

MCA
May-

Total No. of Pages : 2

Roll No.

Total No. of Questions : 09

MCA (Sem.-4)
IOT & BLOCKCHAIN TECHNOLOGY
Subject Code : PGCA1967
Paper ID : 91862
Date of Examination : 18-05-23

Max. Marks : 70

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

- SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- SECTION - B & C have FOUR questions each.
- Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
- Select atleast TWO questions from SECTION - B & C.

SECTION-A

1) Write short notes on :

- What is IoT?
- Name the communication protocols used in IoT architecture.
- What is the purpose of a functional block?
- Mention few domain specific applications of IoT.
- What is a sensor and an actuator in IoT system?
- Outline the characteristics of a smart contract.
- How transaction in bitcoin network takes place?
- Differentiate block propagation and block delay.
- What is block mining?
- How is blockchain used in KYC based applications?

SECTION-B

- Describe the communication models and communication APIs in IoT framework.
- Briefly explain the different IoT levels and deployment templates.
- Discuss the protocols: MQTT, CoAP and ZigBee used in IoT communication model.
- Elaborate any two application domains where use of IoT can be beneficial and how?

SECTION-C

- What is a bitcoin script? Discuss Bitcoin P2P network components.
- Describe various security attacks in blockchain highlighting 50% majority attack.
- Explain in detail how can Distributed Consensus works on a blockchain network?
- Write short notes on the following:
 - Payments and double spending problem
 - Public vs. Private blockchain.



NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

Roll No.

Total No. of Pages : 03

Total No. of Questions : 09

MCA (Sem.-4)

MACHINE LEARNING AND DATA ANALYTICS USING PYTHON

Subject Code : PGCA-1976

Paper ID : 91855

Date of Examination : 22-05-2023

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Write short notes on :

- a) Explain the difference between simple and multiple linear regression.
- b) Name all models which can be implemented for using the linear classification.
- c) Can we do multiclass classification using logistic regression? Explain.
- d) Differentiate between KNN for classification versus regression.
- e) Explain the working of decision trees briefly.
- f) What are the drawbacks of a decision tree?
- g) What is a DataFrame in Pandas? Write the command to import a CSV file.
- h) What is the full form of Numpy?
- i) How to decide whether the PCA will be employed?
- j) What is unsupervised learning? Explain with an example.

SECTION-B

2. a) Explain the principle of bagging in Random Forest with an example. Define the out-of-bag error.
b) What are the advantages of Random Forests over Decision Trees?
3. a) How is the principal component analysis method helpful in reducing the complexity of the model being trained?
b) What is the role of the Sigmoid function in logistic regression?
4. a) What is the functionality of hidden layers in a neural network?
b) What is a perceptron? Explain the hyperparameter tuning in neural network training.
5. Consider the following training set that classifies the output variable play tennis as Yes or No depending upon weather conditions such as Outlook, Temperature, Humidity, and Windy Status.

| S. No. | Outlook | Temperature | Humidity | Windy | Play Tennis |
|--------|----------|-------------|----------|--------|-------------|
| 1 | Sunny | Hot | High | Weak | No |
| 2 | Sunny | Hot | High | Strong | No |
| 3 | Overcast | Hot | High | Weak | Yes |
| 4 | Rainy | Mild | High | Weak | Yes |
| 5 | Rainy | Cool | Normal | Weak | Yes |
| 6 | Rainy | Cool | Normal | Strong | No |
| 7 | Overcast | Cool | Normal | Strong | Yes |
| 8 | Sunny | Mild | High | Weak | No |
| 9 | Sunny | Cool | Normal | Weak | Yes |
| 10 | Rainy | Mild | Normal | Weak | Yes |
| 11 | Sunny | Mild | Normal | Strong | Yes |
| 12 | Overcast | Mild | High | Strong | Yes |
| 13 | Overcast | Hot | Normal | Weak | Yes |
| 14 | Rainy | Mild | High | Strong | No |

Using Naive Bayes Classifier, classify whether, on a Rainy, Mild, High Humidity, and Windy day, we can play tennis or not.

