

No. of Printed Pages : 4

BCS-011

00481

**BACHELOR IN COMPUTER
APPLICATIONS (BCA Revised)**

Term-End Examination

December, 2011

**BCS-011 : COMPUTER BASICS AND P C
SOFTWARE**

Time : 3 hours

Maximum Marks : 100

Weightage : 75%

*Note : Question number 1 is compulsory and carries 40 marks.
Attempt any three questions from the rest.*

1. (a) Convert the following decimal numbers to binary and hexadecimal numbers. 5
(i) 75
(ii) 0.125
- (b) What will be the storage capacity of a 2.5 inch diameter disk pack having 4 plates, 200 sectors per track, 1024 tracks per surface with each sector capable of storing 1024 Bytes ? 4
- (c) What is Von Neumann Architecture ? Explain with the help of a diagram. 5
- (d) List any four different types of software that are required for programming. Explain the purpose of each one of these. 6

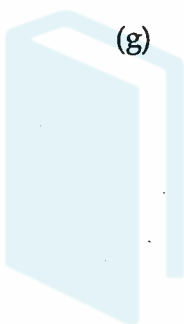
- (e) What is the need to draw a flow chart ? 7
Draw a flow chart for finding sum of first 10 odd numbers. That is, it should add $1+3+5+7+9+11+13+15+17+19$.
- (f) Which of the following is valid IP address/ addresses ? You must give reason in support of your answer : 3
- (i) 192.168.5.512
 - (ii) 1.1.1.0
 - (iii) 172. -1.1.1
 - (iv) 77.77.100
- (g) What are the advantages of using Local Area Networks ? List the characteristics of LANs. How are WAN different than LAN ? 7
- (h) What is a Wiki ? How is it useful to us ? 3

2. (a) What is memory hierarchy ? Explain with the help of a diagram. Why is memory hierarchy created in a computer system ? 7
- (b) Explain any three main activities that you can perform using a spreadsheet software. 6
- (c) What is a Web browser ? Write the sequence of activities that take place when you request for a webpage, till it is displayed in your browser window. 7

3. (a) Given the three storage devices (i) Hard disk (ii) Pen drive (iii) Magnetic tape, what will be their primary uses ? Give advantage and disadvantage of each of these secondary memories. 9
- (b) What is an operating system ? Explain the five main services provided by the operating system. 11
4. (a) Explain the purpose of each of the following network devices : 10
- (i) Network interface card
 - (ii) Modem
 - (iii) Repeater
 - (iv) Bridge
 - (v) Hub
- (b) What is the need of a port in a computer ? List any four ports that may be used in a computer also give the name of one device that may use that port. 5
- (c) What is meant by project management software ? Explain any four activities that you can perform using project management software. 5

5. Explain *any five* of the following terms with the help of an example/diagram, if needed : 20

- (a) Security threats on Internet.
- (b) The activities performed by search engines..
- (c) Tools for collaboration on Internet.
- (d) Diagnostic tools in a computer.
- (e) Use of subroutines and functions.
- (f) Purpose of "my computer" and "Recycle Bin".
- (g) Main frame computers and Super computers.



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No. of Printed Pages : 4

BCS-011

**BACHELOR IN COMPUTER
APPLICATIONS (BCA Revised)**

Term-End Examination

June, 2012

**BCS-011 : COMPUTER BASICS AND P C
SOFTWARE**

Time : 3 hours

Maximum Marks : 100

Weightage : 75%

Note : *Question number 1 is compulsory and carries 40 marks.
Attempt any three questions from the rest.*

1. (a) Convert the following hexadecimal number to equivalent binary and decimal : **4**
- (i) $(51)_{16}$
- (ii) $(DA)_{16}$
- (b) How is the access time on a disk is defined ? **5**
Explain each of the component of access time with the help of an example.
- (c) Explain the basic structure of a computer system ? With the help of a diagram . A personal computer has a component called motherboard. How is motherboard related to the basic computer structure ? **6**

- (d) List five facilities that are provided by an operating system to a user or to a program. 5
- (e) Draw a flow chart to add integer between 2 to $(n+1)$ where $n > 2$. 6
- (f) Explain the terms : Subroutine and function with the help of an example. 3
- (g) Consider two IP addresses 4
160. 10. 11. 25
160. 10. 12. 35
- Do they belong to the same network , if
- (i) The subnet mask is 255.255.0.0
- (ii) The subnet mask is 255.255.255.0
- Justify your answer.
- (h) What is a Wide Area Network (WAN) ? 7
- What are the characteristics of WAN ? How are they different from LANs ? Is Internet a WAN ? Justify your answer.

2. (a) What is the need of memory hierarchy in a computer system ? Explain with the help of various trade offs like cost, speed, size etc. 6
- (b) What is perverse software ? List various types of perverse software. Give four ways to counter perverse software. 8
- (c) What are cookies in the context of Browser software ? Are cookies bad ? Explain. List four precautions for safe browsing. 6

3. (a) Compare and contrast the characteristics of the following : 6
- (i) Dot matrix printer versus Laser printer
 - (ii) Cathode ray tube monitors versus liquid crystal display monitors.
- (b) "Latest word processor have text manipulation functions that extend beyond a basic ability to enter and change text " . Explain any four of these advanced text manipulation functions. 8
- (c) Explain the characteristics of the following data transmission channels : 6
- (i) Optic fiber cables
 - (ii) Radio waves
 - (iii) Infrared
4. (a) List six activities that should be part of an e-learning system. Explain the phases of content development in e-learning. 6
- (b) Compare and contrast the following : 8
- (i) SRAM versus DRAM
 - (ii) SIMM versus DIMM
 - (iii) ROM versus PROM
 - (iv) CD-ROM versus Pen - drive.
- (c) What is Open Source Software ? What are the main features of open source development model ? 6

5. Explain *any five* of the following with the help of an example/diagram, if needed. 20
- (i) The uses of WIKI in collaboration.
 - (ii) The activities/actions performed by a search engine.
 - (iii) TCP/IP model.
 - (iv) Activities in a project management software.
 - (v) Batch systems and time sharing operating systems.
 - (vi) Different types of parts in a computer.
 - (vii) Concept of Instruction ; and motivation for development of UNICODE.



