

M.Sc (IT) [Part – I]

Computer Simulation & Modelling & Programming with Components

(May-2017)

Q.P. Code :09544

[Time: Three Hours]

[Marks:75]

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
 2. Answers to the two sections must be written in same answer book and should be submitted together.
 3. Write answers to same questions together.
 4. Mixing of sub-questions is not allowed.

SECTION - I

- Q.1 A) Explain Components of system. **06**
B) Write advantages and disadvantages of simulation. **07**

OR

- Q.1 A) Write short note on "Application of simulation". **06**
B) A computer terminal retail person is "beeped" each die, there is a call for service, the no. of base per hour is known to occur in accordance with a Poisson's distribution with a mean of $\lambda = 2$ per hour. **07**
i. Find the probability of 3 beeps in the next hour.
ii. Find the probability of 2 or more beeps in the next hour.

- Q.2 A) What are the different types of models? Give example for each. **06**
B) A production process manufactures electric bulbs on the average at 2% non-confirming. Every day, a random sample of size 50 is taken from the process. If the sample contains more than two non-confirming bulbs, the process will be stopped. Compute the probability that the process is stopped by the sampling scheme. **07**

OR

- A) A bus arrives every 20 mins. At specify stop beginning at 6:40 a.m. and continue until 8:40 a.m. A certain Passengers does not know the schedule but bus arrives randomly that is uniformly distributed between 7:00 a.m. and 7:30 a.m. every morning. What is the probability that the passenger wait more than 5 min. for a bus? **06**
B) What is meant by simulation? Explain different types of simulation. **07**

- Q.3 A) What are characteristics of queuing system? **06**
B) Consider the sequence of 40 numbers: **06**

0.52	0.99	0.46	0.58	0.64	0.25	0.88	0.11	0.20	0.18
0.97	0.44	0.43	0.94	0.82	0.60	0.73	0.69	0.21	0.03
0.04	0.81	0.85	0.3	0.47	0.96	0.17	0.72	0.62	0.27
0.10	0.60	0.34	0.65	0.79	0.44	0.02	0.37	0.48	0.50

Determine whether the hypothesis of independence can be rejected based on runs up and down where $\alpha = 0.05$.

OR

- A) Explain properties of Poisson process. **06**
B) The sequence of numbers 0.14, 0.05, 0.44, 0.81, 0.93 has been generated. Use the Kolmogorov Smirnov test with $\alpha = 0.05$ to perform a test of uniformity. **06**

SECTION - II

- Q.4 A) Explain the features of Object Oriented Programming Language. 06
B) What is COM technology? What are its Application? 07
OR
- Q.4 A) Write Short note on distributed object system. 06
B) What is Object Web? Explain with proper example. 07
- Q.5 A) Write a short note on (a) OMG (b) IDL. 06
B) How EJB is useful for business? Justify your answer with example. 06
OR
- Q.5 A) Write a short note on (a) Class emulation (b) Query Interface. 06
B) How Cross Apartments Communication is done? Explain. 06
- Q.6 A) How CORBA make easy your communication over network? Explain advantage of CORBA. 06
B) Explain the use of JNI in real word. 06
OR
- Q.6 A) Explain any five services of CORBA. 06
B) What do you mean by Dynamic Linking? Explain with proper example. 06
-

M.Sc (IT) [Part – I]
Mobile Computing
& Advanced Computer Networks
(May-2017)

QP Code : 75552

(3 Hours)

[Total Marks : 75

- N.B: (1) All questions are compulsory.
 (2) Answers to the two sections must be written in same answer book and should be submitted together
 (3) Write answers to same questions together
 (4) Mixing of sub-questions is not allowed.

SECTION - I

- Q.1 (A) State and explain the GSM architecture. 6
 (B) Write a short note on WLAN. 7
- OR**
- Q.1 (A) Differentiate Digital Audio and Digital Video Broadcasting. 6
 (B) What is Mobile IP? Explain the concept of Agent Advertisement. 7
- Q.2 (A) Write a short note on WML. Explain WML scripts. 6
 (B) Explain the concept of Handover in mobile devices. 7
- OR**
- Q.2 (A) Classical ALOHA v/s Slotted ALOHA. 6
 (B) Explain different types of antennas ? 7
- Q.3 (A) Differentiate Frequency division and Time division multiplexing. 6
 (B) Explain CSMA and CSMA/CD. 6
- OR**
- Q.3 (A) Explain the concept of localization and handover in satellites. 6
 (B) Write a short note on Mobile Devices Network Security. 6

SECTION – II

- Q.4 (A) Explain the HDLC frame format. 6
 (B) Briefly explain Virtual Private Network. 7
- OR**
- Q.4 (A) What are Bridges ? Explain different types of Bridges. 6
 (B) List the steps involve in Network Designing. 7
- Q.5 (A) Write note on ESCON (Enterprise System Connection) Architecture. 6
 (B) List the functions of the layers in OSI Model. 6
- OR**
- Q.5 (A) Compare Open and Closed group architectures. 6
 (B) Explain the layers of ATM protocol. 6
- Q.6 (A) Explain X.25 protocol in detail. 6
 (B) Explain the fields of User Datagram Protocol. 6
- OR**
- Q.6 (A) Explain SONET frame format. 6
 (B) Explain the business and technical challenges and requirements faced by the organizations. 6

