ME/SEM II (Choice Base)/IT./MAY 2018

Security & Risk Management

Q. P. Code:-24596

(Time: 3 hrs) (Marks = 80)

1. Question no 1 is compulsory, solve any 3 questions from remaining 5 questions.
2. Assume Suitable data whenever necessary.
3. Figures in the right indicate full marks.

Q1. (a) What do you understand by Asset Characterization. Explain with examples the elements of Asset Characterization. **10**

Q1. (b) Explain in detail the qualitative approach for risk assessment. **10**

Q2. (a) Explain Threat Model. What are threat agents? Give their classification. **10**

Q2. (b) Discuss the OCTAVE framework for risk assessment. **10**

Q3 (a) You have been asked to do risk assessment of an online portal for selling electronic goods. Discuss the vulnerabilities and build sample confidentiality, integrity and availability determination matrices. **10**

Q3 (b) Discuss the assessment of email and web services. **10**

Q4. (a) Explain with the help of standard tools, TCP and UDP port scanning. **10**

Q4. (b) What are the contents of a good report? What are post assessment activities? **10**

Q5. (a) What is security engineering? Give a brief overview of the SSE-CMM model. **10**

(b) Discuss the role of Configuration management in the security of an Organization **10**

Q6.(a) Write short notes on: (any two) **20**

i) Web server hardening iii) Security audit process
ii) Enterprise Information Security policy (EISP)

.....

ME/SEM II (Choice Base) / I.T / MAY 2018
High Performance Computing

Q. P. Code: 34032

(3 hours) [80 marks]

NOTE: 1. Question No 1 is compulsory

2. Attempt any three questions from remaining.

3. Assume suitable data if necessary.

Q1 Attempt any four.

a) Explain the CPU+GPU architecture. [05]
b) What is CUDA? Explain CUDA processor Architecture? [05]
c) Differentiate between Loosely coupled system and tightly coupled system. [05]
d) Explain the concept of Shared Memory Programming? [05]
e) Differentiate between the SIMD and MIMD architecture. [05]

Q2 a) Explain the Foster's design methodology and apply the same to any one sorting algorithm. [10]
b) Derive the expression for speedup and efficiency by Amdahl's law and comment on the same. [10]

Q3 a) Why process Synchronization is required? Explain different types of synchronization mechanisms in briefly? [10]
b) Explain the concepts of threading in OpenMP? Also explain the building blocks of OpenMP? [10]

Q4 a) Explain the Architecture of NVIDIA GPU? [10]
b) Explain in detail the Design issues and Limitations in Parallel Computing? [10]

Q5 a) Design parallel algorithm structure for performing Partitioning and Matrix input / Output. [10]
b) Explain Memory Hierarchy and Memory Transaction specific memory design using CUDA? [10]

Q6 Attempt **any two.**

a) Write short note on Quantum Computing [10]
b) Write short note on Petascale Computing? [10]
c) Explain in brief about Performance Bottleneck, Data Race and Determinism, Data Race Avoidance and Deadlock Avoidance [10]

May 2018 -

M.E. SEM II (Choice Base)

Adv. Web. Tech.

Q.P. Code :02542

[Time: Three Hours] **[Marks:80]**

Please check whether you have got the right question paper.

N.B: 1. **Question.No.1** is Compulsory.
2. Answer any **Four** from Question No.2 to Question No.7.

Q.1 Attempt any **four:-** **20**

a) What is AJAX? Explain execution process of AJAX.

b) Explain Proprieties in C#.

c) What is Page event? Explain in detail.

d) Explain WWW Architecture.

e) Explain Assemblies with its types.

Q.2 a) Explain Session state in ASP.NET with IN-Process and Out-of-Process state server. **08**

b) Explain the Architecture of .NET Frameworks. **07**

Q.3 a) Explain File handling in C# with an example. **08**

b) Explain validation controls in ASP.NET with example. **07**

Q.4 a) Explain PostBack and CrossPage Posting in ASP.NET **08**

b) What are the different types of collection in C#? Explain Generics with example. **07**

Q.5 a) Explain PostBack and CrossPage Posting in ASP.NET **08**

b) What is Web Service Architecture and explain S.O.A. characteristics supported by Web Services. **07**

Q.6 a) What is XAML? Explain importance of XAML in modern Presentation technologies. **08**

b) Explain Inheritance and polymorphism in C# with an example. **07**

Q.7 a) What is ADO.NET? Explain connected and disconnected architecture. **08**

b) Explain Cookieless Session IDs. Write a program based on Cookies for maintaining state. **07**

E/INFT/Sem-II [CHOICE BASED] / AI & Machine Learning / May- 2018

Q. P. Code : 25902

(3 Hours) (Total Marks: 80

N. B. :
1. Question No. **1** is **compulsory**.
2. Attempt any **Three** questions out of remaining **Five** questions.
3. **Figures** to the **right** indicate **full** marks.
4. Assume suitable data if **necessary**.

1. Attempt any **FOUR** of the following : **20**

a) List and explain application of AI.

b) List and explain advantages and limitations of Simulated Annealing over Hill climbing.

c) The early AI systems used general systems, little knowledge. AI researchers realized that specialized knowledge is required for rich tasks to focus reasoning. **State** the major advances observed in different domains of AI in the last decade of 20^{th} century or in the first decade of 21^{st} century (i.e 1990-2010).

d) **Outline** the facts which agent perceives in the WUMPUS world.

e) Explain in short Rote Learning.