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No. of Printed Pages : 4

BCS-011

04019

BACHELOR OF COMPUTER APPLICATIONS (Revised)

Term-End Examination

December, 2012

BCS-011 : COMPUTER BASICS AND PC SOFTWARE

Time : 3 hours

Maximum Marks : 100

Weightage : 75%

Note : Question number 1 is **compulsory** and carries 40 marks.
Attempt **any three** questions from the rest.

1. (a) Convert the following hexadecimal numbers to binary and decimal numbers. 5
- (i) $(AB)_{\text{Hex}}$
 - (ii) $(22F)_{\text{Hex}}$
- (b) How do you calculate access time on a magnetic disk ? Explain with the help of a suitable example. 5
- (c) What are the basic components of a computer as defined in Von Neumann architecture ? What is the use of each of this component ? 5
- (d) Explain the role of a translator program. 5
How is a compiler different than an assembler ?

- (e) What is an algorithm ? What is the relation between a flow chart and an algorithm ? Draw a flowchart to find the sum and average of marks of a student given in 5 different subjects. Marks are given out of 100. 8
- (f) What is a modem ? How can it be used for data transmission ? How a modem is different from hub ? 4
- (g) What is a DNS ? How is it used for identifying web addresses ? Explain with the help of an example. 5
- (h) What is a web browser ? Why is it needed ? Name at least three popular web browsers. 3
2. (a) Name and explain the purpose of any four utility programs used on a personal computer. 6
- (b) What are the characteristics and advantages of a Local Area Network ? Explain any one LAN topology with the help of a diagram. 8
- (c) Define the term "Open Source Software". Explain any two important features of the model used for open source software development. 6

3. (a) Explain the terms 6
- (i) Simple batch systems and
 - (ii) time sharing systems in the context of operating systems. How are batch systems different than the multiprogramming system.
- (b) Explain the different types of main memories that are part of a computer system. Why do you need secondary memories in a computer even if sufficient primary memory may be available ? 6
- (c) Name the features of any eight devices used for input/output. 8
4. (a) What are different types of optical disks ? 8
Explain their features and give their advantages.
- (b) Explain at least **four** important features of the following application software. 12
- (i) Word Processing
 - (ii) Spreadsheet
 - (iii) Database
5. Explain *any five* of the following terms/phrases with the help of an example/diagram, if needed : 20
- (a) Collaboration in the context of internet.
 - (b) Blog in the context of internet.

- (c) TCP/IP
 - (d) Router and Switches
 - (e) User interfaces of operating systems
 - (f) Trojan horse and spyware
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No. of Printed Pages : 4

BCS-011

**BACHELOR OF COMPUTER
APPLICATIONS (Revised)**

Term-End Examination

June, 2013

**BCS-011 : COMPUTER BASICS AND PC
SOFTWARE**

Time : 3 hours

Maximum Marks : 100

Weightage : 75%

Note : Question number 1 is compulsory and carries 40 marks.
Attempt any three questions from the rest.

1. (a) Convert the following decimal numbers to equivalent binary and hexadecimal numbers : 5
(i) 225
(ii) 62.5
- (b) Express the capacity of a magnetic disk of diameter 2.5 inch. The disk has 4 plates. Each plate surface has 5000 tracks. Each track has 16 sectors with each sector having a capacity of 1 MB. 4
- (c) What is the purpose of Central Processing Unit in a Computer ? What are the components of a CPU ? What effect did Integrated circuit technology had on the CPU ? Explain your answer. 5

- (d) Name and explain the purpose of any four types of software used in programming. 6
- (e) Draw a flow chart for a program that calculate the factorial of a number. Please note that factorial is defined as $n! = n \times (n-1) \times (n-2) \times \dots \times 3 \times 2 \times 1$. 6
- (f) What is the use of TCP/IP Protocol ? Describe the TCP/IP (layers) model with the help of a diagram. Explain the function of Transport layer and Internet layer of the model. 8
- (g) Define the terms confidentiality, Integrity and Availability in the context of Internet security. 3
- (h) What is a blog ? What are its advantages ? What precautions should you follow while blogging ? 3

2. (a) Explain the role and features of : 8
- (i) Processor internal memories
 - (ii) Cache memory
 - (iii) Primary memory
 - (iv) Secondary memory

- (b) Define the following terms in the context of a programming languages with the help of an example : 7
- (i) Variable
 - (ii) Constants
 - (iii) Data types
 - (iv) Array
 - (v) Expression
- (c) What is a URL ? What is the need of DNS in Internet ? Explain with the help of an example. 5
3. (a) A University designs and develops programmes as projects. It needs to monitor the progress of the projects. The programme development process requires financial monitoring as well as content development. Suggest three important application software for the university. Explain the features of these software that may be used by the university. 10
- (b) What is collaboration in the context of World Wide Web (WWW) ? What are the characteristics of WIKI ? Can you use Wiki for collaboration ? Justify your answer. 5
- (c) Explain application of computer systems in the area of banking and education. 5

4. (a) What is the meaning of term "topology" in the context of Computer Networks ? Explain any two LAN topologies giving their advantages and disadvantages. 9
- (b) Differentiate between the following : 6
- (i) Desktop Computer versus Mainframe Computer
 - (ii) Impact printers versus non - impact printers
 - (iii) Open source software versus proprietary software
- (c) What is motherboard ? Briefly explain different parts of a motherboard. 5
5. Explain *any five* of the following phrases/terms with the help of example/diagram, if needed. 20
- (a) Computer Virus
 - (b) Network Interface Card
 - (c) Wide Area Network (WAN)
 - (d) Guided Transmission Channels
 - (e) Any two source data entry devices
 - (f) File Management in Operating System.
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No. of Printed Pages : 3

BCS-011

**BACHELOR OF COMPUTER
APPLICATIONS (Revised)**

Term-End Examination

December, 2013

**BCS-011 : COMPUTER BASICS AND PC
SOFTWARE**

Time : 3 hours

Maximum Marks : 100

Weightage : 75%

Note : Question number 1 is **compulsory** and carries **40** marks.
Attempt **any three** questions from the rest.

