Code No: MB1914/R19

MBA I Semester Regular/Supplementary Examinations, February-2024

QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS

Time: 3 Hours **Max. Marks: 75**

Answer Any* FIVE *Questions one from each unit
Question No. 11 is Compulsory

UNIT-I

1. a) Explain about different types of functions. 6M
   b) In how many ways can a cricket team of 11 players selected from 16 players. How many of these will (i) include one particular player (ii) exclude one particular player. 6M

(OR)

2. a) Show that AB ≠ BA where A = $\begin{bmatrix} 3 & 2 \\ 7 & 5 \end{bmatrix}$ and B = $\begin{bmatrix} 6 & 7 \\ 8 & -5 \end{bmatrix}$ 6M

   b) Find the determinant of the matrix 6M

$$A = \begin{bmatrix} 2 & 3 & 4 \\ 3 & 4 & 1 \\ 4 & 5 & 2 \end{bmatrix}$$

UNIT-II

3. a) Distinguish between standard deviation and mean deviation. 6M
   b) Write short notes on Correlation. 6M

(OR)

4. a) Describe the Bayes' theorem of probability. 6M
   b) Six coins tossed simultaneously. Find the probability of obtaining (i) exactly 3 heads (ii) at most three heads and (iii) at least 3 heads. 6M

UNIT-III

5. a) Explain various steps involved in decision making. 6M
   b) Indicate the difference between decision making under risk and uncertainty in statistical decision theory. 6M

(OR)

6. a) Explain the types of decision making. 6M
   b) What is decision tree analysis? Explain its relevance in business decisions. 6M

UNIT-IV

7. a) Write a note on sampling and its uses. 6M
   b) A soap manufacturing company was distributing a particular brand of soap through a large number of retail shops. Before a heavy advertisement campaign, the mean sale per shop was 140 dozens. After the campaign a sample of 26 shops was taken and the mean sales figure was found to be 147 dozens with standard deviation 16. Can you consider the advertisement effective at 1% level significance? 6M

(OR)

8. a) What do you mean by Point and Interval Estimation? Explain with illustrations. 6M
   b) Explain the procedure of testing Hypothesis. 6M

UNIT-V

9. a) Explain the assumptions of large sample theory. Distinguish between large sample and small sample tests of significance. 6M
   b) The mean height of 50 male students who showed above average participation in college athletics was 68.2 inches with a standard deviation of 2.5 inches while 50 male students who showed no interest in such participation had a mean height of 67.5 inches with a standard deviation of 2.8 inches. Test the hypothesis that male students who participated in college athletics are taller than other male students. 6M

(OR)

10. a) Describe the procedure of conducting ANOVA test. 6M
    b) Data on sample of 200 person's habit of drugs addiction and survival after ten years are given below. Test whether the survival and addiction are independent. 6M

Survival	Drugs	
	Addicted	Not addicted
Dead	117	13
Alive	3	67

11. **CASE STUDY** 15M

The following data was compiled by a researcher studying the role stress and its implications on personal life in respect of suicide by executives. The data relates to 30 firms over the three year period.

No. of Suicides	0	1	2	3	4	5	6	7	8	9
Observed frequency	8	18	19	20	16	12	8	4	3	2

Fit a Poisson distribution and test its goodness of fit.

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Code No: QAH06/R20

M. Tech. I Semester Regular/Supplementary Examinations, February-2024

CLOUD COMPUTING

Common to AI&DS (AH), AI&ML (AI) and AI (AF)

Time: 3 Hours **Max. Marks: 75**

Answer any FIVE Questions One Question From Each Unit
All Questions Carry Equal Marks

UNIT-I

1.	a	Define network-centric computing. How does it differ from traditional computing paradigms?	[8M]
	b	Define concurrency in distributed systems. How do concurrent processes and threads execute and communicate in a distributed environment?	[7M]

OR

2.	a	Define peer-to-peer (P2P) systems. How do P2P systems facilitate decentralized resource sharing and communication?	[8M]
	b	Explain how transitions, places, and tokens are used in Petri Nets to model concurrent behavior.	[7M]

UNIT-II

3.	a	What are the key services and features offered by AWS?	[8M]
	b	Explore Google's perspective on cloud infrastructure.	[7M]

OR

4.	a	How has AWS influenced the landscape of cloud computing?	[8M]
	b	Explore different architectural styles in cloud computing.	[7M]

UNIT-III

5.	a	Explain the concept of layering in virtualization. How are different layers involved in the virtualization stack?	[7M]
	b	Describe cloud scheduling subject to deadlines. How do scheduling algorithms prioritize tasks based on their completion deadlines?	[8M]

