M.SC.(I.T.) PART – I

Q.P. Code :09545

[Time: Three Hours]

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	1 A) When is simulation an appropriate tool?	06
	B) Explain discrete random variable with example <u>.</u>	07
	OR	
Q.1	${f 1}$ A) What are the various steps in simulation study?	06
	B) The probability of computer chip failure is 0.05. Everyday a random sample of size 14 is	07
	taken. what is the probability of	
	i. At most 3 will fail.	
	ii. at least 3 will fail	
0.2	2 A) Describe the event scheduling simulation.	06

Q.2 A) Describe the event scheduling simulation.
B) A bus arrives every 20 minutes at a specified stop beginning at 6:40 a.m. and continuing until 8:40 a.m. A certain passenger does not know the schedule, but bus arrives randomly between 7:00 a.m. and 7:30 a.m. every morning. What is the probability that the passenger waits more than 5 minutes for a bus?

OR

- A) Explain data collection for input modeling.
- B) A medical examination is given in 3 stages by a physician in each stage is exponentially distributed which mean service time 20 mins. Find the probability that the exam will take 50 mins. Or less. Also determine the expected length of the exam.

Q.3 A) What do you understand by model verification and validation?

B) Consider the sequence of 40 numbers:

0.09	0.42	0.23	0.68	0.89	0.72	0.12	0.45	0.08	0.32
0.53	0.13	0.65	0.97	0.14	0.49	0.55	0.46	0.77	0.28
0.81	0.63	0.40	0.57	0.02	0.16	0.33	0.86	0.99	0.22
0.76	0.48	0.61	0.39	0.43	0.78	0.20	0.35	0.17	0.93

Determine whether there are an excessive number of runs above or below the mean. Use α =0.5 and mean =0.495.

OR

A) Write short notes on following

(a) Inverse transform technique.

(b) Poisson process properties.

06

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06

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B) Consider the following given numbers of data and use chi-square test with α =0.05 to test the **06** hypothesis that the no. are uniformly distributed [0, 1].

Upper Limit	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Oi	10	9	5	6	16	13	10	7	10	14

SECTION – II

Q.4	A) Why there is need to distribute centralize object? Explain the advantage of distributed	06
	B) Why COM is better than C++? Justify your answer.	07
	OR	
Q.4	A) Write a short note on (a) DCOM (b) QueryInterface.	06
	B) Explain Multitier system architecture.	07
Q.5	A) "It is better if we separate interface and COM implementation", explain why?	06
	B) What is role of IDL? Why it is very important?	06
	OR	
Q.5	A) Explain the term with respect to Apartment-Life Cycle Management.	06
-	B) What is CORBA? What is the use of Stub and Skeleton? Explain.	06
Q.6	A) Explain any five CORBA services.	06
č	B) Write a short note on INI.	06
	OR	
Q.6	A) What do you mean by Object Web? Explain with example.	06
•	B) Write short note on EJB.	06

<u>An</u>	M d Ac	I.SC.(I.T.) PART – I <u>Mobile Computing</u> <u>Ivanced Computer Networks</u> (DEC - 2017)	Q.P. Code :09548				
		(<u>220 2011)</u>	Time: 2½ Hours] [Marks:75]			
N.F	3:	Please check whet 1. All questions are compulsor 2. Answer to the two sections 3. Write answer to same quest 4. Mixing of sub-questions is n	her you have got the right question paper. y. must be written in same book and should be submitted ions together ot allowed.	l together.			
Q.1	(A) (B)	Explain "Modulation and Demodu Differentiate between FDM and T	SECTION - I Ilation". Also explain AM and FM. DM. Also explain FTDM and its application. OR	06 07			
	(A) (B)	Discuss Hidden and exposed term Write a note on "Spread Spectrum	ninal problem. າ".	06 07			
Q.2	(A) (B)	Write a note on "TETRA". Also me Explain GSM architecture.	ention its applications.	06 07			
	(A) (B)	State and explain GPRS Architectu Define Broadcasting and explain I	are. DAB and DVB in brief.	06 07			
Q.3	(A) (B)	Explain "IEEE 802. 11" standard. Explain the concept of Agent adve	ertisement and solicitation.	06 06			
	(A) (B)	Write a short note on WAP. Write your view on "Mobile / Wir applications of both in real life.	eless technology v\s Wired Technology". State the	06 06			
Q.4	(A) (B)	Explain various Technology Accep Explain the layers of OSIRM used	SECTION - II otance Phases. in routers. OR	06 07			
	(A) (B)	Write note on Translation & Enca Write note on Distance Vector Pro	psulation bridges. otocol.	06 07			
Q.5	(A) (B)	Describe DWDM and briefly expla Explain in detail the access netwo	in performance and design consideration. ork design. OR	06 06			
	(A) (B)	Draw the B-ISDN protocol referent State the advantages and disadvar	nce model ntages of xDSL over legacy dial access.	06 06			
Q.6	(A) (B)	What is ATM? Explain in brief. Explain with example the differen	ice between access network and transport layer netwo	06 ork. 06			
	(A) (B)	Describe the control function of S Discuss the business and technica	NA Architecture. Il challenges and requirements faced by the organization	06 ons 06			

Image Processing And Speech Recognition

M.SC.(I.T.) PART – I

(DEC - 2017)

(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

- (A) With the help of a neat block diagram, explain the components of a Q.1 6 general purpose image processing system.
 - **(B)** With the help of a neat figure, explain the main elements of the human 7 eye.