1. (a) Explain the working of the various components of a computer, with the help of a diagram. 6
- (b) What are Arrays and what is their utility. 7
Explain the two types of arrays with the help of an example depict the storage of data in them.
- (c) What is a computer network ? What are its advantages ? Differentiate between guided and unguided data transmission channels. 7
- (d) What is Moodle ? Describe its role in E-learning. 5
- (e) Explain memory hierarchy with the help of suitable diagram. 5

- (f) Explain various categories of printers on the basis of speed and quality. 6
- (g) What is E-mail ? Write steps to create E-mail account. 4
2. (a) What is a port ? Explain any four types of ports. 6
- (b) Differentiate between Batch and Multiprogramming operating system. 5
- (c) Describe the OSI Reference Model with the help of a diagram. 9
3. (a) Explain the following terms with the help of example/diagram. 15
- (i) Access time (ii) DNS
- (iii) Plotter (iv) Video card
- (v) Disk checkers
- (b) Draw a flowchart that accepts ten numbers and displays its sum and average. 5
4. (a) Do the following conversions : 12
- (i) $(382)_{10}$ to Binary
- (ii) $(79)_{10}$ to Hexadecimal
- (iii) $(110101.01)_2$ to decimal
- (iv) $(38A)_{16}$ to Binary
- (b) Describe the working of Routers and Gateways. 6
- (c) What is a Browser ? 2

5. (a) What is an Open Source Development Model ? Describe any six features of this model. 8
- (b) Explain any four Operating System Services. 12
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No. of Printed Pages : 3

BCS-011

03299

**BACHELOR OF COMPUTER
APPLICATIONS (Revised)**

Term-End Examination

June, 2014

**BCS-011 : COMPUTER BASICS AND PC
SOFTWARE**

Time : 3 hours

Maximum Marks : 100

Weightage : 75%

*Note : Question number 1 is **compulsory** and carries **40** marks.
Attempt **any three** questions from the rest.*

1. (a) What is LAN ? Explain with the help of diagrams, any two LAN topologies. Also mention their advantages and disadvantages. 7
- (b) Explain Von-Neumann architecture with the help of suitable diagram. 5
- (c) Explain distributed and Real-time operating system. 6
- (d) Explain Sequential Access and Random Access methods for accessing information from memory devices. 6

- (e) Differentiate between the following : 6
- (i) System software vs. Application software.
 - (ii) Compiler vs Interpreter.
- (f) Explain the following terms : 10
- (i) Modem
 - (ii) Repeaters
 - (iii) Bridge
 - (iv) Network Interface Card
 - (v) Assembler
2. (a) Explain any two Guided and any two Unguided Transmission channels, with the help of diagrams. 10
- (b) Explain the purpose of open source software. Discuss any one model of development of open source software. 5
- (c) What is DNS ? Explain its use with the help of an example. 5
3. (a) Describe Editors and Debuggers as programming softwares. 4
- (b) What is Perverse Software ? Explain any four malware. 6

- (c) Explain with the help of examples the following conversions : 10
- (i) Decimal to Binary
 - (ii) Binary to Decimal
 - (iii) Hexadecimal to Binary
 - (iv) Binary to Hexadecimal
4. (a) What is Internet ? Describe the TCP/IP Model. 7
- (b) Explain Data Compression and Disk Management utility in windows. 6
- (c) What is Project Management ? Discuss how scheduling and calculation of critical path activities are performed using this software. 7
5. (a) What are flow charts ? What are the basic flow chart symbols ? Draw a flow chart that calculates the area of a circle. 10
- (b) What is Hard Disk Drive ? Describe the Storage Organization of a HDD with the help of a diagram. 6
- (c) Differentiate between a CRT and a LCD monitor. 4
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BCS-011

BACHELOR OF COMPUTER APPLICATIONS
(Revised)

09574

Term-End Examination

December, 2014

BCS-011 : COMPUTER BASICS AND PC SOFTWARE

Time : 3 hours

Maximum Marks : 100

(Weightage 75%)

Note : Question number 1 is **compulsory** and carries 40 marks. Attempt any **three** questions from the rest.

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1. (a) What is a computer system ? Explain Von-Neumann architecture of computer systems with the help of a diagram. 7
- (b) What is a flow chart ? Draw a flow chart to find the average of three given natural numbers. 7
- (c) What is open source software ? Explain open source development model. 7
- (d) What is software project management ? Explain the following with respect to software project management : 6
- (i) Scheduling
- (ii) Timesheet Management

- (e) What is Internet ? Explain the basic structure of Internet with the help of a diagram. 7
- (f) What is social networking ? Briefly explain its advantages and disadvantages. 6
2. (a) What is URL ? Explain the parts of a URL with the help of an example. 7
- (b) What is ASCII ? Explain how Unicode is different from ASCII. 6
- (c) What is a motherboard ? List and briefly explain any five parts of a motherboard. 7
3. (a) What is the need of memory hierarchy in computer systems ? Compare magnetic memory with semiconductor memory in terms of speed and cost. 6
- (b) What are malwares ? Explain any three malwares, in brief, with the help of an example of each. 7
- (c) What is a Compiler ? How is it different from Interpreter ? List any two high level languages, that use a Compiler. 7
4. (a) What is a Web Browser ? Explain how a Web Browser works. Also, explain the types of Web Browsers. 8
- (b) What is a programming language ? Briefly explain the following elements of a programming language : 6
- (i) Variable
- (ii) Data type