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (Sem.-4)
ADVANCED WEB TECHNOLOGIES
Subject Code : PGCA1958
M.Code : 91856
Date of Examination : 25-05-23

Max. Marks : 70

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Write short notes on :
 - a) What is client-side scripting?
 - b) How strings are used in PHP?
 - c) Why cookies are used?
 - d) What is the meaning of content management system.
 - e) What is the meaning of datepicker?
 - f) What are disadvantages of AJAX?
 - g) What are the advantages of using xml?
 - h) What is a Bootstrap Container and how does it work?
 - i) What is a breadcrumb in Bootstrap?
 - j) What is component API?

SECTION-B

2. What are the main characteristics of a PHP variable? What are the variable-naming rules you should follow in PHP?
3. Differentiate between following using example :
 - a) CHAR and VARCHAR
 - b) CHAR_LENGTH and LENGTH?
4. What are the various types of CMS? Discuss alongwith its usage and benefits.
5. Discuss any five basic PHP errors/problems alongwith example.

SECTION-C

6. What is the difference between synchronous and asynchronous requests in AJAX? Explain with an example.
7. What is a well formed XML document? What is XML DOM, explain with an example.
8. How is jQuery different from other javascript frameworks? List down any four features of jQuery.
9. Discuss the various components of Bootstrap in detail.



NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

SECTION-C

6. Write the Python code for printing the first N prime numbers.
7.
 - a) What are the various functionalities of Pandas library?
 - b) What is the difference between series and Data Frames? Explain using examples.
8.
 - a) Explain the usage of the Matplotlib library using examples.
 - b) When do we need to plot histograms versus pie charts? Discuss with examples.
9.
 - a) How to handle missing data using Pandas?
 - b) Discuss the usage of joining, concatenation, and merging in Pandas.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

Roll No.
Total No. of Questions : 09
MCA (Sem.-4)
IOT AND BLOCKCHAIN TECHNOLOGY
Subject Code : PGCA-1967
M.Code : 91862
Date of Examination : 05-01-2023
Time : 3 Hrs.
Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :
1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

- I. Write briefly :**
- a) UDP and TCP
 - b) ZigBee
 - c) IoT interfaces
 - d) Blockchain transactions
 - e) Crypto Currency
 - f) Public Blockchain
 - g) Identity on Blockchain
 - h) Block in a Blockchain
 - i) Embedded Systems
 - j) Block Mining.

SECTION-B

- 2. Discuss in detail the various protocols and communication models involved in IoT.
- 3. Explain these concepts in detail :
 - (a) IoT levels and deployment templates
 - (b) Big Data Analytics
- 4. Define and describe various APIs for communication in IoT.
- 5. Write a detailed note on the IoT applications in the areas of health, agriculture, environment and energy.

SECTION-C

- 6. Define Blockchain? Why it came into existence? Discuss the permissioned model of block chain in detail and explain the idea of cryptocurrency to blockchain.
- 7. What is Bitcoin? Explain process of creation of coins, payments and double spending, and bitcoin scripts.
- 8. Write a detailed note on the enterprise applications of blockchain such as Blockchain enabled trade, We Trade- Trade Finance network and Supply chain financing.
- 9. Explain the issues and challenges associated with blockchain. Also discuss the concepts of block propagation and block relay.



NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Dec-2022

June-2022

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (Sem.-4)
IOT AND BLOCKCHAIN TECHNOLOGY

Subject Code : PGCA-1967

M.Code : 91862

Date of Examination : 19-07-22

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Write briefly :

- a) ZigBee
- b) Bluetooth
- c) CoAP
- d) Bitcoin
- e) Crypto Currency
- f) MQTT
- g) KYC
- h) Block Relay
- i) Block Mining
- j) Big Data Analytics.



SECTION-B

2. Discuss the various characteristics of IoT and explain the physical as well as logical design of IoT.
3. Explain these concepts with suitable diagrams.
 - a) Cloud Computing
 - b) Wireless Sensor Networks.
4. Define and describe the various hardware and software components of IoT.
5. Write a detailed note on the IoT applications in the areas of home automation, cities, retail and logistics.