~ * ~ * ~ * ~ * ~ *

M.Sc (IT) [Part – I]
Image Processing
& Speech Recognition
(May-2017)

Q.P. Code :09552

[Time: Three Hours]

[Marks:75]

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
 2. Answers to the two sections must be written in same answer book and should be submitted together
 3. Write answers to same questions together
 4. Mixing of sub-questions is not allowed.

SECTION - I

- Q.1 (A) With the help of a neat block diagram, explain the components of a general purpose image processing system. 06
 (B) What is a digital image? Explain the need for image processing. Differentiate between image enhancement and restoration. 07

OR

- (A) Explain any three Properties of 2D discrete Fourier Transform. 06
 (B) With the help of a neat figure, explain the main elements of the human eye. 07

- Q.2 (A) What is noise in an image? Explain Gaussian filter in detail. 06
 (B) A particular digital image with eight quantization levels has the following histogram. Perform histogram equalization and derive transformation function. Give new equalized histogram. 07

Gray level r	0	1	2	3	4	5	6
No. of pixels with gray level nr	130	170	200	100	50	90	100

OR

- (A) What do you mean by wavelet and multiresolution coding? What is main advantage of wavelet transform over other transform? 06
 (B) Define segmentation. Explain point and edge detection. 07

- Q.3 (A) Why there is need for image and video compression? 06
 (B) Write a short note on Hit-Or-Miss transform. 06

OR

- (A) What is segmentation? Explain Line detection technique. Write the applications of segmentation. 06
 (B) Define and explain the polygon approximation approach for image representation. 06

SECTION II

- Q.4 (A) List the characteristics of Speech Recognition applications. 06
 (B) Write a short note on Coin toss model. 07

OR

- (A) Write a short note on IIR and FIR filters. 06
 (B) Describe with diagram the representation of speech in time and frequency domains. 07

- Q.5 (A) Explain acoustic-phonetic vowel classifier. 06
 (B) Write a short note on directory listing retrieval. 06

OR

- (A) What are the problems associated with acoustic-phonetic approach to Speech Recognition. 06
- (B) Explain the working of human ear. 06

Q.6 (A) Explain the importance of speech end point detection. What are the various approaches adopted for speech end point detection? 06

- (B) Describe the types of Hidden-Markov Model (HMM). 06

OR

- (A) Explain bank-of-filters analysis model with block diagram. 06

- (B) Write a note on vector quantization. 06

M.Sc (IT) [Part – I]
Data Warehousing & Mining
& Advanced Database System
(May-2017)

Q.P. Code :09558

[Time:3 Hours]

[Marks:75]

Please check whether you have got the right question paper.

- N.B:**
1. All questions are **compulsory**.
 2. **Answers to the two sections must be written in same answer book and should be submitted together.**
 3. **Write answers to same questions together**
 4. **Mixing of sub-questions is not allowed.**

SECTION- I

- Q.1** (A) Write short note trends in data warehousing. **06**
(B) Explain issues in data mining. **07**
- OR**
- (A) Explain in detail JAD sessions. **06**
(B) Explain linear regression with an example. **07**
- Q.2** (A) Write short note on the DW architecture with respect to the following points: **06**
a. Definition
b. Need
c. Components.
(B) Explain the concept of Association Mining. **07**
- OR**
- (A) Write short note on:
a. Large Dimensions **06**
b. Family of Stars.
(B) Explain Spatial data structures: K-D Tree & R- Tree. **07**
- Q.3** (A) Write short notes on OLAP. **06**
(B) Explain the concept of Temporal Data Mining. **06**
- OR**
- (A) Explain Backup and recovery in DW environment and activities involved. **06**
(B) Write short note on Mining Class comparisons. **06**

SECTION- II

- Q.4** (A) Specialization & Generalization. **06**
(B) Explain Complex objects with respect to OODBMS. **07**
- OR**
- (A) Explain Relation Ship types of degree higher than two. **06**
(B) Explain object Persistence using Naming & Rechability. **07**
- Q.5** (A) Explain Implementation Issues for Extended Type Systems. **06**
(B) List and explain problems with concurrency control and recovery in Distributed databases. **06**

OR

[P.T.O]

Q.P. Code :09558

- (A) Explain Nested Collections with respect to ORBDMS. **06**
- (B) Explain Client-Server Architecture with respect to Distributed databases. **06**

- Q.6**
- (A) Explain semistructured data model and implementation issues for same. **06**
 - (B) Explain Mobile Databases. **06**

OR

- (A) Explain Indexing techniques for text data **06**
- (B) Write short note on Geographic Information System. **06**