

Total No. of Questions : 7]

SEAT No. :

P497

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[5842]-301

M.Sc.

**COMPUTER APPLICATION**

**CA-CCTP-7: Mobile Application Development Using Android  
(2019 Pattern) (Semester - III)**

*Time : 3 Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Question No. 1 is compulsory.*
- 2) *Solve any Five questions from Q. 2 to Q. 7.*
- 3) *Questions 2 to 7 carry equal marks.*
- 4) *Draw diagram wherever necessary.*

**Q1)** Solve any Five of the following :

**[10]**

- a) What is android?
- b) What is accelerometer?
- c) Write disadvantages of Swift.
- d) What is worker thread?
- e) What is Manifest.xml file?
- f) Explain Xcode?

**Q2)** Attempt the following :

a) Describe JSON parsing with example.

**[7]**

b) Write short note on adapters and its type.

**[5]**

**P.T.O.**

**Q3)** Attempt the following :

- a) Explain different type of view Groups with example. [7]
- b) Write an android program which send welcome message from one activity to another activity with help of button. [5]

**Q4)** Attempt the following :

- a) Explain Architecture of android with the help of diagram. [7]
- b) Write phone gap application for creating, searching and removing contacts. [5]

**Q5)** Attempt the following :

- a) What is Menu? Explain different types of Menu with example. [7]
- b) Explain content values and cursors with example. [5]

**Q6)** Attempt the following :

- a) Write an definition of Thread? Explain runOnVithread with example. [7]
- b) Write a swift program to calculate factorial of given number. [5]

**Q7)** Write a short note on any Two : [12]

- a) Pros and Cons of phone gap.
- b) Broadcast Receiver.
- c) Android Activity Life Cycle.



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SEAT No. :

**P498**

[Total No. of Pages : 2

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**S.Y. M.Sc. (Computer Applications)  
CA-CCTP-8: Internet of Things (IoT)  
(2019 Pattern) (Semester - III)**

*Time : 3 Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Question 1 is compulsory.*
- 2) *Solve any Five questions from Q2 to Q7.*
- 3) *Questions 2 to 7 carry equal marks.*
- 4) *Draw neat labeled diagram wherever necessary.*

**Q1)** Solve any Five of the following :

**[10]**

- a) State major components of IoT.
- b) State short range communication protocols used in IoT.
- c) State the techniques used for encrypting Arduino data.
- d) State different cloud services.
- e) State different sensors used in IoT.
- f) What are the challenges faced by IoT devices?

**Q2)** Answer the following :

- a) Differentiate between IoT & M2M. **[5]**
- b) List the mostly used IoT protocols and explain zigbee protocol in detail. **[7]**

**P.T.O.**

**Q3)** Answer the following :

- a) Compare Arduino and Raspberrypi. [5]
- b) Explain advantages and disadvantages of using cloud computing platforms. [7]

**Q4)** Answer the following :

- a) Give two examples each of analog sensors and digital sensors. Explain working principle of any one of them. [7]
- b) What are the security issues at different layers? Explain in brief. [5]

**Q5)** Answer the following :

- a) Explain working of cloud base IBM IoT platform. [7]
- b) Explain simple Ethernet client example using Arduino. [5]

**Q6)** Answer the following :

- a) Describe in detail Smart parking system using IoT. [5]
- b) Explain MQTT protocol in detail. [7]

**Q7)** Write a short note on any two of the following : [12]

- a) Carriots IoT platform.
- b) IoT based home automation system.
- c) Bluetooth protocol in wireless communication.



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SEAT No. :

**P499**

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**M.Sc.**

**COMPUTER APPLICATIONS**  
**CA-CCTP-9: Artificial Intelligence**  
**(2019 Pattern) (Semester - III)**

*Time : 3 Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Question 1 is compulsory.*
- 2) *Solve any Five questions from Q2 to Q7.*
- 3) *Questions 2 to 7 carry equal marks.*

**Q1)** Attempt the following :

**[10]**

- a) What are the advantages of using AI?
- b) What is heuristic search?
- c) What are the advantages of Depth First search?
- d) List the different methods of knowledge representation.
- e) What is a Script? Why scripts are beneficial?
- f) What is Mini-Max algorithm.

**Q2)** Attempt the following :

- a) Describe Breadth First search with its advantages and disadvantages.[7]
- b) How predicate logic help in knowledge representation. Discuss. [5]

**Q3)** Attempt the following :

- a) What is learning? Explain the types of learning in detail. [7]
- b) Give state space representation for "Block world problem". [5]

**P.T.O.**

**Q4)** Attempt the following :

- a) Discuss the Bayesian network in detail. Write the semantics of Bayesian Network. [7]
- b) Consider the following statements. [5]
  - i) All Philosophers are Indian
  - ii) All Indians are happy
  - iii) Either Aryabhata or C.V. Raman is a Philosopher
  - iv) C.V. Raman is not a PhilosopherRepresent above information in wff and prove that Aryabhata is happy.

**Q5)** Attempt the following :

- a) Explain alpha-beta pruning with example. [7]
- b) Explain the algorithm for resolution in propositional logic. [5]

**Q6)** Attempt the following :

- a) Explain AO\* algorithm. [7]
- b) Write script for following Restaurant [5]

**Q7)** Attempt the following :

- a) Explain the production system in detail. [4]
- b) State the things required to be considered when we want to build an AI system that is used to solve a particular problem. [4]
- c) Convert the following statements in conceptual dependency. [4]
  - i) Vedika ate ice-cream with spoon.
  - ii) Kritika sold her microwave to Mrinal.