(c) What is an operating system ? Explain the following functions of an operating system : 6

(i) File Management

(ii) Memory Management

5. Explain any **five** of the following with the help of an example/diagram, if needed : $5 \times 4 = 20$

(i) Input Output Devices

(ii) Binary Number System

(iii) Utility Software

(iv) Spreadsheet

(v) Object Oriented Language

(vi) Networking Devices

(vii) Search Engine

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BCS-011

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

Term-End Examination

03323

June, 2015

BCS-011 : COMPUTER BASICS AND PC SOFTWARE

Time : 3 hours

Maximum Marks : 100

(Weightage 75%)

Note : Question number 1 is **compulsory** and carries 40 marks. Attempt any **three** questions from the rest.

1. (a) Convert the following hexadecimal numbers to equivalent binary and decimal : 4

(i) $(F4)_{16}$

(ii) $(AC)_{16}$

(b) A 3 inch diameter disk per track has 8 plates (16 recording surfaces), 256 sectors per track, 4096 tracks per surface, 512 bytes per sector. Calculate the disk capacity in GB. 6

(c) What is a flow chart ? Draw a flow chart to find the maximum of three given natural numbers. 6

- (d) What is a laser printer ? Compare its features with an ink-jet printer. 6
- (e) What is a desktop computer ? Give a generic configuration of a desktop computer. 5
- (f) What is E-mail ? Explain how an E-mail account is created. Also list the folders available in an E-mail account. 7
- (g) What is E-learning ? What are its advantages and disadvantages ? List the steps of the process of creating of E-learning content. 6
2. (a) What is data communication ? Explain data communication process with the help of a diagram. 7
- (b) What is a device driver ? Are device drivers hardware dependent ? Justify your answer. List four devices which require device drivers. 6
- (c) What is a subroutine ? Explain the steps of subroutine execution. Write a subroutine to find the sum of two given positive integers. 7
3. (a) Explain OSI reference model of computer network. 7
- (b) What is a search engine ? Explain three categories of search engines. 8
- (c) Explain any five major areas of application of computer systems. 5

4. (a) What is main memory ? Differentiate among RAM, Semiconductor memories and Cache memory. 7
- (b) What is application software ? How is application software different from system software ? List the names of two application and two system softwares. 6
- (c) What is wiki ? Explain the characteristics of wiki. Explain the uses of wiki for a university. 7
5. Explain any *five* of the following with the help of an/a example/diagram, if needed : $5 \times 4 = 20$
- (i) Collaborations with the context of Internet
 - (ii) LAN and WAN
 - (iii) Basic Storage Devices
 - (iv) Disk Management
 - (v) Computer Virus
 - (vi) Software Licensing
 - (vii) Object Oriented Language
-

No. of Printed Pages : 3

10764

BCS-011

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

Term-End Examination

December, 2015

BCS-011 : COMPUTER BASICS AND PC SOFTWARE

Time : 3 hours

Maximum Marks : 100

(Weightage : 75%)

Note : Question number 1 is **compulsory** and carries 40 marks. Attempt any **three** questions from the rest.

1. (a) Draw a flow chart to input a natural number, such as 997, and determine whether or not it is a multiple of 3. 6
- (b) In a local area network of star topology, one component failed, bringing down the whole network. Predict which component has failed. Justify your answer. 5
- (c) Describe two similarities and two differences between a router and a gateway. 4
- (d) What is a Wiki ? How does it promote content creation by the community ? 5

- (e) Explain the Von Neumann's architecture with the help of a diagram. 5
- (f) Describe *if* statement. Write an *if* statement to multiply even numbers by 3 and odd numbers by 4. 5
- (g) What is a trackball ? How does it work and where is it used ? 5
- (h) What is an operating system ? What are its functions and uses ? Name any one proprietary and one open source operating system. 5

2. (a) Describe the layers of TCP/IP reference model. 8
- (b) What is a defragmentation utility and what does it do ? What are the benefits of defragmentation ? 6
- (c) What are the threats to security from the Internet ? What are the mechanisms available to safeguard oneself from them ? 6

3. (a) What is the use of a compiler in a computer system ? How is it different from an interpreter ? 6
- (b) What are the components of the process for developing e-learning content on any subject ? Describe briefly the activities carried out in each, with the help of a diagram / example. 8

- (c) Why is a memory hierarchy used in a computer system? Explain the memory hierarchy diagrammatically, giving the changing characteristics of the memory as we traverse the hierarchy. 6

4. (a) What is meant by mailmerge? Describe the concept by giving the steps involved in sending a letter to the students of a class giving their grades in different subjects. 8

- (b) Describe the features, mechanisms, advantages and limitations of each of the following data transmission media : 12

- (i) Twisted Pair Cable
- (ii) Microwaves
- (iii) Infrared

5. Explain any **five** of the following with the help of diagrams and examples as appropriate : $5 \times 4 = 20$

- (a) Unicode
- (b) Arrays
- (c) Simplex, Half Duplex and Full Duplex Communication
- (d) Firewall
- (e) Laser Printer
- (f) Table of Contents in Microsoft Word

No. of Printed Pages : 3

BCS-011

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

Term-End Examination

00716

June, 2016

BCS-011 : COMPUTER BASICS AND PC SOFTWARE

Time : 3 hours

Maximum Marks : 100

(Weightage : 75%)

Note : Question number 1 is **compulsory** and carries 40 marks. Attempt any **three** questions from the rest.

