

1. Attempt any three questions from each section
2. Answers to the two sections must be written in same answer sheet.
3. Figures to the right indicate full marks.
4. Assume additional data if necessary but state the same clearly.
5. Symbols have their usual meanings and tables have their usual standard design unless stated otherwise.
6. Use of Simple calculators and statistical tables is allowed.

Section I

- Q1. A. Explain language preprocessing system in detail with diagram 6
B. Explain the phases of compiler. 6
- Q2. A. Explain regular expression with example 6
B. Differentiate between NFA & DFA 6
- Q3. A. Explain the role of Lexical analysis. 6
B. Explain sentinel and input buffering with diagram. 6
- Q4. A. Explain left recursion & left factoring with example 6
B. Explain the classification of CFG 6
- Q5. A. Differentiate between LL & LR Parser 6
B. Let a grammar be $S \rightarrow AA$
 $A \rightarrow aA \mid b$ construct LR(0) for the same. 6

Section II

- Q1. A. Explain S-attributed & L-attributed SDT in detail with example. 6
B. Write three address code for following code $a = b * - c + b * - c$. 7
- Q2. A. Explain implementation of symbol table 6
B. Explain basic blocks in compiler Design 7
- Q3. A. Explain activation tree in runtime environment 6
B. Explain different types of run time memory management techniques. 7
- Q4. A. Explain DAG with example 6
B. Explain different issues consider while designing code generation 7
- Q5. A. Explain error recovery in lexical phase of compiler design 6
B. Explain peephole optimization in detail. 7

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Section I

- Q.1** A Explain Linear Time Invariant Systems. **6**
B Define a rectangular window and derive the frequency response of the rectangular window. **6**
- Q.2** A Give advantages and disadvantages of FIR Filters. State and explain at least 3 characteristics of FIR Filters. **6**
B Explain in Brief Remez Exchange Algorithm in design of optimal FIR Filter. **6**
- Q.3** A Write short note on the chirp Z transform algorithm & write its advantages. **6**
B Explain Cascade form realization of FIR Filters. **6**
- Q.4** A Explain type of quantization in digital filter. Explain Each. **6**
B Explain the forward difference method for mapping of differentials. **6**
- Q.5** A Write Short note one on Bluesteins algorithm. **6**
B Write short note on decimation in frequency algorithm. **6**

Section II

- Q.1** A State & explain general form of a two dimensional difference equation for a realizable filter. **6**
B Describe two dimensional Z transform along with 2 dimensional Linear time invariant System. **7**
- Q.2** A Explain add shift multiplier. How this multiplier can be realized? **6**
B Discuss implementation of FIR filter using Booth Algorithm. **7**
- Q.3** A Write a note on MOS chip. **6**
B Discuss over all FDP structure. **7**
- Q.4** A Discuss real time convolution via FFT using Single RAM and one AE. **6**
B Give and explain structure of simplified general purpose computer. **7**
- Q.5** A Explain Homomorphic processing of speech. **6**
B Draw and explain block diagram of a modern radar system. **7**

M.SC. (COMPUTER SCIENCE) PART-I
Mobile Computing and Computer
Simulation and Modeling (P-III)

(JUNE - 2019)

(3 Hours)

(Total Marks : 75)

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Section I

- Q.1** A Explain cellular system with its advantages and disadvantages with small cells. **6**
B What is medium access control? Explain CDMA with proper example. **6**
- Q.2** A Explain functional architecture of a GSM system. **6**
B Differentiate between traditional TCP and mobile TCP. **6**
- Q.3** A Explain the protocol architecture of HYPERLAN. **6**
B Explain the terms : i) Routing ii) Localization **6**
- Q.4** A Explain different types of handover in GSM with proper diagram. **6**
B What do you mean by broadcast transmission? Explain cyclical repetition of data with example. **6**
- Q.5** A Explain the terms indirect TCP and snooping TCP. **6**
B Explain characteristics of different satellite orbit with their pros and cons. **6**

Section II

- Q.1** A Define simulation. State different advantages of simulation. **6**
B Explain autocorrelation test for random numbers. **7**
- Q.2** A What are discrete and continuous systems? Differentiate them using proper example. **6**
B Explain chi-square test for hypothesis testing. **7**
- Q.3** A State and explain different techniques used for generating random numbers. **6**
B Write a note on applications of Simulation. **7**
- Q.4** A Discuss the terms : i) Erlang Distribution ii) Gamma Distribution **6**
B Explain role of queuing model with its different characteristics. State some examples of queuing models used in real application. **7**
- Q.5** A Explain weibull distribution with its three parameters. **6**
B A mainframe computer crashes in accordance with a Poisson process, with a mean rate of one crash every 36 hours. Determine the probability that the next crash will occur between 24 and 48 hours after the last crash. **7**

(JUNE - 2019)

(3 Hours)

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Section I

- Q1. A Explain steps involved in building a data warehouse? 6
B Explain phases in KDD process. How does KDD differ from data mining. 6
- Q2. A Discuss the different types of fact with respect to measures stored in the fact table in a Data warehouse. 6
B Explain types of OLAP models. 6
- Q3. A Discuss the process of extraction, transformation and loading with a neat and labeled diagram. 6
B Explain distance based classification algorithm. 6
- Q4. A Explain Descriptive and Predictive data mining? 6
B Explain Time Series Analysis. 6
- Q5. A Explain the concept of Artificial Neural Networks in data mining. 6
B Explain issues in data mining. 6

Section II

- Q1. A Explain features of object oriented database with an example. 6
B Explain Distributed DBMS Architecture. 7
- Q2. A Explain Active Database with an example. 6
B Explain difference between structured, semi-structured and un-structured data in XML database. 7
- Q3. A What do you mean by data partitioning and what are the different types of partition techniques. 6
B Write a short on Spatial Database. 7
- Q4. A Write a short note on Temporal Database. 6
B What is GIS? Explain its application. 7
- Q5. A Give Advantages and disadvantages of Replication. 6
B Write a short note on Mobile Database. 7