

MID SEMESTER EXAMINATION QUESTION PAPER

CODE - QP

Approved for Quality Management System

EDUCATION & TRAINING COURSE: B.ED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE: LC - 0851

YEAR 3 - SEMESTER 2

SUBJECT: MOBILE APPLICATION DEVELOPMENT - BDI5144

|                          |                                 |
|--------------------------|---------------------------------|
| Faculty                  | Department / Section / Division |
| Humanities and Education | Education Department            |

|  |   |
|--|---|
| INSTRUCTIONS TO CANDIDATES   | Date of the examination: 2022.09.06       |
| Candidates could be disqualified if you violate examination rules.                                   | Duration of the examination = 1 1/2 hours |
| Candidates are not allowed to communicate with and disturb fellow candidates during the examination. | Total Marks = 60 Marks                    |

**Answer three (3) questions only**

**QUESTION 1**

1. Mobile devices such as smartphones require unique features. Their architecture specifically targets mobile components.

i) Identify 3 unique features of mobile Processing units and briefly describe them. (5 marks)

ii) Identify 5 mobile sensors and describe each in one sentence.

(7 marks)

iii) List 5 display requirements (5 marks)

iv) List and briefly describe 3 types of touch panels (3 marks)

**QUESTION 2**

2. Android is a major milestone in history of human technology. Yet Apple's ios had also contributed immensely to this industry.

i) Write an essay of maximum 50 words on Android history and rise to present status.

(10 marks)

ii) List 3 features of ios. (6 marks)

iii) Briefly describe the importance of Open Handset Alliance (4 marks)

**QUESTION 3**

3. Becoming familiar with Android App development requires lot of patience and knowledge on working with Android Studio.

I) Explain the term "USB Debugging". (6 marks)

ii) Briefly describe options provided in Android studio to test mobile applications you developed. (5 marks)

III) Briefly explain the term "ADB driver". (4 marks)

iv) List 3 services in Android Framework (3 marks)

v) Explain the purpose of selecting a minimum SDK version when creating a new Android studio project (2 marks)

**QUESTION 4**

4. Activities are the main focal Point in Android App development.

I) Briefly describe the components of android (6 marks)

II) Explain the purpose of manifest file (4 marks)

lii) List 4 main states of Activity (4 marks)

Iv) Explain term 'Activity Lifecycle' (6 marks)

-----END OF THE QUESTION PAPER-----



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COURSE CODE: LC - 0851

YEAR 3 - SEMESTER 2

SUBJECT: MODERN TOPICS IN IT - BDI5153

|                          |                                 |
|--------------------------|---------------------------------|
| Faculty                  | Department / Section / Division |
| Humanities and Education | Education Department            |

|  |   |
|--|---|
| INSTRUCTIONS TO CANDIDATES   | Date of the examination: 2022.09.06       |
| Candidates could be disqualified if you violate examination rules.                                   | Duration of the examination = 1 1/2 hours |
| Candidates are not allowed to communicate with and disturb fellow candidates during the examination. | Total Marks = 100 Marks                   |

**INDEX NUMBER:**

For Office use Only

| Question No:                       | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total Marks | % | Signature |
|------------------------------------|---|---|---|---|---|---|---|---|---|----|-------------|---|-----------|
| For Scrutinizer's Use Only (marks) |   |   |   |   |   |   |   |   |   |    |             |   |           |
| For Moderator's Use Only (marks)   |   |   |   |   |   |   |   |   |   |    |             |   |           |