SECTION-C

6. Define block chain. Why it came into existence? Discuss the terms- public ledgers, smart contracts, block in a block chain, transactions, distributed consensus and public vs. private block chain.
7. Explain the Bitcoin P2P network and how transactions in bitcoin networks are processed.
8. Write a detailed note on the enterprise applications of blockchain such as cross border payments, KYC, Food Security and Mortgage over Blockchain.
9. Explain the issues and challenges associated with cryptocurrency. Also, discuss the security aspects of blockchain.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (Sem.-4)

MACHINE LEARNING AND DATA ANALYTICS USING PYTHON

Subject Code : PGCA-1976

Paper ID : 91855

Date of Examination : 05-07-22

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Write short notes on :

- a) Reinforcement Learning
- b) Logistic Classification
- c) Random Forest
- d) Principal Component Analysis
- e) Python Functions
- f) Numpy
- g) Pandas
- h) Matplotlib
- i) Histogram
- j) Clustering.



SECTION-B

2. What is Machine Learning? What is its relationship with Deep learning? Explain supervised and unsupervised learning with examples.
3. What is the difference between regression and classification? Explain linear regression.
4. Explain Naive Bayes classification technique. What are its advantages and disadvantages?
5. What are neural networks? Discuss the architecture of neural networks in detail.

SECTION-C

6. Describe various kinds of operators and control structures in Python. How to find out whether a number is even or odd using python bitwise operators?
7. What are python arrays and how to use them? Discuss the concept of array indexing with examples in detail.
8. Write a Pandas program to create Data Frames that contains random values, contains missing values, contains date time values and contains mixed values.
9. Write detailed notes on Matplotlib histograms and pie charts.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (Sem.-4)
ADVANCED WEB TECHNOLOGIES

Subject Code : PGCA-1958

Paper ID : 91856

Date of Examination : 07-07-22

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION - B & C have **FOUR** questions each.
3. Attempt any **FIVE** questions from SECTION B & C carrying **TEN** marks each.
4. Select atleast **TWO** questions from SECTION - B & C.

SECTION-A

1. Write short notes on :

- a) What is type conversion in PHP?
- b) Discuss any two basic PHP errors.
- c) What is MySQL?
- d) What is CMS?
- e) Why do we require NPM?
- f) What is the use of date picker?
- g) List out different data types of PHP.
- h) What is a tooltip?
- i) What are the various attributes of XML?
- j) What is JSX?



SECTION-B

2. Describe the PHP session in detail.
3. In today's world, what are the various Web services available? Explain with an example.
4. What is the meaning of Session management, and how cookies are used for it?
5. What are the various types, usages and benefits of CMS?

SECTION-C

6. What is the use of AJAX in the Website?
7. Explain, how Node.js is used in dynamic website development?
8. What are the various components of react API?
9. Discuss various datatypes of XML. Also, explain how to create XML documents.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MACHINE LEARNING AND DATA ANALYTICS USING PYTHON

MCA (Sem.-4)

Subject Code : PGCA-1976

Paper ID : 91855

Date of Examination : 05-07-22

Time : 3 Hrs.

Max. Marks : 70

SECTION-B

2. What is Machine Learning? What is its relationship with Deep learning? Explain supervised and unsupervised learning with examples.
3. What is the difference between regression and classification? Explain linear regression.
4. Explain Naive Bayes classification technique. What are its advantages and disadvantages?
5. What are neural networks? Discuss the architecture of neural networks in detail.

SECTION-C

6. Describe various kinds of operators and control structures in Python. How to find out whether a number is even or odd using python bitwise operators?
7. What are python arrays and how to use them? Discuss the concept of array indexing with examples in detail.
8. Write a Pandas program to create Data Frames that contains random values, contains missing values, contains date time values and contains mixed values.
9. Write detailed notes on Matplotlib histograms and pie charts.

SECTION-A

1. Write short notes on :

- a) Reinforcement Learning
- b) Logistic Classification
- c) Random Forest
- d) Principal Component Analysis
- e) Python Functions
- f) Numpy
- g) Pandas
- h) Matplotlib
- i) Histogram
- j) Clustering.

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.



NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (Sem.-4)
ADVANCED WEB TECHNOLOGIES
Subject Code : PGCA-1958
Paper ID : 91856
Date of Examination : 07-07-22

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

I. Write short notes on :

- a) What is type conversion in PHP?
- b) Discuss any two basic PHP errors.
- c) What is MySQL?
- d) What is CMS?
- e) Why do we require NPM?
- f) What is the use of date picker?
- g) List out different data types of PHP.
- h) What is a tooltip?
- i) What are the various attributes of XML?
- j) What is JSX?

SECTION-B

2. Describe the PHP session in detail.
3. In today's world, what are the various Web services available? Explain with an example.
4. What is the meaning of Session management, and how cookies are used for it?
5. What are the various types, usages and benefits of CMS?

SECTION-C

6. What is the use of AJAX in the Website?
7. Explain, how Node.js is used in dynamic website development?
8. What are the various components of react API?
9. Discuss various datatypes of XML. Also, explain how to create XML documents.



NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

Dec - 2020

Roll No.

| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Total No. of Pages : 02

Total No. of Questions : 18

MCA (2015 to 2018) (Sem.-4)
INTERACTIVE COMPUTER GRAPHICS
Subject Code : MCA-403
M.Code : 74121

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students has to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. Elaborate in detail the different graphics devices.
2. a) What are the various color display techniques used in computer graphics? Briefly discuss each.
b) Differentiate between raster scan and random scan systems.

SECTION-B

3. Differentiate the steps required to scan-convert a circle using the mid-point and Bresenham's algorithm.
4. What do you mean by line clipping? Discuss Cohen-Sutherland line-clipping algorithm for 2-D objects.

SECTION-C

5. What are 3-dimensional geometric transformations? Explain the basic 3-D transformations along with their matrix representation.
6. Explain in detail the properties of Bezier and B-spline curves.

SECTION-D

7. Discuss in detail the Z-buffer algorithm. How does this algorithm determine which surfaces are hidden?
8. Discuss the working of Phong shading algorithm with an example.

SECTION-E

9. Define computer graphics. Write any two applications.
10. What are display controllers?
11. What are the side effects of Bresenham's line drawing technique?
12. What do you mean by Composite transformation?
13. Why are homogeneous coordinate systems required in computer graphics?
14. What is the difference between polygon clipping and text clipping?
15. Write the matrix representation of Shearing.
16. Define Antialiasing.
17. Differentiate between illumination and shading.
18. What is the major difference between A-buffer and Z-buffer methods for visible surface detection?

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

Dec-2020

Roll No.

| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Total No. of Pages : 02

Total No. of Questions : 09

MCA (2015 to 2018) (Sem.-4)
MOBILE APPLICATION DEVELOPMENT
Subject Code : MCA-401
M.Code : 74119

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students has to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. What is a Mobile application? What are its characteristics? Discuss the architecture and working of iOS operating system.
2. Discuss the various enterprise requirements that are addressed in a mobile application.

SECTION-B

3. What is Android? Discuss its features and advantages. Elaborate in detail the Android development environment.
4. What do you understand by Mobile Software Engineering? Explain in detail the various phases in mobile software engineering.

SECTION-C

5. Discuss the core components of an Android app and how they are put together to create a full-featured app.
6. a) What is meant by multiplatform designs? How is it incorporated?
b) What is the role of animation and graphics in mobile apps?

SECTION-D

7. Give an overview of iOS development environment. Explain in detail the different iOS layers.
8. Discuss the Windows phone environment and its platform.

SECTION-E

9. Answer the following in brief :

- a) List any four features of Android Studio.
- b) What is Dalvik Virtual Machine?
- c) Give overview of Swift.
- d) What is Android XML?
- e) Write steps for testing methodologies for mobile applications.
- f) List the software required for mobile application development.
- g) Why is mobile development difficult?
- h) What is An Activity?
- i) What are the Sensors used in a mobile App?
- j) What is AVD Manager?

NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Roll No.

| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Total No. of Pages : 02

Total No. of Questions : 18

MCA (2015 to 2018) (Sem.-4)
ADVANCED OPERATING SYSTEMS
Subject Code : MCA-404
M.Code : 74122

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students has to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. Give a detailed description of Multi-processor and Distributed Operating System Architecture. Explain various design and development issues in Multi-Processor and Distributed systems.
2. How is Inter-Process Communication achieved in Distributed Operating systems? Give suitable examples along with your answer.

