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25208401
[Total No. of Questions: 20]



9502

Bachelor of Computer Application (BCA)
(Part-II)(Semester-IV) Examination - 2026
DCC-BCA-404
(Design Analysis & Algorithms)

Duration of Examination: 3 Hours
परीक्षा की अवधि: 3 घण्टा

Max. Marks: 70
पूर्णांक: 70

Instructions to the Candidates:
परीक्षार्थी के लिए निर्देश:-

Note:- The question paper is divided into 02 Parts: Part - A & Part-B.
नोट:- प्रश्न पत्र दो भागों में होगा। भाग-अ और भाग-ब

Part-A/भाग-अ

Part A will consist of 10 compulsory questions. Answer to each question shall be limited upto 50 words. Each question will carry 02 marks. Total 20 Marks.

भाग-अ में 10 अनिवार्य प्रश्न होंगे। प्रत्येक प्रश्न का उत्तर 50 शब्दों तक सीमित होगा। प्रत्येक प्रश्न दो अंक का होगा।

(Marks-10×2=20)

Part-B/भाग-ब

Part B -Will consist of 10 questions. Student will have to answer 05 questions, selecting at least one questions from each unit. The answer to each question shall be limited upto 400 words. Each question carries 10 marks. Total 50 Marks.

भाग-ब में 10 प्रश्न होंगे। छात्र को प्रत्येक इकाई से कम से कम एक प्रश्न का चयन करते हुए पाँच प्रश्नों का उत्तर देना होगा। प्रत्येक प्रश्न का उत्तर 400 शब्दों तक सीमित होगा। प्रत्येक प्रश्न 10 अंक का होगा।

(Marks-5×10=50)

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Part-A

- 1- How do you measure the efficiency of an Algorithm?
- 2- Write down the properties of asymptotic notations.
- 3- Define Big Theta Notations.
- 4- Define internal path length and external pathlength.
- 5- What is the Constraint for binary search tree for insertion?
- 6- What does Floyd's Algorithm do?
- 7- Give the General Plan for Divide and Conquer Algorithms.
- 8- Write about travelling salesperson problem.
- 9- What is Knapsack problems.
- 10- Define P and NP Problems.



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Part- B**Unit-I**

11-

What are Asymptotic Notations? List and describe the various asymptotic notations.

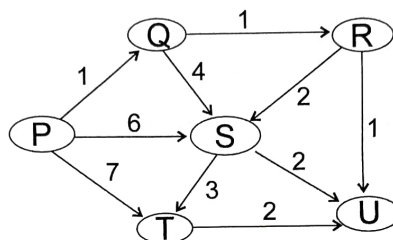
12-

Explain the Merge Sort algorithm. Apply Merge Sort algorithm to sort the given characters.

UNIVERSITY

13-

Apply single source shortest path algorithm to the given graph by considering 'P' as source vertex.

**Unit-II**

14-

Solve the given instance of 0/1 Knapsack problems using Dynamic Programming. Given the capacity of Knapsack (m)=8.

Item	1	2	3	4
Weight	2	3	4	5
Profit	1	2	5	6

15-

Explain Prim's algorithm for minimal spanning tree with an example.

16-

Construct an Optimal Binary Search Tree for the given data: $n=4$ $(a_1, a_2, a_3, a_4) = (do, if, int, while)$ $p(1:4) = (3, 3, 1, 1)$ $q(0:4) = (2, 3, 1, 1, 1)$ **Unit-III**

17-

Solve the 4-Queens Problem by using the Backtracking approach.

18-

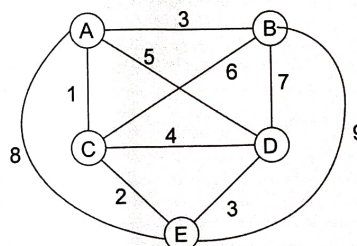
Discuss in detail about the class P, NP, NP-hard and NP-complete problems. Give examples for each class.

19-

Apply Backtracking technique to solve the sum of Subset Problem for the instance $d = 15$ and $S = \{3, 5, 6, 7\}$

20-

Solve the given traveling salesperson problem using Branch and Bound technique.