**Answer all questions**

**Question 01**

1. Briefly explain the role of these technologies in web development.
  - a. HTML
  - b. CSS
  - c. JavaScripts

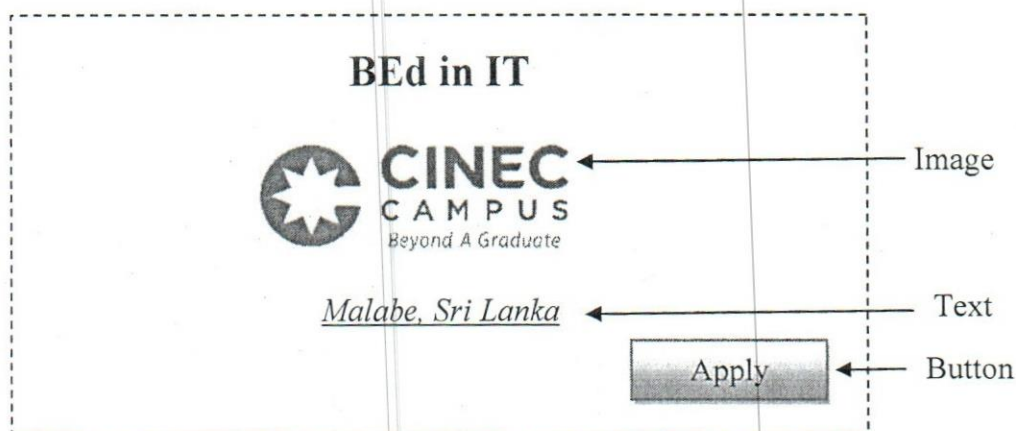
(3x5 Marks)

2. Using suitable codes, explain the use of two selectors in CSS.

(2x5 Marks)



3. Write necessary HTML, CSS and Javascript codes to build the following website.



Once the user clicks the apply button, he/she should be redirected to *apply.php* page.

(15 Marks)

(40 Marks)

## Question 02

1. Consider following two tables and write necessary SQL codes to do the followings.

Student Table

| IndexNo    | Name  | DoB        |
|------------|-------|------------|
| Bed2020123 | Saman | 1999-12-25 |
| Bed2020456 | Kamal | 2001-01-14 |
| Bed2020789 | Bimal | 1998-04-04 |

Marks Table

| IndexNo    | Maths | IT | English |
|------------|-------|----|---------|
| Bed2020789 | 34    | 95 | 68      |
| Bed2020123 | 54    | 56 | 86      |
| Bed2020456 | 76    | 86 | 56      |

- View all the information of students who have obtained more than 50 marks for at least one subject
- Delete students who were born after the year 2000
- Modify the maths marks of Saman to 75

(3x10 Marks)

(30 Marks)

**Question 03**

1. Briefly explain the following Service Oriented Computing technologies.

- a. RESTful Web services
- b. WSDL
- c. RMI

(3x5 Marks)

2. Briefly explain the following cloud computing service models with suitable examples.

- a. SaaS
- b. PaaS
- c. IaaS

(3x5 Marks)

(30 Marks)

-----END OF THE QUESTION PAPER-----



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EDUCATION & TRAINING COURSE: B.ED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE: LC - 0851

YEAR 3 - SEMESTER 2

SUBJECT: SOFTWARE QUALITY ASSURANCE

|                          |                               |
|--------------------------|-------------------------------|
| Faculty                  | Department / Section/Division |
| Humanities and Education | Education Department          |

|  |   |
|--|---|
| INSTRUCTIONS TO CANDIDATES   | Date of the examination: 2022.09.06       |
| Candidates could be disqualified if you violate examination rules.                                   | Duration of the examination = 1 1/2 hours |
| Candidates are not allowed to communicate with and disturb fellow candidates during the examination. | Total Marks = 20 Marks                    |
|  |   |

The Question Paper consists with **THREE** Questions carries same Marks. Please Attempt to Only **TWO** Questions.

**Question 01**

Explain All Stages of STLC (Software Testing Life Cycle), with Entry and Exit Criteria.

(10 Marks)

**Question 02**

Explain FOUR Types of Structural Testing with Proper Examples.

(10 Marks)

**Question 03**

a) Explain What is "Software Quality Assurance "

(04 Marks)

b) Briefly explain "Product Standard and Process Standard" related to the Software Quality Assurance.

(06 Marks)

Total 10 Marks

-----END OF THE QUESTION PAPER-----



Library

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END SEMESTER EXAMINATION QUESTION PAPER

CODE - QP

Approved for Quality Management System

EDUCATION & TRAINING COURSE: B.ED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE: LC - 0851

YEAR 3 - SEMESTER 2

SOFTWARE QUALITY ASSURANCE - BDI5163

|                          |                               |
|--------------------------|-------------------------------|
| Faculty                  | Department / Section/Division |
| Humanities and Education | Education                     |

|  |  |
|--|--|
| INSTRUCTIONS TO CANDIDATES   | Date of the examination: 2022.09.30    |
| Candidates could be disqualified if you violate examination rules.                                   | Duration of the examination = 03 hours |
| Candidates are not allowed to communicate with and disturb fellow candidates during the examination. | Total Marks = 100 marks                |
|  |  |

