NATIONAL SCHOOL OF BUSINESS MANAGEMENT

B.Sc. In Management Information Systems/B.Sc. In Software Engineering/B.Sc. In Computer Science
3rd Year 1st Semester Examination
20th June 2020
Mobile Application Development - SE303.3

Online Examination

Instructions to Candidates

1) **Answer any five (5) questions.**

2) Time allocated f o r the examination is three and half hours.

3) Total number of pages – Five (5)

4) You may write your answers on a paper and copy the images of your work into the word template (provided answer booklet) and save your work as a PDF and upload this file to the LMS within the stipulated time. This PDF file should be saved with your **index no**.

5) You are required to submit the answer file within the allowed timeframe, and no additional time is provided for submissions.

6) All the submissions will be checked for plagiarism. Plagiarism, collusion, and copying are serious offences in the university and serious penalties that would be imposed.

7) You're not allowed to publish or disseminate any part of the paper online or offline.

Question 1

(a) Explain with examples, the two main components in a mobile computing system.

[2 marks]

(b) Explain what is meant by "ubiquitous computing" using practical examples and explain the advantages of the same.

[6 marks]

(c) Discuss the applications of the below terms in mobile computing drawing real world examples.
   a. Wearables
   b. Cloud Based Mobile Apps
   c. E-Readers

[6 marks]

(d) Discuss the main (at least three) advantages of small business developing "Mobile Applications." Support your answer with a real-world example.

[6 marks]

Question 2

(a) Explain the mobile networking mechanisms used in modern mobile computing era. Discuss the disadvantages of these by referring to examples.
   a. Sensor Networks
   b. Vehicular Networks

[6 marks]

(b) Mobile computing is more challenging than the desktop application development. Do you agree with this statement? Support your answer with a discussion using practical examples.

[4 marks]

(c) Compare and contrast "Native" vs "Web" mobile development approaches. Your discussion should be supported with practical reasoning.

[6 marks]

(d) Explain the importance of local storage in mobile application development.

[4 marks]

Question 3

(a) Identify and explain three mobile operating system level adaptation for different context and conditions.

[3 marks]

(b) Explain three different categories used by Chen & Kotz to define context in context aware mobile application development.

[3 marks]

(c) Compare and contrast below pairs with respect to context aware mobile computing
   a. External Context vs Internal Context
   b. Low-level Context vs High-level Context

[6 marks]

(d) Discuss five major challenges in context aware mobile application development

[5 marks]

(e) Explain the "Sixth Sense" context aware application developed by MIT Media Lab

[3 marks]

Question 4

(a) Explain "Web-native" continuum using suitable diagram with respect to mobile application development approaches.

[4 marks]

(b) Chose suitable mobile application development approach for below scenarios. Support your answer with clear arguments.
   a. Low cost, centrally managed business mobile application
   b. Responsive, fast, stable application which needs to access camera, contacts list and POS printer

[6 marks]

(c) List down four main frameworks which can used to develop cross platform mobile application development.

[6 marks]

(d) Explains with suitable examples and key points that why most of the software companies tend to use "Hybrid" mobile development approach for developing business mobile applications.

[6 marks]

Question 5

(a) Do you think that there are any differences in mobile application development lifecycle in comparing stages in SDLC?

[5 marks]

(b) "Nearly all mobile or Web-based services use **localization** to provide a better experience to their users". Do you agree with this statement? Explain with suitable examples.

[5 marks]

(c) Discuss 5 major design guidelines to consider in mobile application development.

[5 marks]

(d) Discuss five UI/UX design concepts and rules which are following in mobile application development.

[5 marks]

Question 6

(a) Explain four critical android hardware relevant features.

[4 marks]

(b) As an android developer discuss the importance of the Application Framework layer described in android architecture using appropriate examples.

[5 marks]

(c) Explain below terms in android application development.
   a. "Android Manifest" xml file
   b. Intent
   c. Service

[3 marks]

(d) "As a user navigates through, out of, and back to your app, the Activity instances in your app transition through different states in their lifecycle". Briefly explain all the states of the Activity Life Cycle.

[6 marks]

(e) Explain about the term "USB Debugging" in android application development.

[2 marks]