2. **10**

a) **Apply** A* Algorithm to find the optimal path for the graph shown in **Figure-1**. Show the order of nodes expanded and the status of fringe during node expansion. Apply, straight line distance given in **Table-1** as a heuristic function. Assume the start state (city) is Arad and the Goal state (city) is Bucharest.
Note: SLD Straight Line Distance.

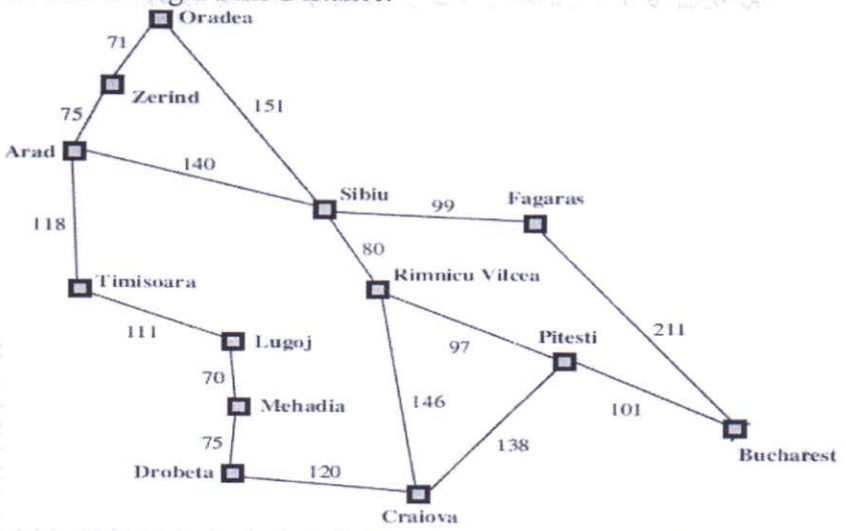

Figure-1: A simplified road map of part of Romania.

Table-1 : Straight Line Distance (SLD) between cities.

SN	City	SLD	SN	City	SLD
1	Arad	366	8	Sibiu	253
2	Bucharest	0	9	Mehadia	241
3	Craiova	160	10	Timisoara	329
4	Drobeta	242	11	Oradea	380
5	Fagaras	176	12	Pitesti	100
6	Zerind	374	13	Rimnicu Vilcea	193
7	Lugoj	244			

b) Explain Error Back propagation algorithm in detail. **10**

TURN OVER

3. a) Explain Hidden Markov Model with the help of example which includes state transition matrix, observation probability matrix, and initial probability matrix. Explain how Viterbi algorithm reduces complexity from exponential to linear? **10**

b) Explain forward and backward chaining with suitable example. **10**

4. a) Explain in detail hand written digit recognition using suitable model for learning, training and testing. **10**

b) **Assume** that you have a new burglar alarm installed at home. It is fairly reliable at detecting a burglary, but also responds on occasion to minor earthquakes. You also have two neighbors, John and Mary, who have promised to call you at work when they hear the alarm. John nearly always calls when he hears the alarm, but sometimes confuses the telephone ringing with the alarm and calls then, too. Mary, on the other hand, likes rather loud music and often misses the alarm altogether. Given the evidence of who has or has not called, we would like to estimate the probability of a burglary. **10**

Draw/Infer a Bayesian network for this domain with suitable probability tables.

5. a) Explain Logistic Regression with suitable example. **10**

b) Suppose we generate a training set from a decision tree and then **apply** decision-tree learning to that training set. Is it the case that the learning algorithm will eventually return the correct tree as the training-set size goes to infinity? Why or why not? **10**

6. Write short note on **any Four** : **20**

a) Intelligent agent: Types.

b) Depth Limited Search.

c) Resolution.

d) Support Vector Machine.

e) Perceptron.

ME / Choice Based / SEM II / All Branches / MAY 2018

Q. P. Code: 24774

(3 hours) **[Total Marks-80]**

N.B. (1) Attempt any four questions out of six questions
(2) Assume any additional data if necessary and state it clearly
(3) Explain answers with neat sketches wherever necessary

a) How Principle Research method different from Methodology? Give example to justify the difference. **[10]**

b) Show the classification of research characteristics and discuss at least two classified characteristics with suitable example. **[10]**

a) Are quantitative and qualitative research types inter-related with each other? Justify your answer. **[10]**

b) What are the methods for analyzing date in quantitative research? **[10]**

a) Show the significance of Sample design and describe essential steps to achieve good sampling design. **[10]**

b) A car manufacturer claims that his cars will run for an average of 20,000 miles before needing their first repair. To prove this claim, you have tracked a test where you took random sample of 21 cars. It found that the sample average number of miles before repair was 18,700, with a standard deviation of 8,600 miles. If you have been asked to draw the random sample test analysis for this manufacturer what significant test limitations you can suggest or recommend to manufacturer while taking random sample of cars? **[10]**

a) There are various stages of scientific research process. Suppose you will have the opportunity to learn how to negotiate solutions to open engineering design problem using systematic design methods. What stages of scientific research process you will follow? Briefly discuss every stage that you like to consider. **[10]**

b) What is the characteristic of Good Hypothesis? Explain type I and II errors, level of significance and variables in hypothesis. **[10]**

a) Identify any research area you are interested in. What procedural steps you will follow to formulate any research problem in this research area. Be specific to steps you follow and provide relevant description. **[10]**

b) Summarize the difference between qualitative and quantitative two data collection methods. **[10]**

a) Discuss the validity of research thoroughly. **[10]**

b) "Ethics in research is the need of the hour". Justify the statement. **[10]**