

3336

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

3336-P-2-Q-9 (24)

[P. T. O.]

Unit-II

4. Explain GSM architecture and its elements with suitable diagram. 15
5. Explain the followings: $2 \times 7.5 = 15$
- (a) Wireless LAN
 - (b) Wimax

Unit-III

6. Give a complete description about Mobile Adhoc Networks. 15
7. Explain the following:
- (a) Mobile IP
 - (b) Transaction Oriented TCP. $2 \times 7.5 = 15$

Unit-IV

8. Explain the following:
- (a) Applications of Satellite Systems.
 - (b) Handover in Satellite Systems $2 \times 7.5 = 15$
9. Explain the following:
- (a) Wireless Datagram protocol
 - (b) Wireless Transaction Protocol $2 \times 7.5 = 15$

3343

B.Tech. (CSE) (Elective-III) 6th Semester (G-Scheme)

Examination, May-2024

DATA SCIENCE

Paper- PEC-CSE-320-G

Time allowed : 3 hours

[Maximum marks : 75]

Note: Question no. 1 is compulsory. Answer any one question from each of the remaining four sections. All questions carry equal marks.

Section-A

1. (i) What is Data Science? List the differences between supervised and unsupervised learning.
- (ii) What is Modeling?
- (iii) Discuss Prediction analysis.
- (iv) Explain data Collection Process.
- (v) What is Scatterplots. How it work? $5 \times 3 = 15$

Section-B

2. (a) What is Big Data? What are the different types of Big Data? What are the five 'V's of Big Data? 7
- (b) What are advantages of Big Data? Who is using Big Data? State 5 Applications of it. 8
3. (a) What is Data Preprocessing? Explain and discuss in details the various steps involved in the Data Preprocessing. 7

- (b) Reporting vs. Analysis: Do you know the Difference? Discuss various difference. 8

Section-C

4. What is web scraping? Explain Web Scraping Procedure? What are the preferred programming languages for web scraping? Give an example of web scraping you worked on. What are the Python libraries you have used for web scraping? What is the purpose of the request module in Python? 15
5. (a) A Shivalik restaurant has recorded the following data into their register for their income by Drinks and Food. Plot them on the line chart. 10

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Drinks	450	560	400	605	580
Food	490	600	425	610	625

Apply following customization to the line chart.

Write a title for the chart "The Weekly Restaurant Orders".

Write the appropriate titles of both the axes.

Write code to Display legends.

Display your choice of colors for both the lines drinks and food.

Use- the line style - dotted for drinks and dashdot for food.

Display plus markers on drinks and x markers of food.

- (b) Why you should use NumPy arrays instead of nested Python lists? 5

Section-D

6. (a) What is Data understanding data science? Why data understanding is important in data science? Discuss Data understand phases. 7
- (b) What is the data requirements? What are the 5 methods of collecting data? How to make data from Understanding to Preparation? 8
7. Discuss the following in details: 15
- (i) Modelling and evaluation
 - (ii) Deployment and feedback

Section-E

8. Explain the following terms: 15
- (i) Clustering analytics
 - (ii) Text analytics
9. Discuss the any Recommendations and Business analytics Application of data science in details. 15

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: $6 \times 2.5 = 15$
- (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: $2 \times 7.5 = 15$
- (a) Compiler Construction Tools
 - (b) Input Buffering

Section-B

4. Explain the top-down parsing with a suitable example. 15
5. To check whether the given grammar is LL(1) or not. 15

$$S \rightarrow (L)$$
$$S \rightarrow a$$
$$L \rightarrow SL'$$
$$L' \rightarrow \epsilon$$
$$L' \rightarrow ,SL'$$
Section-C

6. What is Syntax directed Translation Scheme? Also explain the implementation of Syntax directed translation. 15
7. Explain the following parsers in detail: 15
- (a) LR parser
- (b) Canonical LR parser

Section-D

8. Write a short note on the following:- $2 \times 7.5 = 15$
- (a) Symbol Table
- (b) Code optimization

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

15

**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

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

3334

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?

- (j) What is the difference between search Vs planning?
- (k) Which are the components of the partial- order planning?
- (l) What is an Activation Function?
- (m) Differentiate between artificial neural network and biological neural network?
- (n) What are the limitations or expert systems in AI?
- (o) Define explanation-based learning. $15 \times 1 = 15$
2. (a) What is the difference between A* and AO* algorithms? 5
- (b) Consider a water jug problem. You are given 2 jugs: a 3-gallon jug and a 4-gallon jug. Neither has any measuring marks on it. There is a pump that can be used to fill the jugs with water. How can you get exactly 2-gallon of water into a 4-gallon jug? State the production rules for the water jug problem. 10

Unit-I

3. (a) Define Encoding in Genetic algorithm. Describe the different encoding methods. 10
- (b) Write short notes on: 5
- (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

- (b) Difference between forward and backward reasoning. 7

Unit-III

6. What is Dempster-Shafer's theory? Explain with a suitable example. 15
7. Explain partial-order planning with a suitable example. 15

Unit-IV

8. Why do neural networks need an activation function? Classify different types of neural network activation functions. 15
9. Explain the architecture of an Expert System. Give its three application areas. 15