



PIONEER INTERNATIONAL UNIVERSITY

Powered by Intellect, Driven by Values.

UNIVERSITY EXAMINATIONS

BACHELOR IN INFORMATION TECHNOLOGY

ACADEMIC YEAR: 2021/2022

UNIT NAME: MOBILE COMPUTING

SEMESTER: SEPTEMBER – DECEMBER 2021

UNIT CODE: BSIT 2250

DATE: SEPTEMBER 2021

Main exam

TIME: 2 HOURS

INSTRUCTIONS: Answer question one (30 marks) and any other two

QUESTION ONE (COMPULSORY 30 MARKS)

a. Define the following terms;

- i. Cellular Network [1 Mark]
- ii. Embedded System [1 Mark]
- iii. Mobile Computing [1 Mark]
- iv. Mobile App [1 Mark]
- v. Consumerization of IT [1 Mark]

b. Explain three basic features that a virtual reality system incorporates in its design. [3 Marks]

c. Discuss THREE current applications of wearables. [6 Marks]

d. Nita ISP has been down for the last three days, the longest time that this has ever happened to their distraught clients, most of whom have already signed up new SLA's with competing ISP providers. Discuss what might be impacting the frequent network failures at Nita. [5 Marks]

e. Enumerate any FIVE advances in mobile telephony that have led rise to mobile computing. [5 Marks]

f. The tradeoff between location accuracy, coverage and energy consumption is quite complex. In what THREE ways is this mitigated? [3 Marks]

e. Describe the SensorSim Architecture. [5 Marks]

g. Explain any THREE differences between first and second generation Systems of mobile phones. [3 Marks]

QUESTION TWO (20 MARKS)

a. "The world is flat!" Discuss. [4 Marks]

b. In order to protect mobile data, *focus on tools* and *techniques* that help protect the mobile data are important. Identify any FIVE threats and their inherent risks to mobile data. [6 Marks]

c. The ability of tracking the location of a subject in real time gives human operators the ability to effectively do a number of real-time [4 Marks]

d. What are the THREE favours of wearable technology? [3 Marks]

e. Explain any THREE advantages of Digital Communications for Wireless networks. [3 Marks]

QUESTION THREE (20 MARKS)

a. What are THREE technical principles that guide energy-efficient localization and tracking schemes on smartphones? [3 Marks]

b. Explain any FIVE mobile security challenges. [5 Marks]

c. Describe the sensor network model. [6 Marks]

d. Briefly explain three major threats regarding mobile security. [6 Marks]

QUESTION FOUR (20 MARKS)

a. i. What is a Microcontroller? [2 Marks]

ii. Enumerate any FIVE characteristics of the 8051 core microcontroller. [5 Marks]

b. Describe the cellular architecture. [5 Marks]

c. Communication devices can exhibit a number of characteristics. Briefly, explain THREE. [6 Marks]

d. What does the acronym EIR mean? [2 Marks]

QUESTION FIVE (20 MARKS)

a. Smartphones provide portable use of information technology.

Explain two areas of mobile phone uses in:

- i. Entertainment Uses [2 Marks]
 - ii. Organization Uses [2Marks]
- b. Describe the differences between cluster size 4 and 7 frequency reuse. [6 Marks]
- c. Briefly, explain two types of mobility. [4 Marks]
- d. i. What is the cause of mobile smart phone addiction? [2 Mark2]
- ii. Discuss any two predictive factors of d) i. above. [4 Marks]