SECTION-B

3. Describe structure of Real Time and Embedded (RE) operating systems clearly specifying differences between Nano-kernel, Micro-kernel and Monolithic-kernel based models.
4. What do you mean by Energy Aware CPU Scheduling concept? How is it different from traditional CPU scheduling?

SECTION-C

5. What are the main features of Grid Computing architecture? What are its applications? How is it better than other operating system architectures?
6. How is the Performance analysis done in Grid Computing environment? Also describe the Grid Monitoring and Scheduling processes.

SECTION-D

7. Compare and contrast the various Mobile Operating systems on the basis of their features and platforms.
8. What is cloud computing? What are its building blocks? Describe four types of application that are especially well- suited for mobile computing and cloud computing.

SECTION-E

Write short notes on :

9. Mobile Operating Systems
10. Nano-kernel model
11. Hardware & Software Virtualization in Cloud
12. Load Balancing
13. Features of Android OS
14. Cloud Building Blocks
15. Scheduling in Real time and Embedded OS
16. Cluster Computing
17. Distributed File System
18. Inter-Process Communication

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

Roll No.

| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Total No. of Pages : 02

Total No. of Questions : 18

MCA (2015 to 2018) (Sem.-4)
E-COMMERCE & WEB APPLICATION DEVELOPMENT
Subject Code : MCA-402
M.Code : 74120

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students has to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. What is E-commerce? How does it differ from Traditional Commerce? What are the potentials benefits of E-commerce? Discuss in detail.
2. What is EDI? Discuss different types and benefits of EDI.

SECTION-B

3. What is Web based Marketing and communications? From the consumer's perspective, what makes online shopping attractive? Discuss with examples. Also mention drawbacks, if any.
4. What are various layers in TCP/IP Protocol suite? Brief out functions performed by each layer.

SECTION-C

5. a) How do you use <form> tag in an HTML page for data collection? Illustrate with relevant example.
b) What are Frames in HTML? What are its uses?
6. How do Cascading Style Sheets ensure consistent design of a web site? Explain with examples from CSS3.

SECTION-D

7. a) Write a Java Script to display the odd numbers between 1 and 100.
b) Write a Java Script to prompt a message if the number entered in a text box exceeds 100.
8. How can you handle mouse related events in Java scripts? Discuss with suitable example.

SECTION-E

9. What are Smart Cards?
10. List two major legal issues in E-Commerce.
11. Define URL and IP address.
12. What is the role of online catalogs?
13. What do you mean by Firewall?
14. What are the strategies for website optimization?
15. How do you insert image as hyperlink in a web page?
16. What is IP spoofing?
17. Define DOM.
18. What is a layer in context of web page?

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

Nov-2019

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

M.C.A. (Sem.-4)
MICROPROCESSOR
Subject Code : MCA-404
M.Code : 90001

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students has to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. Draw the block diagram of 8085 microprocessor showing all units and signals.
2. a) Explain the register organization of 8085 microprocessor.
b) Discuss the instruction format of 8085 instructions.

SECTION-B

3. Explain the purpose of the following instructions :
 - a) EI
 - b) DI
 - c) STC
 - d) RRC
 - e) RAR
4. Compare RISC Vs CISC Processors.

SECTION-C

5. Draw the pin diagram of 8086 microprocessor and explain the function of each pin.
6. a) Explain the following 8085 instructions :
SIM,RIM, RST 7, RAR, PCHL
b) Write an assembly language program to swap two numbers.

SECTION-D

7. What is DMA operation? Explain the architecture of 8237 DMA controller.
8. How the Programmable Interrupt controller may be interfaced to a microprocessor.

