

(Please write your Exam Roll No.)

Exam Roll No. 09617707021

END TERM EXAMINATION

SIXTH SEMESTER [BCA] JUNE- 2024

Paper Code: BCAT-318

Subject: Mobile Application Development

Maximum Marks: 75

Time: 3 Hours

Note: Attempt all questions as directed. Internal Choice is indicated.

(5x5=25)

Q1 Attempt any five of the following questions.

- Explain the brief history of mobile applications. Discuss the different types of mobile applications.
- Explain the anatomy of an Android application.
- How to create a first Android application? Explain the project organization and the steps involved in setting up a real Android device and emulator.
- Discuss the Android terminologies such as Application Context, Activities, Services, and Intents.
- Describe the concept of Adaptive and responsive user interfaces in Android. Explain the User Input Controls and Menus.
- Define Android Application Components. Discuss the usage of App Widgets, Processes and Threads, and User Interface Components.

Q2 Discuss the importance of Android Application Design Essentials. Explain the steps to develop a simple user interface in Android. (12.5)

OR

Q3 Explain the concept of Receiving and Broadcasting Intents in Android. How can Intent Filter be used in Android applications? Discuss the permissions in Android. (12.5)

Q4 Discuss the usage of Drawables, Themes and Styles in Android. Explain Fragments and their life cycle. (12.5)

OR

Q5 What are Dialogs and Menus in Android? How are Notifications and Toasts implemented in Android applications? (12.5)

Q6 Explain the usage of Broadcast receivers and Services in Android. How can Alarm managers be utilized in Android applications? (12.5)

OR

Q7 Discuss the basic sensors in Android. Explain the working of Location services and Google Maps API in Android applications. (12.5)

Q8 Discuss the concept of Content Providers and Content Resolver in Android. How can data be shared between applications using Content Providers? (12.5)

OR

Q9 Describe the common Android APIs such as Android Data and Storage APIs, Android Networking APIs, Android Web APIs, and Android Telephony APIs. Discuss the deployment process of Android applications. (12.5)

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Exam Roll No. 105

END TERM EXAMINATION

SIXTH SEMESTER [BCA] JUNE 2024

Paper Code: BCA-302 Subject: Data Warehousing and Data Mining
(Batch-2021 Onwards)

Time: 3 Hours

Maximum Marks: 75

Note: Attempt five questions in all including Q. no.1 which is compulsory. Select one question from each unit.

- Q1 Attempt any five of the following questions: (5x5=25)
- (a) Explain different data mining tasks.
 - (b) Differentiate between designing a data warehouse and an OLAP cube.
 - (c) Explain the Issues regarding Classification and Prediction.
 - (d) Why data mining queries are more helpful? Explain.
 - (e) Differentiate between Principal Component Analysis and Factor Analysis.
 - (f) Explain Association Algorithm in Data Mining.
 - (g) What are the differences between OLAP and OLTP?
 - (h) Why Fuzzy logic is an important area for Data Mining?

UNIT-I

- Q2 (a) Explain three tier architecture of data ware housing. (6.5)
(b) What are the most common transformations in ETL processes? (6)

OR

- Q3 What are the various components of data warehouse? Explain their functionality in detail. (12.5)

UNIT-II

- Q4 What is the significance of OLAP in data warehouse? Describe OLAP operations. (12.5)

OR

- Q5 (a) Make comparisons between the MOLAP and HOLAP. (6.5)
(b) Discuss the star and snowflake schema in detail with suitable example. (6)

UNIT-III

- Q6 Explain different data mining tasks for knowledge discovery. (12.5)

OR

[-2-]

- Q7 A database has six transactions. Let min-sup = 50% and min-conf = 75%. (12.5)

TID	List of items
001	Pencil, sharpener, eraser, color papers
002	Color papers, charts, glue sticks
003	Pencil, glue stick, eraser, pen
004	Oil pastels, poster colours, correction tape
005	Whitener, pen, pencil, charts, glue stick
006	Colour pencils, crayons, eraser, pen

Find all frequent item sets using Apriori algorithm. List all the strong association rules.

UNIT-IV

- Q8 (a) How the data mining will be used in the telecommunication industry? (6.5)
(b) How can one handle suspicious or missing data in a dataset while performing the analysis? (6)

OR

- Q9 (a) What are the techniques used in data reduction? Explain one of them in detail. (6.5)
(b) Discuss the application of Data Mining in Retail Industry. (6)

BCA-302
P/2

BCA-302
P/2

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END TERM EXAMINATION

SIXTH SEMESTER [BCA] JUNE-2024

Paper Code: BCA-306

Subject: Internet of Things

(Batch-2021 Onwards)

Time: 3 Hours

Maximum Marks: 75

Note: Attempt all questions as directed. Internal Choice is indicated.