1. (a) What are the features available in fifth generation computers ? 5
- (b) What is a subroutine ? How is it different from a function ? 6
- (c) Draw a flow chart to input two numbers and print their arithmetic mean. 6
- (d) Describe the different kinds of computer monitors. 5
- (e) What is a DNS ? How can an address like www.xyz.ac.in be interpreted and accessed using web ? 6

- (f) Convert the following decimal numbers to hexadecimal numbers as well as binary numbers : 6

(i) $(3203)_{10}$

(ii) $(4312)_{10}$

- (g) A company has an office at Delhi and another at Mumbai. It has a good link that delivers 2 Mbps between them. It is required to transfer 8.5 GB of data urgently from Delhi to a computer at Mumbai. A courier can reach the airport and board a flight in 2 hours. The flight time to Mumbai is another 2 hours and he can reach the Mumbai office from the airport in another 2 hours. Which method would be faster — use the link or send a courier ? 6

2. (a) What is open-source software ? What is open-source software licensing ? Describe the open-source development model. 8
- (b) List with reasons any six precautions you would take while browsing a website. 6
- (c) Describe the constituents and functions of the Central Processing Unit of a computer. 6

3. (a) What is a search engine ? Describe how different actions allow you to conduct a search on any given topic. 8
- (b) What are the limitations of a computer ? 6
- (c) Describe three key distinguishing features of Object Oriented Languages. 6
4. (a) Explain, with the help of a diagram, the 7-layer OSI networking model. Indicate the function of each layer with an example. 8
- (b) Describe the functions and features of the following : 12
- (i) Linker
- (ii) Debugger
- (iii) Device Driver
5. Explain any *five* of the following with the help of diagrams and examples as appropriate : $5 \times 4 = 20$
- (a) Uniform Resource Locator
- (b) ROM
- (c) Memory Management in an Operating System
- (d) Client-Server Architecture
- (e) Analogue and Digital Signals
- (f) Disk Checkers
-

No. of Printed Pages : 4

BCS-011

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

Term-End Examination

15805 December, 2016

BCS-011 : COMPUTER BASICS AND PC SOFTWARE

Time : 3 hours

Maximum Marks : 100

(Weightage : 75%)

Note : *Question number 1 is compulsory and carries 40 marks. Attempt any three questions from the rest.*

1. (a) Convert the following hexadecimal numbers to equivalent decimal numbers and binary numbers : 4

(i) $(79)_{16}$

(ii) $(AC)_{16}$

(b) What will be the storage capacity of a 2.5 inch diameter disk pack having 4 plates, 150 sectors per track, 2048 tracks per surface with each sector capable of storing 1024 bytes ? 4

- (c) Discuss the uses of various components of a computer as defined in Von Neumann architecture. 5
- (d) Explain Compilers, Debuggers, Linkers and Text Editors in the context of programming software. 6
- (e) What is an algorithm ? What is the relation between a flow chart and an algorithm ? Draw a flow chart to find the sum and average of marks of a student in 5 different subjects. Marks are given out of 100. 8
- (f) Which of the following is a valid Internet Protocol Address ? Justify. 3
- (i) 192.168.5.512
- (ii) 172.-2.1.0
- (iii) 56.26.257
- (g) What are the advantages of using Local Area Networks ? List the characteristics of LANs. How are Wide Area Networks different from Local Area Networks ? 7
- (h) What is a web browser ? Why is it needed ? Name at least three popular web browsers. 3

2. (a) What is memory hierarchy ? Explain with the help of a diagram. Why is memory hierarchy created in a computer system ? 7
- (b) What is perverse software ? List various types of perverse software. Give four ways to counter perverse software. 8
- (c) Explain any five features of a spreadsheet software. 5
3. (a) An organization designs and develops programs as projects. The progress of projects needs to be monitored in terms of content and finance. Recommend some application software for the organization. Also explain the features of this software related to various phases of the software development. 10
- (b) What is wiki ? List the characteristics of wiki. Can wiki be used for collaboration ? Explain. 5
- (c) What is MOODLE ? Discuss the merits and demerits of E-Learning. 5
4. (a) What are different types of optical disks ? Explain their features and give their advantages. 8
- (b) Explain at least four important features of the following software applications : 12
- (i) E-mail
- (ii) Database
- (iii) Word Processing

5. Explain any **five** of the following with help of an example/diagram, if required : 20

- (a) The activities/actions performed by a search engine
- (b) Use of subroutines and functions
- (c) TCP/IP model
- (d) Security threats on Internet
- (e) Batch systems and Time sharing operating systems
- (f) Diagnostic tools in a computer
- (g) Mainframe computers and Supercomputers

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No. of Printed Pages : 3

BCS-011

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

Term-End Examination

05021

June, 2017

BCS-011 : COMPUTER BASICS AND PC SOFTWARE

Time : 3 hours

Maximum Marks : 100

(Weightage : 75%)

Note : *Question number 1 is compulsory and carries 40 marks. Attempt any three questions from the rest.*

1. (a) Convert the following decimal numbers to binary number and hexadecimal number : 4
- (i) 57
- (ii) 0.215
- (b) How is the access time on a disk defined ? Explain the components of access time with the help of an example. 5
- (c) Explain the components of a memory system and the role of cache memory in the memory hierarchy. 6
- (d) List any four application softwares. Explain the purpose of each. 6

- (e) Draw a flow chart for a program that calculates the area of a circle. 6
- (f) What is a Blog ? What are the merits and demerits of blogging ? 4
- (g) List three categories of a search engine with the help of an example. What is indexing in the context of a search engine ? 5
- (h) Explain the advantages and disadvantages of e-learning. 4
2. (a) What is an Operating System ? List and explain any four services/functions of an operating system. 6
- (b) What are the characteristics and advantages of a Local Area Network ? Explain any one LAN topology with the help of a diagram. 8
- (c) Define the term 'Open Source Software'. Explain any two important features of the model used for open source software development. 6
3. (a) Discuss the following in brief : 8
- (i) Assembler
 - (ii) Editor
 - (iii) Interpreter
 - (iv) Compiler