Total No. of Questions : 5]

SEAT No. :

**P500**

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**M.Sc. (Computer Application)**  
**CA-CBOTP-3A: Python Programming**  
**(2019 Pattern) (Semester - III)**

*Time : 2 Hours]*

*[Max. Marks : 35*

*Instructions to the candidates:*

- 1) *Question 1 is compulsory.*
- 2) *Solve any three questions from Q2 to Q5.*
- 3) *Questions 2 to 5 carry equal marks.*

**Q1)** Solve any Five of the following :

**[5]**

- a) What are Python numbers?
- b) What is the use of lambda( ) with map( )?
- c) What is indexing?
- d) What do you mean by variable length arguments?
- e) Define Binary file.
- f) List the built-in class attributes in Python.

**Q2)** Attempt the following :

- a) i) Explain in short the types of documentation strings. **[2]**  
ii) Explain any two loop control statements with proper syntax and example. **[4]**
- b) Write a Python program to find length of a set, maximum and minimum value in a set. **[4]**

**P.T.O.**

**Q3)** Attempt the following :

- a) i) State the use of join and split function. [2]
- ii) Explain the two types of inheritance. [4]
- b) What is exception in Python? Explain the except clause with no exceptions. Give example. [4]

**Q4)** Attempt the following :

- a) i) Write a Python program to read the contents of a file in Reverse order. [2]
- ii) What is List. State any four built-in list function with their use. [4]
- b) What is recursion? Write a recursive function to find factorial of a number in Python. [4]

**Q5)** Attempt any two of the following :

- a) Write a Python program which prints fibonacci series of a number. [5]
- b) What is dictionary? Explain the ways to delete elements in dictionary with suitable example. [5]
- c) What are iterators? Write a Python program to stop numbering after 20 iterations. [5]





Total No. of Questions : 5]

**P500**

**[5842]-304**

**M.Sc. (Computer Application)**

**CA-CBOTP-3B: Big Data**

**(2019 Pattern) (Semester - III)**

*Time : 2 Hours]*

*[Max. Marks : 35*

*Instructions to the candidates:*

- 1) *Question 1 is compulsory.*
- 2) *Solve any three questions from Q2 to Q5.*
- 3) *Questions 2 to 5 carry equal marks.*

**Q1)** Solve any Five of the following :

**[5]**

- a) What is Spark SQL?
- b) Explain Mahout with example.
- c) Define term: Big Data.
- d) What is NOSQL use?
- e) Elaborate ETL.
- f) Define Hadoop.

**Q2)** Attempt the following :

- a)
  - i) Explain any Four Bigdata platforms. **[2]**
  - ii) Explain Mapreduce in detail. **[4]**
- b) Explain Big Data Workload Design Approaches. **[4]**

**Q3)** Attempt the following :

- a) i) What is Machine Learning with Mlib. [2]
- ii) Explain any four applications of Big data. [4]
- b) Define following Terms : [4]
  - i) Hive
  - ii) Pig
  - iii) Mahout
  - iv) HBase

**Q4)** Attempt the following :

- a) i) Explain any two characteristics of Big Data. [2]
- ii) Difference between SQL & NOSQL. [4]
- b) Explain Data Integration pattern in detail. [4]

**Q5)** Attempt any two of the following :

- a) Explain requirements of Big data Warehouse system. [5]
- b) Write down Case study for Netflix of Big Data Analytics. [5]
- c) Difference between RDBMS and Non-RDBMS. [5]



Total No. of Questions : 5]

**P500**

**[5842]-304**

**M.Sc. (Computer Application)**

**CA-CBOTP-3C: Django**

**(2019 Pattern) (Semester - III)**

*Time : 2 Hours]*

*[Max. Marks : 35*

*Instructions to the candidates:*

- 1) *Question 1 is compulsory.*
- 2) *Solve any three questions from Q2 to Q5.*
- 3) *Questions 2 to 5 carry equal marks.*

**Q1)** Solve any Five of the following : **[5]**

- a) Write command to install Django on your system.
- b) Explain use of path function used in urls.py file, with it's syntax.
- c) What is the use of models.py file in Django?
- d) What is the use of Django REST frame work?
- e) Which function is used to render HTML page on browser.
- f) What does the Django command 'manage.py shell' do?

**Q2)** Attempt the following :

- a)
  - i) How will you create and activate virtual environment for Django project. **[2]**
  - ii) Explain Django Architecture. **[4]**
- b) Explain form validation in Django. **[4]**

**Q3)** Attempt the following :

- a) i) Explain use of settings.py file in Django project. [2]
- ii) Explain steps to create Django project. [4]
- b) What is Query set in Django? How it differs from SQL? [4]

**Q4)** Attempt the following :

- a) i) What is the usage of Django admin.py and setting.py file? [2]
- ii) What is Django Admin interface/panel? How will you view it on browser? [4]
- b) Explain Django's Request/Response cycle. [4]

**Q5)** Attempt any two of the following :

- a) Write a note on Django REST API. [5]
- b) Write a code to serialize Employee (id, name, address, age) data in serializer.py file. [5]
- c) Explain Model serializer in Django REST framework. [5]