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9501

**Bachelor of Computer Application (BCA)
(Part-II) (Semester-IV) Examination - 2026
DCC-BCA-403
(Android Programming)**

Duration of Examination: 3 Hours

परीक्षा की अवधि: 3 घण्टा

Max. Marks: 70

पूर्णांक: 70

Instructions to the Candidates:परीक्षार्थी के लिए निर्देश:-*Note:- The question paper is divided into 02 Parts: Part - A & Part-B.*

नोट:- प्रश्न पत्र दो भागों में होगा। भाग-अ और भाग-ब

Part-A/भाग-अ*Part A will consist of 10 compulsory questions. Answer to each question shall be limited upto 50 words. Each question will carry 02 marks. Total 20 Marks.*

भाग-अ में 10 अनिवार्य प्रश्न होंगे। प्रत्येक प्रश्न का उत्तर 50 शब्दों तक सीमित होगा। प्रत्येक प्रश्न दो अंक का होगा।

(Marks-10×2=20)**Part-B/भाग-ब***Part B -Will consist of 10 questions. Student will have to answer 05 questions, selecting at least one questions from each unit. The answer to each question shall be limited upto 400 words. Each question carries 10 marks, Total 50 Marks.*

भाग-ब में 10 प्रश्न होंगे। छात्र को प्रत्येक इकाई से कम से कम एक प्रश्न का चयन करते हुए पाँच प्रश्नों का उत्तर देना होगा। प्रत्येक प्रश्न का उत्तर 400 शब्दों तक सीमित होगा। प्रत्येक प्रश्न 10 अंक का होगा।

(Marks-5×10=50)**Part-A**

- 1- What is Native vs. Hybrid Applications.
- 2- What is the significance of '@Override' notation in android class file.
- 3- What will be the output of the given code of segment
@Override
Public boolean onCreateOptionsMenu(Menu menu){
 getMenuInflater().inflate(R.menu.main, menu);
 return true;
}
- 4- What are the essential tasks involved in publishing a Mobile Application?
- 5- What are design standards of a user interface?
- 6- Explain in detail about user interface and its types?
- 7- What is a web service? Why it is required? How a web service can be consumed in an Android application.



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- 8- What is the use of `getFragmentManager()` method?
- 9- Define implicit intent with example.
- 10- Which function of android life cycle is executed as it starts?

400

Part- B

Unit-I

- 11- Develop an android application implement the fragments using suitable example. Write .class, layout file code.

OR

Create an android application to illustrate the use of Alert Dialogue. Show the alert dialogue on the click of a button. Write .class, layout file code.

- 12- Create an android application to get the student details (Name, Class, Section, DOB, Address) along with marks (Hindi, English, Math, Social Science, Science, IP) on one activity and display the mark sheet on another activity with few details of students like Name, Class, Section. Mark sheet should contain the marks of each Subject, Total Marks, Percentage, Division and Rank in the class.

OR

Explain the steps of publishing an android application on play store with suitable example.

- 13- Explain the life cycle of activity with suitable example.

Unit-II

- 14- Create an android Application to create an Activity having login credential and check validation on each controller, is password is match then move to next activity.

- 15- Create an android Application to create an Activity having one Button named as "Show", assign Id as "btnShow" and perform click event of the button.

- 16- Explain the fragmentation in android and how to differ from activity life cycle.

Unit-III

- 17- Give concepts only how will you send the information of first activity on another activity? Discuss with suitable example.

400

- 18- Explain the Saving and Loading User Preference data using web view with example.

- 19- Create an android application to illustrate the use of Alert Dialogue. Show the alert dialogue on the click of a button. Write .class, layout file code.

- 20- Explain the Linear Layout (Horizontal) and Linear Layout (Vertical). Discuss with suitable example.

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Bachelor of Computer Application (BCA)
(Part-II)(Semester-IV) Examination - 2026
AEC-BCA-401
(Computer Based Statistics)

Duration of Examination: 3 Hours

परीक्षा की अवधि: 3 घण्टा

Max. Marks: 70

पूर्णांक: 70

*Instructions to the Candidates:*परीक्षार्थी के लिए निर्देश:-*Note:- The question paper is divided into 02 Parts: Part - A & Part-B.*

नोट:- प्रश्न पत्र दो भागों में होगा। भाग-अ और भाग-ब

*Part-A/भाग-अ**Part A will consist of 10 compulsory questions. Answer to each question shall be limited upto 50 words. Each question will carry 02 marks. Total 20 Marks.*