- (b) What is port ? Explain the characteristics of Parallel, Serial, USB and Small Computer System Interface ports. 8
- (c) What are the security threats related to Internet ? How can they be prevented ? 4
4. (a) What is data transmission channel ? Compare and contrast Guided and Unguided channels. 8
- (b) Compare and contrast the following : 8
- (i) SRAM versus DRAM
- (ii) SIMM versus DIMM
- (iii) ROM versus PROM
- (iv) CD-ROM versus USB Drive
- (c) What is a URL ? Explain with the help of an example, the need of DNS in Internet. 4
5. Explain any *five* of the following with the help of an example/diagram, if required : $5 \times 4 = 20$
- (a) Network Interface Card
- (b) Word Processing
- (c) Collaboration in the context of Internet
- (d) Router and Switches
- (e) Activities in Software Project Management
- (f) Two Data Entry Devices
- (g) Cookies in the context of Browser Software



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No. of Printed Pages : 4

BCS-011

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

10460

Term-End Examination

December, 2017

BCS-011 : COMPUTER BASICS AND PC SOFTWARE

Time : 3 hours

Maximum Marks : 100

(Weightage : 75%)

Note : Question number 1 is **compulsory** and carries 40 marks. Attempt any **three** questions from the rest.

1. (a) Convert the following decimal numbers to binary number and hexadecimal number : 4
- (i) 125
- (ii) 0.025
- (b) Define the term Main Memory. List the differences between RAM and ROM. 4
- (c) Define the terms Tracks, Sectors and Cylinders in the context of a hard disk. A disk pack has 12 platters (plates) having 2048 tracks on every surface. It can store 1024 bytes per sector (assume each track has 512 sectors). Calculate the storage capacity of this disk in gigabytes. 6

- (d) List two functions of File management and three functions of Memory management systems in the context of Operating systems. 5
- (e) What is the role of a Compiler in a computer ? How is a Compiler different from an Interpreter ? 5
- (f) List the advantages of using formulae and macros in a spreadsheet software. 3
- (g) For the following IPv4 subnet masks, what would be the size of Net ID and Device ID ? 4
- (i) 255.255.0.0
- (ii) 255.255.255.0
- (h) What is LAN ? What are the advantages of LAN ? 5
- (i) What are the features of a browser software ? 4
2. (a) What is a Parallel port ? How is it different from a Serial port ? For connecting a printer, which of the two (serial/parallel) ports will be preferred ? Justify your answer. 6
- (b) Draw a flowchart to find the sum of the first n natural numbers. 8
- (c) What is a Wiki ? What are its characteristics ? How can it be used for educational purposes ? Explain with the help of an example. 6

3. (a) What is meant by Open Source Software ? Explain the developmental model and licensing of open source software. 6
- (b) Explain the uses and functions of the following networking devices : 8
- (i) Modem
 - (ii) Repeater
 - (iii) Router
 - (iv) Gateway
- (c) What are the various components of a CPU ? Explain the role of each component. How is a CPU interfaced with memory ? Explain. 6
4. (a) Differentiate between the following : 6
- (i) Packet and Circuit switching
 - (ii) Full-duplex and Half-duplex data transmission
 - (iii) Twisted pair and Optical fibre cable
- (b) Explain the advantages of source data-entry devices. Describe the features of any three source data-entry devices. 8
- (c) Explain the features of Procedural Programming Languages with the help of an example. How is Object Oriented Programming different from Procedural Programming ? 6

5. Explain any **five** of the following with the help of an example/diagram, if required : **5×4=20**

- (a) Disk Defragmenter
- (b) Workstation
- (c) CD-ROM Disk Layout
- (d) Advantages of e-mail
- (e) Two-Tier Client-Server Architecture
- (f) Features of Project Management Software
- (g) Moodle
- (h) DNS



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No. of Printed Pages : 4

BCS-011

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

Term-End Examination

June, 2018

01475

BCS-011 : COMPUTER BASICS AND PC SOFTWARE

Time : 3 hours

Maximum Marks : 100

(Weightage : 75%)

Note : Question number 1 is **compulsory** and carries 40 marks. Attempt any **three** questions from the rest.

-
-
1. (a) Convert the following binary numbers to equivalent decimal and hexadecimal numbers : 4
- (i) $(1011\ 0101)_2$
- (ii) $(0010\ 1110)_2$
- (b) Explain static RAM and dynamic RAM. How are they different from each other ? 5
- (c) Explain the concept of von Neumann architecture with the help of a diagram. 5
- (d) Draw the flow chart to find if a given number is divisible by 2 or not. 6

- (e) Explain the role of a linker and text editor software. 4
- (f) Explain the purpose of timesheet management in the context of project management software. 3
- (g) Define the term Search Engine in the context of Internet. Explain spidering and indexing actions performed by a search engine. 5
- (h) Explain the uses of radio waves and micro-waves for data transmission. 4
- (i) Explain the purpose of any four folders used in an email account. 4
2. (a) Explain the need of memory hierarchy with the help of an example. Explain the advantages and disadvantages of using CD-ROM as a secondary storage device. 6
- (b) What is the role of Operating System of a computer ? Define the term "Kernel" of an operating system. What are the uses of GUI and Input/Output control system for an operating system user ? 8
- (c) How can Moodle be used for e-learning ? List the advantages and disadvantages of e-learning. 6

3. Compare and contrast any *five* of the following : 5×4=20

- (a) Ring topology and Star topology
- (b) Social networking and Blogging
- (c) Macro and Functions in the context of spreadsheets.
- (d) Compiler and Assembler
- (e) Laser printing and Inkjet printing
- (f) Mouse and Graphics tablet

