ASSIGNMENT 1

M.C.A. DEGREE EXAMINATION, JUNE/JULY - 2020

(Third Year)

ARTIFICIAL INTELLIGENCE

Maximum : 30 MARKS

Answer ALL Questions

Q1) a) Discuss about the water Jug problem as state space approach.

  b) Write about various applications of AI

Q2) Explain Best – First search algorithm with suitable example.

Q3) a) Consider the following axioms

  i) P ii) $(P \land Q) \rightarrow R$ iii) $(S \lor T) \rightarrow Q$ iv) T

  Convert them into clause form and derive R using resolution.

  b) State and explain unification theorem with example.

Q4) Explain Justification Truth Maintenance System (JTMS) with example.

Q5) What is an expert system? Briefly describe five major components of an expert system. Using a suitable query, explain the working of an inference engine in a rule-based expert system.

Q6) State and explain Turing test.

Q7) State and explain simulated annealing.

Q8) What is control strategy? How is it related to control knowledge?

Q9) Differentiate procedural and declarative knowledge.

ASSIGNMENT 2

M.C.A. DEGREE EXAMINATION, JUNE/JULY - 2020

(Third Year)

ARTIFICIAL INTELLIGENCE

Maximum : 30 MARKS

Answer ALL Questions

Q1)   Convert the following sentences in predicate form:

   i)   All programs have Bugs
   ii)   Everyone likes Someone

Q2)   What is portioned semantic net? Give an example.

Q3)   Write note expert system shell.

Q4)   Explain about Dempster – Safer theory.

Q5)   Define the Heuristic search.

Q6)   List the limitations of Hill climbing.

Q7)   Define Forward reasoning.

Q8)   Define well-formed formula and clause form.

Q9)   What knowledge acquisition?

ASSIGNMENT 1
M.C.A. DEGREE EXAMINATION, JUNE/JULY - 2020
(Third Year)
CRYPTOGRAPHY AND NETWORK SECURITY
Maximum : 30 MARKS
Answer ALL Questions

Q1) What is mono alphabetic cipher. Compare mono alphabetic cipher and polyalphabetic cipher with example?

Q2) Describe public and private keys in ECC system and explain about security of ECC.

Q3) Explain RSA algorithm in detail with suitable example.

Q4) Describe the steps in finding the message digest using SHA-512 algorithm. What is the order of finding two messages having the same message digest?

Q5) Explain about Host based and signature based Intrusion Detection Systems.

Q6) Write about active and passive attacks.

Q7) Explain avalanche effect in DES and discuss strength of DES in brief.

Q8) Explain about Byte substitution and Shift row operation of AES.

Q9) What is addition, multiplication and multiplicative and additive inverses modulo 8?

DMCA302

ASSIGNMENT 2
M.C.A. DEGREE EXAMINATION, JUNE/JULY - 2020
(Third Year)
CRYPTOGRAPHY AND NETWORK SECURITY
Maximum : 30 MARKS
Answer ALL Questions

Q1) What are the principal elements of public-key cryptosystem? Explain in brief.

Q2) What is Kerberos? How Kerberos authenticates the users for authorized service access?

Q3) Explain about IPsec architecture with neat diagram.

Q4) What is a firewall? Write about packet filtering firewall.

Q5) Define Authentication.

Q6) What are the requirements for a Hash Function?

Q7) Define IP spoofing.

Q8) What is meant by relative prime?

Q9) Define the terms virus and worms.

ASSIGNMENT 1
M.C.A. DEGREE EXAMINATION, JUNE/JULY - 2020
(Third Year)
EMBEDDED SYSTEMS
Maximum : 30 MARKS
Answer ALL Questions

Q1) Explain about the Common metrics for an Embedded System designer. List three pairs of design metrics that may compete, providing an intuitive explanation of the reason behind the competition.

Q2) Explain about the Timers, counters, and watchdog timers.

Q3) Explain about the ROM and RAM internals.

Q4) Discuss about the interfacing I/O and Memory with a general-purpose processor.

Q5) Explain about the Concurrent process model.

Q6) Explain about Application Specific Processors.

Q7) Explain about the Compilation/Synthesis?

Q8) Explain about the Pipelined Operation.

Q9) Explain about Stepper Motor Controller.

ASSIGNMENT 2
M.C.A. DEGREE EXAMINATION, JUNE/JULY - 2020
(Third Year)
EMBEDDED SYSTEMS
Maximum : 30 MARKS
Answer ALL Questions

Q1)   Explain about Cache mapping techniques.

Q2)   Explain about Multi-level bus architectures.

Q3)   Explain about the Program-state machines.

Q4)   Explain about the Simple dataflow models.

Q5) Explain about Semi-custom ASIC?

Q6) Explain about the uses of PWM.

Q7) What is mask-programmed ROM?

Q8) What is interrupt-driven I/O.

Q9) What is Processes and threads?

DMCA304

ASSIGNMENT 1
M.C.A. DEGREE EXAMINATION, JUNE/JULY - 2020
(Third Year)
DATA MINING TECHNIQES
Maximum : 30 MARKS
Answer ALL Questions

Q1)   What are the desirable properties of estimators and explain about maximum likelihood estimation and Bayesian estimation?

Q2)   a) Explain about the predictive models for classification.

   b) Write about Apriori algorithm for association rule learning.

Q3)   Discuss about different parameter optimization methods

Q4)   Explain about hierarchical clustering algorithms in detail.

Q5)   Explain the linear models and least square fitting of regression.

Q6)   Describe the components of data mining algorithms.

Q7)   Write about Principle Component Analysis.

Q8)   What is regression model with linear structure? Explain.

Q9)   Describe the score functions for descriptive models.

ASSIGNMENT 2
M.C.A. DEGREE EXAMINATION, JUNE/JULY - 2020
(Third Year)
DATA MINING TECHNIQES
Maximum : 30 MARKS
Answer ALL Questions

Q1) How to select variables for high dimensional data?

Q2) Illustrate decision tree with suitable example.

Q3) Write short notes on density based clustering.

Q4) Describe various data structures for OLAP.

Q5) What is hypothesis testing?

Q6) What is multilayer perceptron?

Q7) What is categorical data?

Q8) Define inference and generalization.

Q9) What are the index structures?

ASSIGNMENT 1
M.C.A. DEGREE EXAMINATION, JUNE/JULY - 2020
(Third Year)
SYSTEMS AUDITING
Maximum : 30 MARKS
Answer ALL Questions

Q1) What is internal control? Discuss effects of computers on internal controls?

Q2) Explain about major security threats and its remedial measures.

Q3) a) Explain about various data code controls.

   b) Write about batch output production and distribution controls.

Q4) Explain about different issues in generalized audit software.

Q5) Explain about the workload models and system models.

Q6) Write about audit risks.

Q7) Explain about test of controls and test of transactions.

Q8) How to organize the programming team and give their roles?

Q9) What are the goals to be developed for quality assurance?

ASSIGNMENT 2
M.C.A. DEGREE EXAMINATION, JUNE/JULY - 2020
(Third Year)
SYSTEMS AUDITING
Maximum : 30 MARKS
Answer ALL Questions

Q1) Write about database integrity controls.

Q2) What is concurrent auditing technique and give its need?

Q3) Describe the approaches to designing the test data.

Q4) What are the determinants of Judgement performance?

Q5) What is subsystem factoring?

Q6) What are the attributes of high quality program?

Q7) Define error detection and correction.

Q8) What is black box testing?

Q9) What is meant by system effectiveness?