OR

6.	a	Discuss the role of Virtual Machine Monitors (VMMs) in virtualization.	[8M]
	b	Compare and contrast full virtualization and para-virtualization. What are the key differences in their approaches to virtualization?	[7M]

UNIT-IV

7.	a	Discuss about different storage models and list the advantages and use cases for each model.	[7M]
	b	Explain the relationship between file systems and databases.	[8M]

OR

8.	a	Discuss the concept of general parallel file systems.	[5M]
	b	Explain the role of Apache Hadoop in distributed storage and processing. How does Hadoop's distributed file system (HDFS) contribute to handling big data?	[10M]

UNIT-V

9.		Provide instructions for installing Simple Notification Service (SNS) on an Ubuntu 10.04 system.	[15M]

OR

10.	a	Explore the usage of Amazon S3 in Java applications in detail.	[7M]
	b	Discuss the process of connecting clients to EC2 instances.	[8M]

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Code No: M5706/R19

M. Tech. I Semester Regular/Supplementary Examinations, February-2024

DEVICE MODELLING

Common to VLSI (57), VLSID (72), VLSISD (61) and VLSI Micro Electronics (76)

Time: 3 Hours **Max. Marks: 75**

Answer any FIVE Questions One Question From Each Unit
All Questions Carry Equal Marks

UNIT-I

1. a What is the threshold voltage of a MOS device? What are the factors affecting the threshold voltage of a MOSFET? 7M
   b What are the properties of ideal MOS? What is the surface potential of an ideal MOS device? Discuss. 8M

OR

2. a Why is NMOS technology more preferred than PMOS technology? Discuss. 7M
   b An n-MOS transistor has a nominal threshold voltage of 0.16 V. Determine the shift in the threshold voltage caused by body effect using the following data. The n-MOS is operating at a temperature of 300°K with the following parameters. Gate oxide thickness (t_{ox}) = 0.2 x10^{-5} cm, relative permittivity of oxide (ε_{ox}) = 3.9, relative permittivity of silicon (ε_{si})= 11.7, substrate bias voltage = 2.5 V, Intrinsic electron concentration (Ni) = 1.5 x10^{10} / cm^3 , impurity concentration in substrate (NA) = 3 x10^{16} / cm^3 . Given Boltzmann's constant = 1.38 x 10^{-23} J/°K, electron charge = 1.6 x 10^{-19} Coulomb and permittivity of free space = 8.85 x 10^{-14} F/cm. 8M

UNIT-II

3. a Explain in details all the three regions of the C-V characteristic of MOS capacitor. 8M
   b The C–V measurements can be used as a diagnostic tool in semiconductor device process control. Justify. 7M

OR

4. a With neat sketch, explain Energy-band diagram of IDEAL MOS Capacitor. 7M
   b Elaborate the effect of junction capacitances in MOSFET. 8M

UNIT-III

5. a How MOS device characteristics estimated using SPICE? 8M
   b Compare and contrast SPICE level 1, 2, 3 and 4. 7M

OR

6. a Discuss about the working principles of four terminal MOSFET. 7M
   b Write the applications of four terminal MOSFET. 8M

UNIT-IV

7. a What is the effect of short channel on threshold voltage? Explain. 8M
   b Write short notes on Drain Induced Barrier Lowering. 7M

OR

8. a Discuss electrical characteristics of Buried Channel MOSFET. 7M
   b What is small signal analysis in MOSFET? Why do we need small signal model of MOSFET? 8M

UNIT-V

9. What is a SOI MOSFET? What is SOI used for? What are the characteristics of SOI MOSFET? 15M

OR

10. a Write short note on hot-carrier effect of channels. 7M
    b Discuss the electrical characterization of high-k gate dielectrics. 8M

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Code No: M5708/R19

M. Tech. I Semester Regular/Supplementary Examinations, February-2024

PHOTONICS

Common to VLSI (57), VLSID (72), VLSISD (61) and VLSI Micro Electronics (76)

Time: 3 Hours **Max. Marks: 75**

Answer any FIVE Questions One Question From Each Unit
All Questions Carry Equal Marks

UNIT-I

1.	a	Explain the Excitation mechanism and working of CO2 Laser with neat diagram.	8M
	b	Discuss in detail about the Semiconductor optical amplifiers.	7M

OR

2.	a	Write a detailed note on Optical Parametric Oscillator (OPO) lasers.	8M
	b	Explain the Applications of Lasers in Isotope separation in detail.	7M

UNIT-II

3.	a	Discuss active and passive mode locking techniques in detail.	8M
	b	Write a Note on Laser frequency stabilization.	7M

OR

4.	a	Briefly explain about Q-Switching. List out the Q-switching Methods.	8M
	b	Explain the terms Beam divergence and Beam coherence in Lasers.	7M