- Q1 Attempt **any five** of the following questions: (5x5=25) ²⁰
- (a) Discuss and differentiate Arduino Uno and Raspberry Pi board.
 - (b) What do you mean by participatory sensing technology? ✓
 - (c) Explain architecture of Arduino Board.
 - (d) Write about ease of designing and affordability of IoT systems.
 - (e) What are the key use cases for Smart Cities.
 - (f) Summarize the characteristics of IoT. → *diagram*
 - (g) Explain is RFID in detail along with its type.
 - (h) Explain Wireless Sensor Network.
- Q2 Explain IOT in detail along with its vision? Write about sources of IOT and Technology behind IOT. (12.5)
- OR**
- Q3 Explain IOT/M2M system layers and design standardizations. Differentiate the IoT and M2M. (12.5)
- Q4 Explain the Conceptual Framework and architecture of IoT with suitable diagram. (12.5)
- OR**
- Q5 (a) Explain "sensor" and its working. Describe any five types of sensors. (6.25)
- (b) Explain Actuator and its use in IoT? Explain types of actuators in detail. (6.25)
- Q6 Explain Wireless Medium Access Issues and MAC Protocol Survey. (12.5)
- OR**
- Q7 Write note on programming with Arduino IDE. Write Arduino code that uses ultrasonic sensor to measure distance of an object from the sensor. (12.5)
- Q8 Discuss the development and security issues in IOT applications in detail. (12.5)
- OR**
- Q9 Explain **any two** of the following IOT Applications in detail: (6.25x2=12.5)
- (a) Smart metering
 - (b) Smart Cards
 - (c) E-Health
 - (d) Home Automation

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END TERM EXAMINATION

SIXTH SEMESTER [BCA] JUNE 2024

Paper Code: BCAT-312

Subject: Data Visualization and Analytics

Time: 3 Hours

Maximum Marks: 75

Note: Attempt all questions as directed. Internal choice is indicated.

Q1 Attempt any Ten of the following questions in brief: (2.5x10=25)

- (a) Segmentation
- (b) handling Missing Values
- (c) Outlier Detection and Treatment
- (d) Simpson's Paradox
- (e) P-Value
- (f) Confidence Interval
- (g) Correlation and Causation
- (h) Subplots
- (i) Line Graph
- (j) Steps of mysql Database connectivity in python
- (k) GUI Widgets
- (l) Color Palette

Q2 (a) What is Data Analytic? Explain analytics process model with diagram. (6.5)
 (b) Discuss various profiles where analytics have been used. (6)

OR

Q3 (a) Explain various Sources of data collection methods. (6.5)
 (b) Discuss various data standardization methods with example of each method. (6)

*= $\frac{\sigma^2}{n}$
mean values, population = σ^2/n*

Q4 (a) Explain sampling distribution and its type. (5)
 (b) Explain the concept of hypothesis testing and its significance in statistical analysis. Provide an example scenario where hypothesis testing could be applied, and outline the steps involved in conducting a hypothesis test. (7.5)

OR

Q5 Differentiate between t-test and z-test in hypothesis testing. Provide examples of situations where each test would be appropriate, and explain the conditions under which each test is preferred. Additionally, discuss the implications of sample size and population variance on the choice between t-test and z-test. (12.5)

Q6 (a) What is Data Visualization? Explain the packages used for data visualization in Python. (5)
 (b) Explain the function relplot(), displot(), catplot() used for data visualization in Python. (7.5)

OR

Q7 (a) What are scatter plots? Explain in detail. What are the characteristics of scatter plots? (5)
 (b) Explain Bar Charts and Pie Charts. How these charts can be plotted using matplotlib in Python. (7.5)

Q8 (a) What are the fundamental concepts of Python GUI programming and how do layout managers contribute to designing user interfaces? (7.5)
 (b) What are the key concepts and libraries involved in Python GUI programming? (5)

OR

Q9 What are widgets in the context of Python's Tkinter library, and how are they used to create graphical user interfaces? Provide examples of at least three different Tkinter widgets and describe their functionalities by designing a user login form. (12.5)

END TERM EXAMINATION

SIXTH SEMESTER [BCA] JUNE 2024

Paper Code: BCA-304

Subject: E-Commerce

Time: 3 Hours

Maximum Marks: 75

Note: Attempt all questions as directed. Internal choice is indicated.

Q1 Attempt **any five** out of the following:

(5x5=25)

- a) Define M-commerce
- b) Recommendation systems
- c) Payment Gateway
- d) Intrusion Detection and Protection systems
- e) Social Network Security-Issues
- f) Augmented Reality

UNIT-I

Q2 What do you understand by the term E-commerce. State the relationship between E-commerce and E-business. Explain the different types of E-commerce. (12.5)

OR

Q3 Briefly explain the technological building blocks of E-commerce infrastructure. (12.5)

UNIT-II

Q4 Explain the phases involved in establishing the presence of an E-commerce website. List all the phases involved the hardware / software required along with how the ranking of the website can be improved. (12.5)

OR

Q5 State the major components involved once the E-commerce site has been set up. (12.5)

UNIT-III

Q6 Explain in detail the various modes of Electronic Payment system. (12.5)

OR

Q7 Write short notes on: (12.5)
a) EFT
b) Virtual currencies
c) Digital token-based EPS

Q8 What do you understand by encryption. Explain in detail the difference between Secret and Public Key Encryption with the help of an example. (12.5)

OR

Q9 Write short notes on: (12.5)
a) SSL
b) Cyber Crimes
c) VPN