**Answer five questions only. Question 1 is Compulsory.**

**Question 01(Compulsory)**

- (i) Explain what is "Testing" (04 Marks)
- (ii) Write 6 Stages of Software Testing Life Cycle (12 Marks)
- (iii) Write Main TWO Types of Testing (04 Marks)

(Total marks =20)

**Question 02**

- (i) Write 4 Outcomes which can be resulted due to the Poor Management in Quality of Software Applications. (08 marks)
- (ii) Explain Software "Quality Management". (04 Marks)
- (iii) Describe "Pareto Analysis" with a Suitable Diagram. (08 Marks)

(Total marks =20)

**Question 03**

- (i) Explain Steps of Conducting a Functional Testing (04 Marks)
- (ii) Name FIVE Various types of Functional Testing (10 Marks)
- (iii) Compare Functional and Non-Function Tastings. Use THREE Points for the Comparison.

(06 Marks)

(Total marks =20)

**Question 04**

- (i) Explain What is a Test Case? (04 Marks)
- (ii) Write FIVE Information mentioned in a Test Plan (10 Marks)
- (iii) Compare Black Box and White Box Testing. Use THREE Points for Comparison (06 Marks)

(Total marks =20)

**Question 05**

- (i) Explain What is User Interface Testing is. (04 Marks)
- (ii) Write THREE Challenges in UI Testing (06 Marks)
- (iii) Draw A ONE User Interface (1 Screen only) in a LMS and show the Test Plan for that. (10 Marks)

(Total marks =20)

**Question 06**

- (i) Explain How to Conduct a Proper Quality Planning for a Software Application (05 marks)
- (ii) Who is Responsible for Quality of Projects? Write Down. (03 Marks)
- (iii) Write THREE Important points of ISO 9000 Standard. (09 Marks)
- (iv) Write THREE Suggestions for Improving Quality of Software. (03 Marks)

(Total marks =20)

**Question 07**

- (i) Write FIVE Cost Categories related to Quality. (10 Marks)
- (ii) Compare Quality Assurance and Quality Control. Use FOUR Points. (10 Marks)

(Total marks =20)

**Question 08**

Assume you are a Software Engineer, and you are Involved on Coding. There are some Complaints raised from Customers that Software is not Properly Functioning. Write how you and the team handle the above situation. Write FIVE points. (20 Marks)

(Total marks =20)

-----END OF THE QUESTION PAPER-----



librarian

00018



END SEMESTER EXAMINATION QUESTION PAPER

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EDUCATION & TRAINING COURSE: B.ED (HONOURS) IN INFORMATION TECHNOLOGY

COURSE CODE: LC - 0851

YEAR 3- SEMESTER 2

MOBILE APPLICATION DEVELOPMENT - BDI5144

| Faculty                  | Department / Section/Division |
|--------------------------|-------------------------------|
| Humanities and Education | Education                     |

|  |  |
|--|--|
| INSTRUCTIONS TO CANDIDATES   | Date of the examination: 2022.09.30    |
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|  |  |

**Answer four questions only**

**Question 1**

You were requested to create a mobile application useful for Sri Lankan tourists. Some of the functions required are as follows

- Accurate showing of position
- Distance calculation between 2 points given
- Awareness of direction using earth's magnetic field
- Height from Sea Level
- Angle of user against ground

- List and briefly describe the type of Sensors matching each of above requirements (15 marks)
- Explain the solution used to make a "backward compatible" with Android app (4 marks).
- Explain how smartphones avoid accidental command input while the user is holding it to the ear during a call. (6 marks)

(Total marks =25)

**Question 2**

Creating a Android Mobile Application Interface is a delicate skill. One needs to be familiar with key construction components of an Activity.

- (i) Describe the term 'Constraint' and list 3 types of constraints available for use (8 marks)
- (ii) Explain the purpose of 'Intent' and brief the types of Intents (6 marks)
- (iii) Explain the role of Intent filters (5 marks)
- (iv) Identify the tag in manifest file under which <intent-filter> element must be declared. (3 marks)
- (v) Explain the role of Back stack (3 marks)

(Total marks =25)

**Question 3**

Every mobile application must include one or more methods of navigation to allow user go through the program.