UNIT-III

5.	a	Explain the construction and operation of P-N junction diode with neat diagrams.	8M
	b	What are the different types of materials used for LED formation? Explain.	7M

OR

6.	a	Write a short note on Hetero-junction and Double hetero-junction of a P-N junction diode.	8M
	b	What is meant by Internal quantum efficiency in P-N junction diode? Explain.	7M

UNIT-IV

7.	a	Explain about the spectral and spatial characteristics of Laser diodes.	8M
	b	What are the different types of LED structures? Compare them.	7M

OR

8.	a	Discuss in detail about the Amplification process in LASER diode with neat circuit diagram.	8M
	b	Explain the construction and operation of Photodiode with neat diagrams.	7M

UNIT-V

9.	a	Explain the concept of Electro-optic Phase modulation along with circuit diagram.	8M
	b	Explain about the Magneto-optic effect of a Light with neat diagram.	7M

OR

10.		Explain the following in detail. a) Faraday rotator as an optical isolator b) Pockels and Kerr effects	15M

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Code No: M5806/R19

M. Tech. I Semester Regular/Supplementary Examinations, February-2024

ADVANCED COMPUTER NETWORKS

Computer Science & Engineering (58)

Time: 3 Hours **Max. Marks: 75**

Answer any FIVE Questions One Question From Each Unit
All Questions Carry Equal Marks

UNIT-I

1.	a	Discuss about concept of leaky bucket algorithm.	7M
	b	Discuss about Hierarchical routing.	8M
		OR	
2.	a	Explain the comparison of virtual –circuit and datagram subnets.	7M
	b	State the major difference between distance vector routing and link state routing.	8M

UNIT-II

3.	a	Explain in detail about message format and different types of error reporting messages of ICMP.	8M
	b	Explain in detail about classfull addressing.	7M
		OR	
4.	a	Write short notes on IPV6 addresses.	7M
	b	Explain in detail about significance of tunneling.	8M

UNIT-III

5.	a	Explain the concept of TCP congestion control.	8M
	b	Will you state or interpret in your own words about flow control in TCP and UDP with an example.	7M
		OR	
6.	a	Draw and explain SCTP packet structure.	7M
	b	Explain in detail about the three way handshake protocol for connection establishment in TCP.	8M

UNIT-IV

7.	a	Explain in detail about Advantages and disadvantages of Wireless Networks.	8M
	b	Discuss about IEEE 802.11 Physical Layer.	7M
		OR	
8.	a	Discuss in Detail about Cellular Technologies and Development.	7M
	b	Explain WIMAX frame structure and various MAC fields.	8M

UNIT-V

9.	a	Explain the mobile computing applications in the real world scenario.	8M
	b	Compare MANET and WSN.	7M
		OR	
10.	a	State the important characteristics of WSN. List any four applications of WSN.	7M
	b	Discuss the Challenges and Issues in MANETS.	8M

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Code No: M5808/R19

M. Tech. I Semester Regular/Supplementary Examinations, February-2024

OBJECT ORIENTED SOFTWARE ENGINEERING

Computer Science & Engineering (58)

Time: 3 Hours **Max. Marks: 75**

Answer any FIVE Questions One Question From Each Unit
All Questions Carry Equal Marks

UNIT-I

1. a Explain the maturity levels for the software engineering practices followed by an organisation. [8M]
   b Discuss the advantages and disadvantages of the waterfall model. [7M]

OR

2. a Illustrate the Spiral model with a neat sketch. [8M]
   b Compare the features of the Conventional process model with RAD model. [7M]

UNIT-II

3. a Is the object-oriented approach useful for software design? Justify your answer. [8M]
   b List and explain the step-by-step procedure for domain analysis. [7M]

OR

4. a Classify various types of inheritances based on the subclass and superclass connectivity. [8M]
   b Explain the steps to identify the elements of the object model with a real-world application. [7M]

UNIT-III

5. a List and explain the generic components of the object-oriented model. [8M]
   b Discuss the advantages of design patterns in modelling software. [7M]

OR

6. a Is it possible to generate the Object-oriented program from object-oriented design? Justify your answer. [8M]
   b Explain any four major features of object-oriented languages. [7M]

UNIT-IV

7. a Is it possible to analyse the correctness of OOA and OOD models? Justify your answer. [8M]
   b Illustrate the CRC model with a case study. [7M]

OR

8. a Explain the unit testing in the context of Object-oriented software. [8M]
   b Explain the methodology of integration testing in the context of an object-oriented approach. [7M]

UNIT-V

9. a Write short note on metrics for object oriented testing. [8M]
   b What is the significance of metrics for object oriented system? Briefly explain. [7M]

OR

10. List and explain various features of CASE tools. [15M]

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