Seat No.

M.C.A. (Part-II) (Semester-IV) (CBCS) Examination, December - 2023
COMMERCE
Internet of Things
Sub. Code : 83617

Day and Date : Tuesday, 26 - 12 - 2023
Time : 2.30 p.m. to 5.30 p.m.

Total Marks : 70

Instructions :
1) Q.1 and Q,7 are compulsory.
2) Attempt any three (3) questions from Q.2 to Q.6
3) Figures to the right indicate full marks.

Q1) Multiple choice questions. **[8]**

a) _____ is the component that executes a program in an IoT system.
   i) micro converter   ii) microcontroller
   iii) microsensor   iv) None of these

b) What is the Arduino UNO?
   i) Software   ii) Hardware device
   iii) Network   iv) Protocol

c) What is the standard form of RFID?
   i) Radio Frequency Identification
   ii) Radio Waves Frequency Identification
   iii) Radio Frequency InterDependent
   iv) Radio Wave Frequency Independent

d) What is ESP8266?
   i) WIFI module   ii) Sensor
   iii) Board   iv) USB cable

e) Which operating system Raspberry Pi has?
   i) Windows   ii) Linux
   iii) Android   iv) All of the above

P.T.O.

f) Raspberry Pi consists of a _____ quad-core processor or microprocessor.

    i)   16-bit   ii)   32-bit

    iii) 64-bit   iv) 128-bit

g) In which of the following way, data is associated with an IoT device:

    i)   Network connection   ii)   Cables

    iii) Cloud   iv) All of the above

h) What is the role of Big Data in IoT's architecture?

    i)   Filter the data   ii)   Process the data

    iii) Store data   iv) None of these

Q2) Explain Functional View, Information View, Deployment and Operational Views of IoT reference architecture.   **[14]**

Q3) a) Enlist challenges related IoT Applications.   **[7]**

    b) What are the different communication technologies available in an IoT?
                                                  [7]

Q4) What is sensor? Explain the different types of sensors used in Arduino. **[14]**

Q5) a) Why we need libraries? List the few libraries available for Arduino. **[7]**

    b) How to configure Web Server for IoT and post the data on web Server?
                                                  [7]

Q6) a) Write and explain code to blink LED using python and Raspberry Pi. [7]

b) Describe the role of machine learning in IoT. [7]

Q7) Write Short Notes (Any four). [20]

a) Various platforms of IoT

b) Arduino UNO architecture.

c) Basics of Embedded C

d) ESP8266 Wi-Fi module

e) Operating systems on Raspberry Pi

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Seat
No.

M.C.A. (Part - II) (Semester - IV)
Examination, December - 2023
COMMERCE
Artificial Intelligence and Soft Computing
Sub. Code : 83615

Day and Date : Friday, 22 - 12 - 2023   **Total Marks : 70**
Time : 2.30 p.m. to 5.30 p.m.

Instructions :   1)   Q.1 and Q.7 are compulsory.
                     2)   Attempt any three 3 questions from Q.2 to Q.6.
                     3)   Figures to right indicate full marks.

Q1) Multiple Choice Questions.   **[8]**

   a)   Which of the following is an advantage of artificial intelligence?
       i)   Reduces the time taken to solve the problem
       ii)   Helps in providing accuracy
       iii)   Have the ability to think hence makes the work easier
       iv)   All of these

   b)   Which search method takes less memory?
       i)   Depth-First Search   ii)   Breadth - First Search
       iii)   Linear Search   iv)   Optimal Search

   c)   A* algorithm is based on _____.
       i)   Breadth-First-Search   ii)   Depth-First-Search
       iii)   Best-First-Search   iv)   Hill Climbing

   d)   Genetic algorithms belong to the problems in the _____.
       i)   Artificial intelligence area
       ii)   Optimization area
       iii)   Complete enumeration family of methods
       iv)   Non-computer based (human) solutions area

   e)   In soft computing the problems, algorithms can be
       i)   Non adaptive   ii)   Adaptive
       iii)   Static   iv)   All of these