- (i) Explain the importance/ benefits of structured and well-planned navigation (6 marks)
- (ii) Name and briefly describe key parts of Android's Jetpack Navigation component (9 marks)
- (iii) Explain Navigation Graph and type of resources it holds. (10 marks)

(Total marks =25)

**Question 4**

Storage is a vital need of any application. Same exists for mobile applications.

- (i) List and briefly explain the key Storage options available in Android (8 marks)
- (ii) List 4 key benefits of using SQLite Databases (12 marks)
- (iii) Explain the need for a separate 'Database Helper' class when handling SQLite databases in Android (5 marks)

(Total marks =25)

**Question 5**

Android apps consist of many resources imported into a single package

- (i) Explain why creation of every Android Studio project usually require internet access (6 marks)
- (ii) Explain the role of Gradle in Android Studio (10 marks)
- (iii) Describe the term and importance of 'apk' related to Android. (9 marks)

(Total marks =25)

**Question 6**

Apple's iPhone is the next most popular mobile operating System. On top of the difference in development tools, most other functions are similar to android.

- (i) Brief the terms 'iOS' and 'iPhone'. (9 marks)
- (ii) XCode is the default tool for developing applications to run in Apple's mobile devices. Explain briefly how this Mac OS software can be executed within a MS Windows environment (10 marks)
- (iii) Explain the programming language used with XCode development (6 marks)

(Total marks =25)

-----END OF THE QUESTION PAPER-----





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COURSE CODE: LC - 0851

YEAR 3 - SEMESTER 2

MODERN TOPICS IN IT - BDI5153

|                          |                                 |
|--------------------------|---------------------------------|
| Faculty                  | Department / Section / Division |
| Humanities and Education | Education                       |

|  |  |
|--|--|
| INSTRUCTIONS TO CANDIDATES   | Date of the examination: 2022.10.03    |
| Candidates could be disqualified if you violate examination rules.                                   | Duration of the examination = 03 hours |
| Candidates are not allowed to communicate with and disturb fellow candidates during the examination. | Total Marks = 100 marks                |
|  |  |

**Answer only four questions**

**Question 01**

- (i) Answer the following questions regarding content management systems.
- What is a content management system?
  - Name three popular content management systems.
  - Why are they so popular today?
  - Assume that one wants to publish a web site. How can one develop and deploy a web site using one of the most popular content management systems? Explain all the steps clearly.

(15 marks)

- (ii) A startup company with limited budget wants a web server to deploy their e-commerce system. However, as their business grows, they need to enhance their servers in order to handle a higher customer traffic. By considering these facts, suggest the best solution for their requirements with justifications. Further, explain five other benefits they are going to get because of your solution.

(10 marks)

(Total marks = 25)

## Question 02

Assume that you have been given a task of developing a Web-based Computer game. The ultimate objective of this game is to let users to do betting on the winning horse in a computer created horse race. Initially, the user is given 100 units of tokens to do betting. The user can choose a horse to bet, betting amount, and number of laps for the race and start the race. The bet amount will be immediately deducted from user's balance soon the user starts the race. However, the user will not be allowed to bet more than his/her current balance. Moreover, the prize ratio for each horse is randomly decided and displayed before selecting a horse and start betting. If the user won, the bet amount will be multiplied by the prize ratio of the respective horse and the total prize will be added to his/her balance. The user can continue the game as long as his/her balance is nonzero. Moreover, the users should be able to play the game using any device without much inconvenient.

- (i) Using suitable web components, and controllers, sketch a UI for the above game. Label each component of your diagram. (05 marks)
- (ii) In terms of the UI and UX designing of the above game, identify five possible major challenges you faced and how you are going to address each. (10 marks)
- (iii) With respect to the above sketched UI and labels, write necessary code segments to validate the betting amount against its positiveness and the current balance. (10 marks)

(Total marks =25)

## Question 03

- (i) Name three Object Oriented Programming characteristics and explain how each helps in programming. (15 marks)
- (ii) A company wants to build a computer-based system with a capability of automating most of their business-to-business communications without human involvements. However, though most of their business partners have already build their system with such a capability, language and platforms they are using is different from one to the other. Suggest a suitable solution and technologies with justifications to fulfill the given requirements. (10 marks)

(Total marks =25)



**Question 04**

Consider following two tables and write necessary SQL codes to do the followings.