4. (a) How do you define the access time on a magnetic disk ? Explain with the help of an example. Why is access time of magnetic tape higher than magnetic disk ? Explain. 6

(b) Explain the purpose of TCP/IP protocols. Also explain the concept of IP addresses and web addresses, with the help of an example of each. 7

(c) Explain the concepts of one-dimensional array with the help of an example. 4

(d) Explain the conditional statement with the help of an example. 3

5. Explain any **five** of the following with the help of an example/diagram, if required : $5 \times 4 = 20$

- (a) Uses of any two utility softwares
- (b) Configuration of a laptop computer
- (c) Supercomputer
- (d) Open source software
- (e) Time-sharing system
- (f) Computer virus
- (g) Firewall in the context of networking
- (h) Characteristics of Metropolitan Area Network (MAN)

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**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

Term-End Examination

09713

December, 2018

BCS-011 : COMPUTER BASICS AND PC SOFTWARE

Time : 3 hours

Maximum Marks : 100

(Weightage : 75%)

Note : Question number 1 is **compulsory** and carries 40 marks. Attempt any **three** questions from the rest.

1. (a) A hypothetical simple computer has the following opcodes in its instruction set, each of which takes two operands that are given in the next 2 bytes :

- 00 Add ($op1 + op2$)
- 01 Subtract ($op1 - op2$)
- 10 Multiply ($op1 \times op2$)
- 11 Divide ($op1 \div op2$)

Write, in binary, the instruction that will carry out the calculation 46×75 .

6

- (b) Explain Internet Protocol addressing with the help of an example. 3
- (c) Draw a flowchart that takes “n” numbers as input and produces the smallest of those numbers as output. 5
- (d) Draw the graph for the following : 5
- (i) Analog signal
- (ii) Digital signal
- (e) List any three features of cloud computing and describe each of them briefly. 6
- (f) (i) What are the advantages and disadvantages of using CD as secondary storage ? 5
- (ii) A tape is 4000 feet long and has a recording density of 1200 bpi. What is its storage capacity ?
- (g) List five security measures one should take while browsing. 5
- (h) What is an open source software ? Give examples. What are the advantages and disadvantages of using open source software ? 5
2. (a) What is perverse software and what are its effects ? Describe briefly any three types of perverse software. 6

- (b) What is an unguided media channel ?
Explain the characteristics of the different kinds of unguided media channels. 9
- (c) What is a sequential access memory device ?
Describe its features. 5
3. (a) Discuss the following in brief : 8
- (i) Repeater
 - (ii) Bridge
 - (iii) Hub
 - (iv) Switch
- (b) IGNOU needs to send a letter to each student of the BCS-011 course, informing them of the location of their examination centre. The major portion of the text is the same for each student, but the roll number, name of the student and examination centre location are different. These details are available in a data file for each student (one file with all the data). What are the steps you would follow to make a personalised letter in Microsoft Word for each student so that each one feels the letter has been drafted for him or her alone ? 8
- (c) Explain the four different types of computer monitors. 4

4. (a) What is e-mail ? Describe its advantages and the facilities it provides. Explain how one can create an e-mail account on the e-mail system of one's choice. 8
- (b) Describe the mainframe software architecture. Contrast it with the following, bringing out any underlying similarities : 8
- (i) Two-tiered architecture
 - (ii) Three-tiered architecture
 - (iii) n-tiered architecture
- (c) What is Unicode ? Where and how is it used ? 4
5. Explain any **five** of the following with the help of examples or diagrams wherever required : $5 \times 4 = 20$
- (a) Laptop computer
 - (b) Internet based software architecture
 - (c) Social networking
 - (d) Dot matrix printer
 - (e) Looping statements in programming languages
 - (f) Von Neumann architecture
 - (g) Routers
-

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**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

Term-End Examination

07442

June, 2019

BCS-011 : COMPUTER BASICS AND PC SOFTWARE

Time : 3 hours

Maximum Marks : 100

(Weightage : 75%)

Note : *Question number 1 is compulsory and carries 40 marks. Attempt any three questions from the rest.*

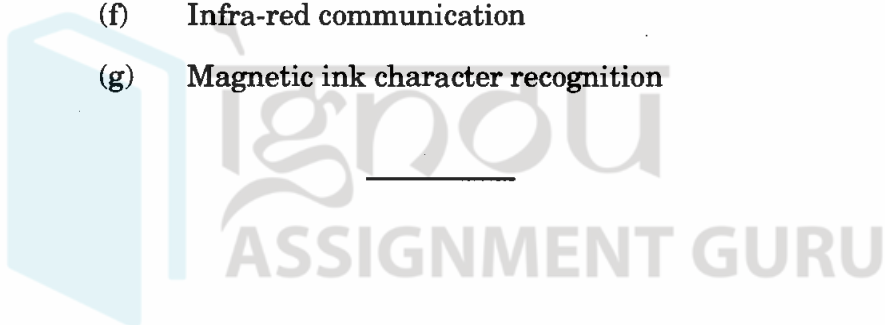
1. (a) Your computer has an IP address of 202.41.15.57. You are planning to communicate with a computer on the same network that has an IP address of 202.41.15.116. What is the subnet mask ? 4
- (b) What is the OSI model ? List the layers of the model from the lowest layer upwards. 4
- (c) Write down the 9 logical and relational operators in C, giving the function of each. 5

