(b)

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.

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Nov - Dec - 2019

Roll No. | | | | | | | | | | | | |

Total No. of Questions : 09

Total No. of Pages : 02

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?

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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.

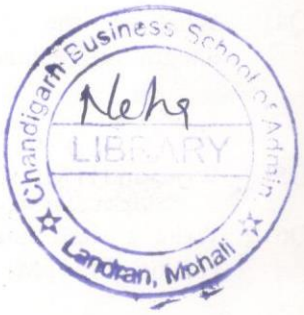
f) What do you mean by input validation in JavaScript?

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?



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Nov./Dec. = 2019
Semester = 4th

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 form 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.

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?

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Nov./Dec. = 2019

Semester = ~~II~~ 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. 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.

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May - June = 2019
Sem - 4th

Roll No. | | | | | | | | | | |

Total No. of Questions : 09

Total No. of Pages : 02

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.

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May-June-2019
Sem-4+4

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.

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(8)

May - June = 2019
Sem - 4th

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.

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 E 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.

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?

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May-June = 2019
Sem - 4th

Roll No. | | | | | | | | | | |

Total No. of Questions : 09

Total No. of Pages : 02

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.

   c) Discuss addressing enterprise requirements in mobile applications.

   d) 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 .

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