SECTION-E

9. Write briefly :

- (a) What is auxiliary carry?
- (b) What is the purpose of DAD instruction?
- (c) What are vectored interrupts?
- (d) What is the difference between arithmetic and logical shift instructions?
- (e) What are pseudo instructions?
- (f) Name the 8085 instructions using stack?
- (g) What is the difference between instruction and machine cycle?
- (h) Who takes care of the control of the buses in DMA?
- (i) What is the purpose of XCHG instruction?
- (j) Explain the structure of delay loop.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Nov - Dec - 2019

Roll No.

| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Total No. of Pages : 02

Total No. of Questions : 09

MCA (2015 & Onward) (Sem.-4)
INTERACTIVE COMPUTER GRAPHICS
Subject Code : MCA-403
M.Code : 74121

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. How Color CRT Monitors are different from Liquids Crystal Display (LCD) Systems? Explain their working also.
2. a) What do you mean by raster scan and random scan display?
b) Why we need color images? Explain RGB and CMY color models.

SECTION-B

3. Write down and explain the midpoint circle drawing and Ellipse drawing algorithm with the help of suitable example.
4. What do you mean by Polygon clipping? Explain Sutherland-Hodgeman Polygon Clipping with an example.

SECTION-C

5. What do you mean by Reflection, Scaling and Shearing? Explain in Three Dimension using Homogenous Coordinate system.
6. Derive the blending function for a Bezier Surface 3×3 .

SECTION-D

7. Write and explain the depth-buffer algorithm which is used to detect visible surfaces.
8. Explain in detail gouraud and Phong method for shading.

SECTION-E

9. Answer briefly :

- a) Define spatial resolution.
- b) Define random scan.
- c) Explain difference between parallel and perspective projections.
- d) What do you mean by pseudo-color image?
- e) Discuss shadow masking.
- f) What is anti aliasing?
- g) Discuss shearing.
- h) Define quadric surface.
- i) What do you mean by half toning?
- j) What are vanishing points?

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Nov/Dec 2019

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (2015 & Onward) (Sem.-4)
E-COMMERCE AND WEB APPLICATION DEVELOPMENT
Subject Code : MCA-402
M.Code : 74120

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.
3. Use of Non-Programmable scientific calculator is allowed.

SECTION-A

- Q1) Explain different models of E-Commerce with the help of suitable examples.
- Q2) Differentiate between E-Commerce and M-Commerce. Also illustrate their different models.

SECTION-B

- Q3) Discuss web based marketing and communication. What are the different techniques used for online advertising?
- Q4) What are the ideal website design strategies for E-Commerce? Explain database integration Techniques.

SECTION-C

- Q5) Write an HTML script for creating a table.
- Q6) Write a short note on New features introduced in HTML 5. Compare the different versions of HTML.

SECTION-D

- Q7) Write a short note on :
- a) Forms in Java Script
 - b) Functions in JavaScript
- Q8) How to establish database connection in JavaScript? Explain with the help of an example.

SECTION-E

Q9) Answer briefly :

- a) Explain briefly B2C model of E-Commerce.
- b) Define auction.
- c) Write a short note on website optimization.
- d) What do you understand by the term M-Commerce?
- e) Define Firewall.
- f) What do you mean by input validation in JavaScript?
- g) What are online catalogs?
- h) Enlist the different control statements in JavaScript.
- i) What are different text styles in HTML5?
- j) What is the tag used for inserting an image in HTML?

NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC against the Student.

Nov. / Dec. - 2011
Semester - I/II

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (2015 & Onward)(Sem.-4)
ADVANCED OPERATING SYSTEMS

Subject Code : MCA-404
M.Code : 74122

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. Explain different features of distributed file system. Give the key challenges faced by the distributed file system.
2. Discuss the features and differences between Multiprocessor and Distributed Operating Systems.

SECTION-B

3. Discuss the following :
 - a. Real time vs. Embedded OS
 - b. Energy Aware Scheduling.
4. Compare and Contrast Nano, Microkernel and Monolithic kernel.

SECTION-C

5. What is Grid Computing and why name is given Grid? How Grid computing is different from the distributed computing?
6. Explain the following :
 - a. High performance Computing (HPC) vs. High Throughput Computing (HTC)
 - b. What are the applications of the Grid that one explains to a naive person?

SECTION-D

7. Explain the evolution of virtualized Architecture of Cloud Computing.
8. Explain different platform operating system involved in Mobile.