P.T.O.

f) Fuzzy logic is usually represented as _____.
   i) IF-THEN-ELSE rules
   ii) IF-THEN rules
   iii) Both of these
   iv) None of these

g) The room is warm. Here the word warm can be represented by _____.
   i) Fuzzy Set
   ii) Crisp Set
   iii) Fuzzy Inference
   iv) All of these

h) What are the various layers present in ANN?
   i) Input Layer
   ii) Hidden Layer
   iii) Output Layer
   iv) All of these

Q2) Define Artificial Intelligence. Mention some of the applications of ANN to solve real life problems. **[14]**

Q3) a) Differentiate between Breadth First Search and Depth First Search. **[7]**
   b) What is A* search? Explain A* algorithm with an example. **[7]**

Q4) Explain the functioning of genetic algorithm with suitable example. **[14]**

Q5) a) What is fuzzy logic? What is its use? **[7]**
   b) What is Neural Network? Explain the simulation of biological neural network with artificial neural network. **[7]**

Q6) a) Describe the defuzzification technique in Fuzzy logic. **[7]**
   b) Explain the working of single layer feed forward neural network. **[7]**

Q7) Write short Notes (Any Four) **[20]**
   a) Heuristic search
   b) GA Operators
   c) Soft Computing
   d) Fuzzy inference
   e) Components of Neural Network

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Seat No.

M.C.A. (Part - II) (Semester - IV) (CBCS)
Examination, December - 2023
COMMERCE
Research Methodology
Sub. Code : 83622

Day and Date : Wednesday, 27 - 12 - 2023   **Total Marks : 70**
Time : 2.30 p.m. to 5.30 p.m.

Instructions :   1)   There are seven questions.
                          2)   Question No 1 and Question No 7 are compulsory.
                          3)   Attempt any three questions from Question No 2 to Question No 6.

Q1) Choose correct alternative for following questions from options given below.
                                                                                                              [8]

   a)   A questionnaire consists of set of queries about a

          i)   Specific issue   ii)   Sample

          iii)   Population   iv)   Sample design

   b)   Simple random sampling and systematic sampling are

          i)   Probability sampling   ii)   Non probability sampling

          iii)   Quota sampling   iv)   Time sampling

   c)   Published information in a particular subject area is discussed in?

          i)   Journals   ii)   Research proposal

          iii)   Literature review   iv)   Bioethics

   d)   The method that consists of collection of data through observation and experimentation, formulation and testing of hypothesis is called _____ method.

          i)   Empirical   ii)   Scientific

          iii)   Scientific information   iv)   Practical knowledge

e) The purpose of research is to :

    i) Review or synthesize existing knowledge

    ii) Investigate existing situations or problems

    iii) Provide solution to problems

    iv) All of these

f) Applied research is a type of research on the basis of _____

    i) Application

    ii) Objective

    iii) Types of information sought

    iv) Application and objective

g) Common ways to distribute questionnaries are:

    i) An online site

    ii) Using the mail

    iii) Conduct face-to-face interviews

    iv) All of these

h) A research plan _____?

    i) Should be detailed

    ii) Should be given to other for review and comments

    iii) Sets out the rationale for a research study

    iv) All of the above

Q2) a) What is Research? Explain objectives and motivation of Research. **[7]**

    b) Describe different types of Research design in details. **[7]**

Q3) What is Sample Design? Explain how to determing the size of sample with appropriate example. **[14]**

Q4) What is Scaling? Explain scale construction techniques in detail. **[14]**

Q5) a) Explain interview method of data collection. **[7]**

b) Explain Questionnaire. **[7]**

Q6) Explain different Statistical techniques for data analysis with example. **[14]**

Q7) Write short note on any four. **[20]**

a) Types of Hypothesis

b) Secondary Data

c) Types of Research

d) Simple Random Sampling

e) Mail Survey

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