

SPPU In-Sem Offline Examination April 2022

Class: BE

Branch: Computer Engineering

Semester: II

Subject: Machine Learning (Code: 410250)

Maximum Marks: 30

Duration: 60 Minutes

Date: 04-04-2022

Special Instructions:

- 1 Attempt questions Q.1 or Q.2, Q.3 OR Q.4, Q. 5 OR Q. 6
2. Neat diagrams may be drawn wherever necessary
3. Assume suitable data if necessary

Q.No.	Question / Description	Marks	CO														
1.a	Compare overfitting and underfitting.	6	1														
1.b	Describe multiclass classification strategies	4	1														
	OR																
2.a	Compare Supervised and Unsupervised learning	6	1														
2.b	Describe deep learning with applications and drawbacks	4	1														
3.a	Illustrate the steps of a Principle Component Analysis algorithm.	6	2														
3.b	Explain Min-Max scaling and standardized scaling techniques	4	2														
	OR																
4.a	Illustrate different methods of handling missing features	6	2														
4.b	Discuss advantages and disadvantages of dimensionality reduction?	4	2														
5.a	Determine linear regression equation for given data <table><tr><td>x</td><td>Y</td></tr><tr><td>34</td><td>5</td></tr><tr><td>108</td><td>17</td></tr><tr><td>64</td><td>11</td></tr><tr><td>88</td><td>8</td></tr><tr><td>99</td><td>14</td></tr><tr><td>51</td><td>5</td></tr></table>	x	Y	34	5	108	17	64	11	88	8	99	14	51	5	6	3
x	Y																
34	5																
108	17																
64	11																
88	8																
99	14																
51	5																
5.b	Explain Lasso regression	4	3														
	OR																
6.a	Discuss three performance measures used for classification	6	3														
6.b	Explain Ridge regression	4	3														

SPPU In-Sem Off Line Examination - April 2022

Class: BE

Branch: Computer Engineering

Semester: II

Subject: Elective III - Compilers

(Code: 410252B)

Maximum Marks: 30

Duration: 60 Minutes

Date: 07-04-2022

Instructions for the candidates:

- 1 Attempt questions Q.1 or Q.2, Q.3 OR Q.4, Q. 5 OR Q. 6
2. Neat diagrams may be drawn wherever necessary
3. Assume suitable data if necessary

Q.No.	Question / Description	Marks	CO
1.a	What is the output of each Phase of a Compiler for the following source language statement $d = a - b / 40 ;$ Assume a, b and d are float type of variables	5	1
1.b	List and briefly describe various compiler construction tools	5	1
OR			
2.a	Draw a neat diagram showing various phases of a compiler. What is the difference between a Phase and a pass?	6	1
2.b	Write Regular definitions for the following i) Identifier ii) Floating point number	4	1
OR			
3.a	Compute FIRST and FOLLOW sets for grammar symbols in following context free grammar $S \rightarrow AaAb \mid BbBa$ $A \rightarrow \epsilon$ $B \rightarrow \epsilon$	6	2
3.b	Explain the error recovery mechanism in predictive parsing such as LL(k) parsers	4	2
OR			
4.a	Construct predictive parsing table for the given grammar $E \rightarrow E+T \mid T$ $T \rightarrow T * F \mid F$ $F \rightarrow (E) \mid id$	6	2

4.b	Construct LR(o) item sets for the following grammar $S \rightarrow L = R$ $S \rightarrow R$ $L \rightarrow *R$ $L \rightarrow id$ $R \rightarrow L$	4	2
5.a	Generate 3 address code in Quadruples, Triples and indirect triple forms for following and compare $A[i] = a * - b + a * - b$	6	3
5.b	Explain S-attributed and L-attributed grammars with suitable example grammars	4	3
OR			
6.a	Write a Syntax Directed Definition (SDD) to construct a syntax tree for the arithmetic expression using +, * operators and bracketed expressions. Operands may be an identifier or a number	6	3
6.b	Show the syntax tree that will be generated by the above SDD you have designed in question 6 a above for the following statement $P - 7 * q$	4	3

SPPU In-Sem Off Line Examination on- April 2022

Class: BE

Branch : Computer Engineering

Semester: II

Subject: Embedded and Real Time Operating System (Elective-III) (Code: 410252C)

Maximum Marks: 30

Duration: 60 Minutes

Date: 07-04-2022

Instructions for candidates:

- 1 Attempt questions Q.1 or Q.2, Q.3 OR Q.4, Q. 5 OR Q. 6
2. Neat diagrams may be drawn wherever necessary
3. Assume suitable data if necessary

Q.No.	Question / Description	Marks	CO
1.a	What is embedded system? What are different challenges of embedded system?	5	1
1.b	With neat diagram, explain embedded hardware units and devices in a system.	5	1
OR			
2.a	List and explain software tools used for designing of an embedded system.	5	1
2.b	Explain Watchdog timer, ADC, DAC	5	1
3.a	What the main characteristics of CAN bus standard? Draw and explain the CAN data frame format.	5	2
3.b	Explain in detail ARM processor architecture with core architectural block diagram	5	2
OR			
4.a	Explain register set of ARM Processor.	5	2
4.b	What are performance metrics for a processor?	5	2
5.a	Draw and explain parallel port and its interfacing with stepper motor	5	3
5.b	Explain SPI,SCI and SI ports.	5	3
OR			
6.a	What is HDLC ?Explain different frame types and data transfer modes of HDLC	5	3
6.b	Differentiate between RS-232C and RS-485	5	3

SPPU In-Sem Offline Examination-April 2022

Class: BE Branch: Computer Engineering Semester: II

Subject: Elective IV- Human Computer Interface (Code: 410253(B))

Maximum Marks: 30

Duration: 60 Minutes

Date: 08/04/2022

Special Instructions:

1. Solve Q1 or Q2, Q3 or Q4, Q5 or Q6.
2. Neat diagram must be drawn whenever necessary.
3. Assume suitable data, if necessary.

