

Total No. of Questions : 4]

SEAT No. :

P-5350

[Total No. of Pages : 1

[6188]-298

B.E. (AI & DS) (Insem.)

UI / UX DESIGN

(2019 Pattern) (Semester - VII) (Elective - IV) (417524 C)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Attempt Q1 or Q2, Q3 or Q4.
- 2) Figures to the right indicate full marks.
- 3) Neat diagram must be drawn wherever necessary.
- 4) Assume suitable data if necessary.

Q1) a) Define user interface design. Explain the importance of a good design. [5]

b) Write a short note on - Human Memory Structure with diagram. [5]

c) Explain UI elements. [5]

OR

Q2) a) Explain in brief UI design process. [5]

b) Explain visual communication design components in interface design. [5]

c) How to create a mobile app interface design. [5]

Q3) a) Differentiate GUI and Web Interface. [5]

b) Explain 6 stages used in UX design. [5]

c) Explain Different Visual Design Principles. [5]

OR

Q4) a) Differentiate Between UI and UX with example. [5]

b) Write a short note on - Universal Usability. [5]

c) Describe the concept of interaction design. [5]



Total No. of Questions : 4]

SEAT No. :

P-5323

[Total No. of Pages : 1

[6188]-292

**B.E. (Artificial Intelligence and Data Science) (Insem.)**  
**QUANTUM ARTIFICIAL INTELLIGENCE**  
**(2019 Pattern) (Semester - VII) (Elective - III) (417523(A))**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Solve questions Q.1 or Q.2, Q.3 or Q.4.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data if necessary.*

- Q1)** a) Describe measurement in bases other than the computational basis. Explain each. [5]  
b) Define Quantum Circuits. [5]  
c) Demonstrate quantum teleportation with suitable example. [5]

OR

- Q2)** a) Describe Qubit copying circuit. [5]  
b) Explain the Products and Tensor Products. [5]  
c) Define Multiple Qubit Gates with example. [5]

- Q3)** a) Describe Time-Evolution of a Closed System. [5]  
b) Describe role of measurement in quantum architecture. [5]  
c) Explain Quantum Phase Estimation. [5]

OR

- Q4)** a) Describe applications of quantum Fourier transform. [5]  
b) Explain universal sets of quantum gates. [5]  
c) Describe the state of a Quantum System. [5]



Total No. of Questions : 4]

SEAT No. :

**P5328**

**[6188]-297**

[Total No. of Pages : 1

**B.E. (AI & DS) (Insem)  
INFORMATION RETRIEVAL  
(2019 Pattern) (Semester - VII) (Elective - IV) (417524 B)**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4.*
- 2) *Figures to the right indicate full marks.*
- 3) *Assume suitable data, if necessary.*

**Q1)** a) Write short note on Vector Model & Probabilistic Model. [6]

b) Enlist features of IR system. [5]

c) Explain methods of text categorization. [4]

OR

**Q2)** a) What are the Components of IR model? [6]

b) Differentiate between Data retrieval & Information retrieval. [5]

c) What is Boolean Retrieval? [4]

**Q3)** a) Write Short Note on following. [6]

i) Dynamic Indexing.

ii) Impact Ordering.

b) Explain the static inverted index. [5]

c) What are the components of index? [4]

OR

**Q4)** a) Discuss different types of dictionaries in information retrieval. [6]

b) Explain Index Construction in detail. [5]

c) Explain Query Processing for Ranked Retrieval. [4]



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SEAT No. :

P-5324

[Total No. of Pages : 2

[6188]-293

**B.E. (Artificial Intelligence and Data Science) (Insem.)  
INDUSTRIAL INTERNET OF THINGS (Elective - III)  
(2019 Pattern) (Semester - VII) (417523(B))**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Solve questions Q.1 or Q.2, Q.3 or Q.4.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data if necessary.*

- Q1)** a) Compare and contrast in between IOT and IIOT. [5]  
b) Discuss various opportunities and challenges in implementation of IIOT. [5]  
c) State and explain the role of IIOT in manufacturing processes with suitable and neat sketch. [5]

OR

- Q2)** a) Elaborate various requirements and design considerations of IIOT. [5]  
b) Comment on industrial revolutions and significance of IIOT with suitable example. [5]  
c) List any 5 advantages and applications of IIOT. [5]

- Q3)** a) Explain IIOT Sensor Network with neat and suitable diagram. [5]  
b) State and explain in brief the role of sensors and actuators used in industrial processes. [5]  
c) Compare nWave and Ingenuie RPMA on the basis of the following parameters : [5]  
i) Frequency Band ii) Range  
iii) Topology iv) Uplink Data Rate  
v) Downlink Data Rate

**P.T.O.**

OR

- Q4)** a) Differentiate between Sensors and Actuators. [Any 5 valid points] [5]
- b) Explain data acquisition and process automation in IIOT with suitable sketch. [5]
- c) List any 5 features of Wi-Fi Backscatter. [5]



Total No. of Questions : 4]

SEAT No. :

P-5321

[Total No. of Pages : 1

[6188]-290

B.E. (A. I. D. S.) (Insem.)

MACHINE LEARNING

(2019 Pattern) (Semester - VII) (417521)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates :

- 1) Answers Q.1 or Q.2, Q.3 or Q.4.
- 2) Make suitable diagram wherever necessary.
- 3) Figure to the right indicate full marks.
- 4) Assume suitable data if necessary.

- Q1)** a) Compare Machine Learning with Traditional programming. [5]  
b) What is Dimensionality Reduction, Explain any one Dimensionality Reduction technique. [6]  
c) Write a note on Reinforcement Learning. [4]

OR

- Q2)** a) Explain parametric & nonparametric models in machine learning. [5]  
b) Differentiate supervised and unsupervised learning techniques. [5]  
c) Elaborate grouping and grading models. [5]

- Q3)** a) Elaborate random forest regression. [5]  
b) Differentiate multivariate regression and univariate regression. [4]  
c) Define Regression. Explain types of regression. [6]

OR

- Q4)** a) What is underfitting and overfitting in machine Learning explain the techniques to reduce overfitting? [5]  
b) Explain any two Evaluation Metrics for regression. [5]  
c) Explain Elastic Net regression in Machine Learning. [5]

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