1 | M - 74122

(56) - 1352

SECTION-E

9. Write briefly :

- a) Explain NAS backend Cloud Concepts.
- b) What are the various operations on Directories?
- c) Differentiate between Monolithic Kernel vs. Micro Kernel.
- d) What is logical address space and physical address space?
- e) Explain Cluster Computing.
- f) What are the applications of Distributed Operating System?
- g) What is Resource Sharing in distributed Operating System?
- h) What are the Disadvantages of file system?
- i) Define Dynamic Memory Allocation.
- j) What is Grid Computing?



NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

2 | M - 74122

(56) - 1352

Nov. / Dec. = 2019
Semester = 4th

Total No. of Pages : 02

| | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|

Roll No. _____

Total No. of Questions : 09

MCA (2015 & Onward) (Sem.--4)
MOBILE APPLICATION DEVELOPMENT
Subject Code : MCA-401
M.Code : 74119

Max. Marks : 60

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.
2. SECTION-E is **COMPULSORY** consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. Explain the architecture and working of Android operating system.
2. a) Discuss the procedure for designing user interface design.
b) What are different enterprise requirements of mobile applications?

SECTION-B

3. a) Discuss various design principles of mobile software engineering.
b) Write a short note on Android SDK.
4. a) Describe the directory structure of Android project.
b) What is meant by Android XML? Explain.

SECTION-C

5. Explain the use of following App components :
a) Intents and Intent filters
b) App Widgets
6. a) What is the use of Action Bar? Explain.
b) Discuss the connectivity of mobile devices in mobile application development.

SECTION-D

7. What is the procedure for building an application for iOS? Explain.
8. Write a short note on the following concepts :
a) iOS Development Environment
b) Windows phone Environment

SECTION-E

9. Write briefly :
a) What is alert class?
b) Write a short note on networking of mobile devices.
c) What is meant by modifiability of a mobile application?
d) Define AVD manager.
e) Name any two plugins for adding virtual devices.
f) What are content providers?
g) Write steps to add animation in mobile application.
h) How window applications differ from iOS Apps?
i) Name different layers of iOS.
j) Define swift.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.



May - June = 2019
Sem - 4TH

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

**MCA (2015 & Onward) (Sem.-4)
INTERACTIVE COMPUTER GRAPHICS**
Subject Code : MCA-403
M.Code : 74121

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. a) Explain the Architecture of Random and Raster Scan Systems.
b) Explain different Color Generating Techniques.
2. List all applications of Computer Graphics.

SECTION-B

3. a) Explain different Character Generation Techniques.
b) Differentiate between Concave and Convex Polygon. Write the Algorithm for Polygon Clipping.
4. a) Draw Ellipse drawing algorithm.
b) Describe various 2-Ds Geometric Transformations.

SECTION-C

5. Explain the different types of Curves in detail? Classify Fractals.
6. a) Explain the Composite Transformation for 3-D objects with example.
b) Write note on 3-D viewing.

SECTION-D

7. a) Explain the method for adding Surface Texture.
b) How are Diffuse and Specular models computed in a Shading model?
8. a) Write notes on Halftoning and Dithering Techniques.
b) Write notes on Z-Buffer and Painters Algorithms.

SECTION-E

9. Give short answers of the following :

- a) Morphing of Objects.
- b) Perspective Projection.
- c) Shearing in 3-D.
- d) Homogeneous Co-ordinate System.
- e) Effect of scan converting a Line.
- f) Flood Fill Technique.
- g) Graphic Cards.
- h) RGB Color Model.
- i) Color lookup Table.
- j) Hidden line Algorithm using Sub-division Technique.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

May-June-2019
Sem-4th

Roll No.

Total No. of Questions : 09

Total No. of Pages : 02

MCA (2015 & Onwards)(Sem.-4)
ADVANCED OPERATING SYSTEMS
Subject Code : MCA-404
M.Code : 74122

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. Discuss the following features of distributed operating systems: Resource sharing, load balancing, availability and fault tolerance.
2. Discuss the distributed file system. How inter-process communication is performed in distributed operating system?

SECTION-B

3. Discuss the Micro, Nano and Monolithic kernel models of real time and embedded systems. Discuss the various applications or real life areas where real time and embedded operating systems are used.
4. Discuss the need and characteristics of energy-aware CPU scheduling in detail.