Q. No.	Question / Description	Marks	CO
1 a.	Explain the entity Human based on following factors: a) Memory b) Attention c) Span d) Visual Perception e) Ergonomics	5	1
1 b.	List down real-time application of HCI.	5	1

OR

2 a.	Explain the entity Computer based on following factors: a) Speed b) Interfaces c) Widgets d) Effect on Interaction	5	1
2 b.	Describe the goals of Evaluation? Discuss about DECIDE evaluation Framework.	5	1

3 a.	Explain the GOMS model and stepwise use of GOMS in HCI?	5	2
3 b.	List the Shneiderman's eight golden rules of interface design	5	2
OR			
4 a.	Discuss in details all principles to support usability	5	2
4 b.	Describe Norman's seven principles for transforming difficult task to simple ones	5	2

5 a.	Define the term prototype? Explain different approaches to prototyping .Describe with suitable Figures	5	3
5 b.	Discuss a graphical interpretation of Seeheim model of the logical components of a UIMS	5	3

OR

6 a.	Describe the roles of a windowing system with suitable figure and explain	5	3
6 b.	Discuss with figure the multi-agent architecture Presentation – abstraction-control PAC Model	5	3

SPPU In-Sem Offline Examination-April 2022

Class: BE Branch: Comp Engg Semester: II

Subject: Cloud Computing (Code: 410253(C))

Maximum Marks: 30

Duration: 60 Minutes

Date: 08/04/2022

Special Instructions:

1) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.**2) Figures to the right indicate full marks.****3) Assume suitable data, whenever necessary.**

Q. No.	Question / Description	Marks	CO
Q1	a) Describe cloud computing and identify its core features. What are the major advantages of cloud computing?	5	CO1
	b) Explain multitenant nature of SaaS solution.	5	CO1
OR			
Q2	a) Explain involvement of cloud computing in an organization. Explain its types.	5	CO1
	b) Write note on identity management as a service (IDaaS).	5	CO1
Q3	a) Write a note on cloud file system with architectures.	5	CO2
	b) Illustrate Bigtable architecture with suitable diagram.	5	CO2
OR			
Q4	a) Illustrate Hbase Data Model.	5	CO2
	b) What are the security challenges in cloud computing?	5	CO2
Q5	a) Illustrate Structure, Tools and Mechanisms of Virtualization.	5	CO3
	b) Explain in brief Virtual Clusters and Resource Management.	5	CO3

OR			
Q6	a) Discuss types of hypervisors with diagram.	5	CO3
	b) Illustrate Implementation levels of virtualization.	5	CO3

SPPU In-Sem Offline Examination-April 2022

Class: BE Branch Computer Semester II

Subject: Information and Cyber Security (2015 Pattern)

Code: 410251

Maximum Marks: 30

Duration: 60 Minutes

Date: 5/4/2022

Special Instructions:

1. Solve Q1 or Q2, Q3 or Q4, Q5 or Q6
2. Draw neat diagram wherever necessary
3. Assume suitable data if required.

Q. No.	Question / Description	Marks	CO
Q1			
a	Explain Active and Passive attacks	5	1
b	Illustrate various crypto analysis techniques	5	1
	OR		
Q2			
a	Explain the model of network security	5	1
b	Explain different attack prevention techniques	5	1
Q3			
a	Solve using play Fair cipher to encrypt text "JAZZ" key "Monarchy"	5	2
b	Illustrate the DES algorithm in detail	5	2
	OR		
Q4			
a	Illustrate the AES algorithm in detail	5	2
b	Solve using hill cipher encrypt Plain Text "COE" use key "ANOTHERBZ"	5	2
Q5			
a	Explain Public Key cryptography	5	3
b	Illustrate man in the middle attack? Explain with example the Diffie-Hellman Key exchange algorithm.	5	3
	OR		
Q6			
a	Explain in detail MD5	5	3
b	Describe digital signature in detail	5	3

SPPU In-Sem Offline Examination-April 2022

Class: _B. E. Branch Computer Engg. Semester: VIII

Subject :Artificial Intelligence for Big Data Analytics(Code: 410503)

Maximum Marks: 30

Duration: 60 Minutes

Date :11 April 2022

Special Instructions:

Solve Q1 or Q2, Q3 or Q4 , Q5 or Q6.

Q.No.	Question / Description	Mks	CO
1	a) What is Artificial Intelligence? Write any four application areas where AI is used.	5	CO1
	b) Explain Local Search Technique taking help of travelling salesman problem.	5	CO1
	OR		
2	a) Define the term: Heuristic search techniques .List any four properties of search algorithms.	5	CO1
	b) What are different programming paradigms? Explain the support available in Python for implementing logical programming.	5	CO1
3	a) Explain the term 'Big Data'. Explain any four characteristics of the same.	5	CO2
	b) What is machine learning? Explain types of machine learning algorithms with examples.	5	CO2
	OR		
4	a) Explain the term 'Clustering'. Explain the concept of 1) Distance based clustering, 2) Density based clustering.	5	CO2
	b) Explain with diagram and sample data, the concept of simple linear regression.	5	CO2
5	a) What is Artificial neural network? Explain how it resembles to biological neural network.	5	CO3
	b) Explain the structure of Artificial neural network.	5	CO3
	OR		

6	<p>a) With respect to ANN explain the following terms.1) Gradient Descent, 2) Generalized delta rule.</p> <p>b) What is a Recurrent neural network? State the difference between an ANN and a RNN. Explain benefits of RNN.</p>	5	CO3
		5	CO3