भाग-अ में 10 अनिवार्य प्रश्न होंगे। प्रत्येक प्रश्न का उत्तर 50 शब्दों तक सीमित होगा। प्रत्येक प्रश्न दो अंक का होगा।

*(Marks-10×2=20)**Part-B/भाग-ब**Part B -Will consist of 10 questions. Student will have to answer 05 questions, selecting at least one questions from each unit. The answer to each question shall be limited upto 400 words. Each question carries 10 marks. Total 50 Marks.*

भाग-ब में 10 प्रश्न होंगे। छात्र को प्रत्येक इकाई से कम से कम एक प्रश्न का चयन करते हुए पाँच प्रश्नों का उत्तर देना होगा। प्रत्येक प्रश्न का उत्तर 400 शब्दों तक सीमित होगा। प्रत्येक प्रश्न 10 अंक का होगा।

(Marks-5×10=50)

334

Part-A

- 1- Define statistical population and statistical data.
- 2- Distinguish between qualitative and quantitative data with one example each.
- 3- What are primary and secondary data?
- 4- State the difference between discrete and continuous frequency distributions.
- 5- What is a histogram? Mention its uses.
- 6- Define mean deviation and variance.
- 7- What is meant by a nominal scale and an ordinal scale?
- 8- Define skewness. How is it different from kurtosis?
- 9- State the principle of least squares.
- 10- What is a scatter diagram and what does it represent?



9499

Part- B

Unit-I

- 11- Explain different types of data: qualitative, quantitative, discrete, continuous, geographical and chronological data. Give suitable examples.
- 12- Describe the construction of statistical tables. Discuss different types of tables and explain how a frequency distribution is prepared.
- 13- Explain graphical presentation of data using histogram, frequency polygon, frequency curve and box plot with neat sketches.

Unit-II

- 14- Define mean, median and mode. Explain range, mean deviation, standard deviation and coefficient of variation with examples.
- 15- What are measures of dispersion? Also explain various measures of central tendency with their properties.
- 16- Explain the concept of moments. Discuss absolute and relative measures of skewness and kurtosis based on quantiles and moments.

Unit-III

- 17- Explain the principle of least squares. Show how to fit a straight line curve and a parabola to a given dataset.
- 18- Discuss fitting of curves reducible to straight lines, such as exponential and power curves with suitable transformations.
- 19- Explain the theory of attributes; class frequency, Order of class frequency, consistency of data, independence and association of attributes.
- 20- Discuss bivariate data analysis. Explain correlation, scatter diagram, regression lines, regression coefficients and their important properties.



9500

**Bachelor of Computer Application (BCA)
(Part-II)(Semester-IV) Examination - 2026
DCC-BCA-402
(Visual Programming)**

Duration of Examination: 3 Hours

परीक्षा की अवधि: 3 घण्टा

Max. Marks: 70

पूर्णांक: 70

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(Marks-5×10=50)

334

Part-A (Compulsory)

- 1- Define constants, arrays and types of arrays in .NET .
- 2- What are collections in .NET and how do they differ from arrays?
- 3- Describe MSIL and purpose?
- 4- What is a constructor in object oriented programming?
- 5- How does a Timer Control Function?
- 6- What is the difference between a Label and a TextBox?
- 7- How Can you hide a form without closing it?
- 8- Explain any two EXIT statements with an example?

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- 9- What is the role of server explorer in visual studio?
- 10- How does ADO.NET differ from classic ADO?

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Part- B

Unit-I

- 11- Explain the .NET framework features and its architecture in detail?
- 12- Discuss variables in .NET: declaration, data types, forcing variable declarations, and the scope & life time of a variable?
- 13- Explain control flow statements in .NET with examples-conditional statements and loop statements?
- 14- Describe the concepts of constructors, inheritance, and method overriding in object oriented programming?

Unit-II

- 15- Write notes on Drive Listbox, Directory List Box, and file List box?
- 16- Explain the concept of object-oriented programming in .NET, focusing on inheritance, interfaces, and polymorphism?
- 17- Explain how to use OpenFileDialog, SaveFileDialog, and FontDialog in a windows forms application?

Unit-III

- 18- Describe the Command object in ADO.NET and the different methods used to execute SQL queries?
- 19- Write a program in C# to perform database connection and extract the details of those student who lives in "Merta" from student table having fields id, name, contact, city.
- 20- How does a Dataset work in ADO.NET, and what are its advantages over direct data access?

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