Student Table

| IndexNo    | Name  | DoB        | GPA |
|------------|-------|------------|-----|
| Bed2020123 | Saman | 1999-12-25 | 0.0 |
| Bed2020456 | Kamal | 2001-01-14 | 0.0 |
| Bed2020789 | Bimal | 1998-04-04 | 0.0 |

Course Table

| CourseCode | CourseTitle | Credits |
|------------|-------------|---------|
| BDI 10     | Maths       | 2.0     |
| BDI 15     | IT          | 3.0     |
| BDI 18     | English     | 3.0     |

Marks Table

| IndexNo    | CourseCode | Marks | GP  |
|------------|------------|-------|-----|
| Bed2020789 | BDI 10     | 95    | 4.0 |
| Bed2020123 | BDI 10     | 56    | 2.5 |
| Bed2020456 | BDI 10     | 86    | 4.0 |
| Bed2020789 | BDI 15     | 45    | 2.0 |
| Bed2020123 | BDI 15     | 65    | 3.0 |
| Bed2020456 | BDI 15     | 68    | 3.0 |
| Bed2020789 | BDI 18     | 55    | 2.5 |
| Bed2020123 | BDI 18     | 69    | 3.0 |
| Bed2020456 | BDI 18     | 74    | 3.5 |

- (i) View only the name of students who have obtained more than 50 marks at least for two subjects. (08 marks)
- (ii) Remove all the details from marks table whose average marks is less than 40. (08 marks)
- (iii) Modify the GPA column of all the students with their respective GPAs.

Hint: The GPA is calculated as follows. (Here the Total Credits is 8.0)

$$\text{GPA} = \frac{\sum \text{GP} * \text{Credits}}{\text{Total Credits}}$$

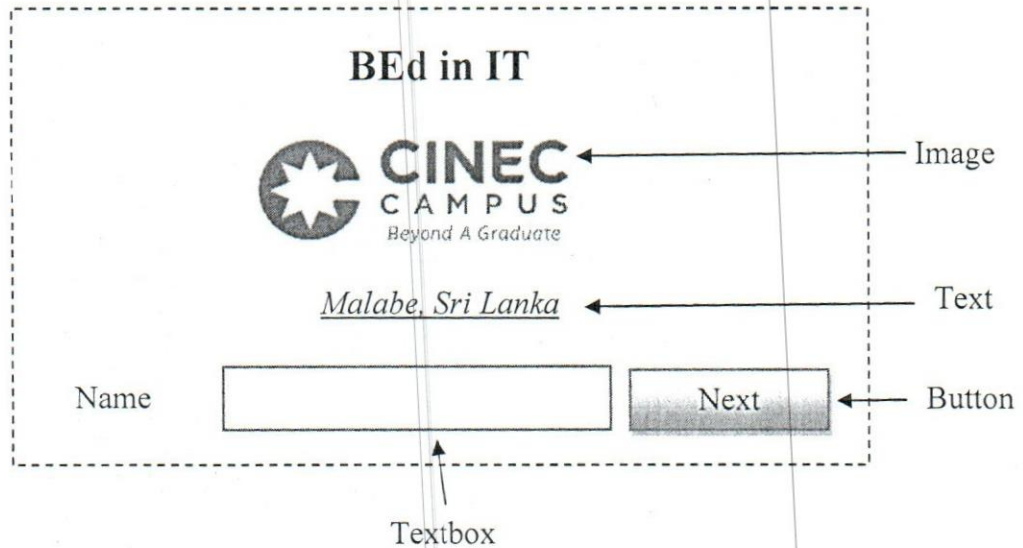
(09 marks)

(Total marks =25)



### Question 05

- (i) Write necessary HTML, CSS and Javascript codes to build the following website.



Once the user clicks the Next button after typing a name in the textbox, he/she should be redirected to *welcome.php* page. If the textbox is empty, show an alert box by asking user to enter a name.

(15 marks)

- (ii) Write the above *welcome.php* file to get the typed name in the above textbox and show a welcome message as follows. Here, the name needs to be replaced by the user typed name during the run time.

**Welcome <Name> !**

(10 marks)

(Total marks =25)

-----END OF THE QUESTION PAPER-----