OR

Explain the basic steps of filtering in the frequency domain. Q.1 (A)

- 7 (B) Consider the two image subsets, S1 and S2, shown in the following figure. For $V = \{1\}$, determine whether these two subsets are
 - (a) 4-adjacent, (b) 8-adjacent, or (c) m-adjacent.

-

		3	1						
0	0	0	0	0	0	0	1	1	0
1	0	0	1	0	0	1	0	0	1
1	0	0	1	0	1	1	0	0	0
0	0	1	1	1	0	0	0	0	0
0	0	1	1	1	0	0	1	1	1

Q.2

(A)

(B)

Explain the Illumination & reflectance model of the image.

6 7

7

6

A particular digital image with eight quantization levels has the following histogram . Perform histogram equalization and derive transformation function. Give new equalized histogram.

Gray level r	0	1	2	3	4	5	6
No. of pixels with gray level nr	200	170	130	60	60	80	140
OR							

0.2 (A) Explain image negative. Obtain the digital negative image of the 3 Bit 6 image

	7	2	1	4
	7	0	7	0
	5	4	6	2
·	4	4	3	1

Define segmentation. Explain point and edge detection. **(B)**

Q.3	(A)	Explain High Boost Filtering.	6
	(B)	Explain Discrete Cosine Transform.	6
		OR	
0.3	(A)	Discuss the effects of opening and closing on the grav level image.	6
L	(B)	Write short note on region descriptors.	6
		SECTION - II	
Q.4	(A)	Describe voice repertory dialer and automated call type recognition application of speech recognition.	6
	(B)	Explain the importance of speech endpoint detection. List the reasons for the errors in end point detection.	7
		OR	
Q.4	(A)	Explain the interdisciplinary nature of Speech recognition science.	6
	(B)	Describe the process of speech production in human being	7
Q.5	(A)	Draw and explain the block diagram of acoustic phonetic speech	6
		recognition system.	~
	(B)	Explain the applications of speech recognition.	6
0.5	(A)	Draw the diagram of complete bank of filter analysis model. Describe	6
2.0	()	the effect of each block on speech signal.	U
	(B)	Write a short note on vector quantization.	6
Q.6	(A)	Explain the general notation for the connected word -recognition	6
7		problem.	
	(B)	Explain the following speech classes: Vowels, Nasal consonants,	6
		OR OR	
Q.6	(A)	Explain the differences in narrowband and wideband spectrogram of	6
		speech signal.	
	(B)	Describe the k-means clustering algorithm.	6

2

M.SC.(I.T.) PART - I
Data Warehousing & Mining
And Advanced Database System

(<u>DEC - 2017)</u>

Q.P. Code :09560

[Time : 3 Hours]

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 the difference between data warehouse and data mart.	06 07
		07
	(A) Explain the concept of information package with example.	06
	(B) Write short note on:	07
	a. Dimensional Modeling	
	b. OLAP.	
Q.2	(A) Write a note on data storage specifications with respect to business requirements.	06
	(B) Explain Classification using K Nearest Neighbor Algorithm. OR	07
	(A) Explain characteristics of Fact table and dimension table.	06
	(B) Explain Back Propagation with respect to neural networks:	07
Q.3	(A) Distinguish between ROLAP & MOLAP.	06
	 (B) Give an account of hierarchical clustering algorithms. OR 	06
	(A) Write a short note on Pilot project.	06
	(B) Explain the concept of Association Mining.	06
	SECTION- II	
Q.4	(A) Explain Subclass, Super class & Inheritance with respect to EER Model.	06
	(B) Explain object id, object structure with respect to OODBMS.	07
	OR	
	(A) Explain Aggregation with respect to Extended ER Model.	06
	(B) Explain Type hierarchy and inheritance with respect to OODBMS.	07
Q.5	(A) Explain Nested Collections with respect to ORBDMS.	06
	(B) Explain Architectures for parallel databases.	06
	OR	06
	(A) Explain with respect to ORBDMS:	00
	a. Method Caching	
	D. Pointer Swizzling	
		[P.1.0]

Q.P. Code :09560

	(B) Explain Data Fragmentation & Fragmentation Schema.	06
Q.6	(A) What is XML? How is it different from HTML?(B) Explain Temporal Databases.	06 06
	OR	
	(A) Explain the structure of XML data.	06
	(B) Write short note on Deductive databases.	06