP. 15



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## Section-B

4. Explain MVC model. Also Explain Struts 2 architecture in detail. 15

5. What is the role of Java mail API? Write the various steps involved in sending and receiving email. 15

## Section-C

6. (a) Describe Transaction Management Process in Hibernate. 7.5

   (b) Explain inheritance mapping concept in Hibernate. 7.5

7. (a) What is MVC tag library in spring? 7.5

   (b) Elaborate Dependency injection method in spring. 7.5

## Section-D

8. Explain Android and its various versions. Write the various building blocks of Android. 15

9. Explain the various design patterns in detail. 15



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**B.Tech. (CSE) 6th Semester (G-Scheme)**
**Examination, May–2024**

# MOBILE AND WIRELESS COMMUNICATION

**Paper– ESC-CSE-308-G**

*Time allowed : 3 hours]* *[Maximum marks : 75*

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

**1.** Briefly explain the following terms: 5×3=15

(a) Spread Spectrum

(b) Bluetooth

(c) IPv6

(d) CSMA

(e) WWW

## Unit-I

**2.** (a) Give history of evolution of mobile radio communication. 2×7.5=15

(b) Describe the operation of cellular system.

**3.** Compare FDMA, TDMA, CDMA and SDMA mechanism in detail. 15



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## Unit-II

4. Explain GSM architecture and its elements with suit diagram.

5. Explain the followings: 2×7.5

   (a) Wireless LAN

   (b) Wimax

## Unit-III

6. Give a complete description about Mobile Ad Networks.

7. Explain the following:

   (a) Mobile IP

   (b) Transaction Oriented TCP. 2×7.5=

## Unit-IV

8. Explain the following:

   (a) Applications of Satellite Systems.

   (b) Handover in Satellite Systems 2×7.5=

9. Explain the following:

   (a) Wireless Datagram protocol

   (b) Wireless Transaction Protocol 2×7.5=



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**B.Tech. (CSE) (Elective-II) 6th Semester (G-Scheme) Examination, May–2024**

**ADVANCED DATABASE MANAGEMENT SYSTEM**

**Paper– PEC-CSE-310-G**

*Time allowed : 3 hours]* *[Maximum marks : 75*

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

1. (a) Serializability 6×2.5=15
   (b) Recovery
   (c) BCNF
   (d) Query optimization
   (e) Deadlocks
   (f) Parallel Database

**Unit-I**

2. (a) Define Normal forms. 8
   (b) Define Relational Algebra 7

3. Explain in detail about query processing 15

**Unit-II**

4. Explain how the recovery in centralized DBMS is performed in detail. 15



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5. What is concurrency control? Discuss locking, Time stamp and Multiversion concurrency control in detail. 15

## Unit-III

6. (a) What do you mean by object-oriented database. 8

   (b) Discuss difference between relational and object-oriented databases. 7

7. Write complete description of distributed database. 15

## Unit-IV

8. (a) Compare object relational database and object-oriented database 8

   (b) Object query Language. 7

9. Discuss components of data warehouse in detail. 15

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B.Tech. (CSE) (Elective-III) 6th Semester (G-Scheme) Examination, May–2024

DISTRIBUTED SYSTEM

Paper– PEC-CSET-316-G

*Time allowed : 3 hours]* *[Maximum marks : 75*

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

1. Write short notes on:

   (a) Hardware concept of distributed system

   (b) Layered protocol

   (c) Trends in distributed file system

   (d) Naming transparency

   (e) Security management

   (f) Hard real time system *vs* Soft real time system

   6×2.5=15

## Section–A

2. (a) What do you mean by distributed operating system? Explain its design issue. 8

   (b) Explain bus-based multiprocessor and bus based multicomputer. 7

3. What is RPC? Explain different class of failure that can occur in RPC system and how to deal it. 15



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## Section–B

4. What is meant by clock synchronization? Explai Mutual exclusion and election algorithm. 15

5. (a) Explain system models in detail. 8

   (b) How processor allocation is done in distribute system? 7

## Section-C

6. What is the need of consistency in distributed system? Explain various consistency models with the help of diagram. 15

7. How distributed file system implemented? Explain 15

## Section–D

8. Explain various security techniques used in distributed system. 15

9. Explain case study of Google. 15

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