SECTION-C

5. Discuss the case study of any grid computing system in terms of features, scheduling and implementation details.
6. Discuss various characteristics, architecture and implementation issues of MOSIX OS.

SECTION-D

7. What are the advantages of virtualization in cloud? Discuss the various types of virtualization.
8. Discuss the differences between IOS, Android and WindowsMobileOS mobile operating systems.

SECTION-E

9. Write briefly :

- a) What is the difference between batch and interactive system?
- b) Name any three metrics used for measuring performance analysis of scheduling algorithms.
- c) What is the difference between periodic and aperiodic tasks?
- d) Define Sporadic Tasks.
- e) What is NAS?
- f) Define Hybrid Cloud.
- g) What is KVM hypervisor?
- h) How KVM hypervisor is different from Xen hypervisor?
- i) Name any two grid monitoring software.

Name any two schedulers used in cluster computing.



NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

May-June = 2019
Sem - 4th

SECTION-E

Q9. Answer briefly :

- (a) List various issues of electronic payment gateway.
- (b) Differentiate E-commerce and M-Commerce.
- (c) What is significance of URL?
- (d) List various merits of client server computing.
- (e) Write a JavaScript program to add two numbers.
- (f) What is use of <Marquee> tag in HTML?
- (g) List various website optimization strategies.
- (h) What are various IP address classes?
- (i) List various limitations of HTML.
- (j) How table is created using HTML?

Total No. of Pages : 02

Roll No.

Total No. of Questions : 09

MCA (2015 & Onward) (Sem.-4)
E-COMMERCE AND WEB APPLICATION DEVELOPMENT
 Subject Code : MCA-402
 M.Code : 74120

Max. Marks : 60

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

- 1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.
- 2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

Q1 Define E-Commerce. What are its potential benefits? Explain different E-Commerce models with their relative merits and demerits.

Q2 Write notes on the following :

- (a) Electronic Payment Gateway
- (b) Benefits of EDI

SECTION-B

Q3 What are various threats to E-Commerce? Explain how security is managed in F Commerce.

Q4 What is website? What are its different types? Explain how an interactive website is created.

SECTION-C

Q5 Define Frame. What are its advantages? Explain how frames are created using HTML.

Q6 Define list. What are its types? Explain how different types of lists are created using HTML.

SECTION-D

Q7 What is need of JavaScript? Explain various features of JavaScript.

Q8 Write notes on the following :
(a) Document object model
(b) Control statements in JavaScript.

NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC against the Student.



May-June = 2019
Sem - 4th

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (2015 & Onward) (Sem.-4)
MOBILE APPLICATION DEVELOPMENT
Subject Code : MCA-401
M.Code : 74119

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

1. Discuss the MVC architecture pattern as it specifically relates to iOS app design. What comprises each part of the pattern?

2. a) What is Android? Explain Android working and Architecture in detail.
b) What are the advantages of Android?

SECTION-B

3. What is Mobile Software Engineering? Why is MSWE is important? What are the Mobile Software Engineering Characteristics and Challenges? Discuss mobile software engineering process.

4. a) Give a brief description on the directory structure of an Android project.
b) Explain Dalvik virtual machine architecture.

SECTION-C

5. Write steps to Improve Web Application Server Setup.

6. Discuss the core components of an Android app (specifically activities, intents, and services) and how they are put together to create a full-featured app.

SECTION-D

7. a) Give overview of Windows Phone and write its features. List the Windows Phone Programming Languages. Explain.

b) Discuss the Life Cycle Of Windows Phone Application in detail.

8. Describe benefits that the Android and iOS design guidelines provide to developers. What are the advantages to following the guidelines? Are there reasons not to follow the guidelines?

SECTION-E

9. Write briefly :

a) Discuss Anatomy of a Windows Phone 8 App.

b) Windows phone 8 operating system.

Discuss addressing enterprise requirements in mobile applications.

What is An Activity?

e) What do ADT stands for?

f) What language does android support to develop an application?

g) What is the importance of having an emulator within the Android environment?

h) What role does Dalvik play in Android development?

i) What is the difference between not-running, inactive, active, background and suspended execution states?

j) List the Software required for mobile application Development.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student