- (d) What is a compiler ? Draw a diagram showing the different stages of the program compilation process. 6
- (e) Let $x = 6$ and $y = 5$. What are the values of 5
- (i) $x! = y$
 - (ii) $x < y$
 - (iii) $x \% y$
 - (iv) $(x > 6) || (y != 5)$
- (f) What is meant by the configuration of a Personal Computer ? Write down the configuration of a typical workstation used for software development work. 6
- (g) What is the desktop in a Personal Computer ? What are the items typically found in it ? 4
- (h) List the five parts of a communication system and mention the role of each. 6
2. (a) Explain, with the help of a diagram, the process of developing content for an e-learning course. 8
- (b) List the features of second and third generation computers. 6
- (c) What is the function of the memory management system of a computer ? Explain the primary tasks it needs to perform. 6

- 3. (a) Discuss the following briefly : 8**
- (i) Batch processing
 - (ii) Online processing
 - (iii) Diskless workstations
 - (iv) Operating system kernel
- (b) Describe the structured and modular design paradigm with the help of a diagram and pseudo code. 8**
- (c) What is volunteer computing ? Give an example of such computing. 4**
- 4. (a) Draw the block diagram of a computer system and briefly explain the function of each of the main components. 8**
-
- (b) What is a linker ? Explain its function with the help of a diagram. 4**
- (c) Describe each of the following communication modes, bringing out the similarities and differences among them : 8**
- (i) Broadcast
 - (ii) Simplex
 - (iii) Half-duplex
 - (iv) Duplex

5. Explain any ***five*** of the following with the help of examples or diagrams wherever required : $5 \times 4 = 20$

- (a) Hard disk defragmenter utility
- (b) Video card of a Personal Computer
- (c) Timesheet Management System
- (d) Ring network topology
- (e) Device drivers
- (f) Infra-red communication
- (g) Magnetic ink character recognition



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**BACHELOR OF COMPUTER
APPLICATIONS (BCA)
(REVISED)**

Term-End Examination

December, 2019

**BCS-011 : COMPUTER BASICS AND PC
SOFTWARE**

Time : 3 Hours

Maximum Marks : 100

Weightage : 75%

Note : Question No. 1 is compulsory and carries 40 marks. Attempt any three questions from the rest.

1. (a) Convert the following decimal numbers to equivalent binary number : 2

(i) 37

(ii) 0.125

- (b) Convert the following hexadecimal number
to equivalent binary : 2

$(FA3)_{16}$

- (c) What will the storage capacity of a disk of
2.5 inch diameter 8 plates (16 recording
surfaces) with 512 sectors per track and
2048 tracks per recording surface ? Assume
that one sector can store 1048 bytes of
data. 2

- (d) Differentiate between the parallel port and
serial port of a computer. 2

- (e) What is an integrated circuit ? Is
microprocessor an integrated circuit ? 2

- (f) Explain the concept of memory hierarchy
with the help of a diagram. 4

(g) Draw a flowchart to find if the given number is odd. 5

(h) What is the file management in the context to operating system ? How does file management system keeps track of a file ? Explain. 5

(i) What is the role of compiler in a computer system ? 3

(j) Which of the following are valid IPv4 address ? Give justification : 3

(i) 256.0.0.0

(ii) 192.168.1.27

(iii) 10.0.5.7.5

(k) What is meant by the term 'Network Topology' ? Explain the bus topology with

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the help of a diagram. List the advantages and disadvantages of bus topology. 6

(l) What is e-Learning ? What are its advantages and disadvantages ? 4

2. (a) Explain the *three* modes of data transmission. 5

(b) What is URL ? Why is it needed ? Explain various parts of a URL with the help of an example. How URL is translated to physical address of the resource ? Explain with the help of an example. 8

(c) Explain the following terms in the context of a search engine : $2+3+2=7$

(i) Spidering or Web Crawling

(ii) Indexing

(iii) Searching

3. (a) What is Computer Virus ? How is it different from Trojan Horse in the context of a computer ? List the ways to counter the perverse software. 7

(b) Explain the following features of an application software : 8

(i) Mail merge in word processing

(ii) Macros in spreadsheet

(iii) Defining relationship in Database Management System

(iv) Scheduling in Project Management Software

(c) Differentiate between the open source software and proprietary software. 5

4. (a) Explain the role of various components of a computer system with the help of a diagram. 5

- (b) Differentiate between the following : 10

(i) Serial Access and Random Access

(ii) RAM and ROM

(iii) SRAM and DRAM

(iv) ROM and PROM

(v) Inkjet Printer and Laser Printer

- (c) What are utility software ? Explain the use of disk checker and disk defragmenter utility software. 5

5. Explain any *five* of the following with the help of an example/diagram, if needed : 5×4=20

(a) Web Browser

(b) Optical Memories

- (c) ASCII and Unicode
- (d) Looping Statement
- (e) Kernel of an Operating System
- (f) Linker and Text Editors
- (g) Hub and Switches (Networking devices)
- (h) WIKI

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**BACHELOR OF COMPUTER
APPLICATION (REVISED) (BCA)**

Term-End Examination

June, 2020

**BCS-011 : COMPUTER BASICS AND PC
SOFTWARE**

Time : 3 Hours

Maximum Marks : 100

Weightage : 75%

*Note : (i) Question No. 1 is compulsory and carries
40 marks.*

*(ii) Attempt any three questions from the
rest.*

1. (a) Convert the following as asked : 6

(i) $(0.375)_{10}$ to equivalent binary

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(ii) $(1010\ 1101)_2$ to equivalent decimal

(iii) $(F2B)_{16}$ to equivalent binary

(iv) $(1001\ 1101)_2$ to equivalent hexadecimal

(b) A computer system has CPU that processes data and input/output devices that perform the job of Input and Output of data, then why does a computer need RAM which is just a temporary memory ? 4

(c) Explain the characteristics of I/O devices that will be needed for the following : 4

(i) A printed page is to be converted to electronic form without retyping it.

(ii) A printed bill has bar-code, which is to be read to get all the payment details.

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(iii) A device that will print very high quality and high precision graphs and pictures of different sizes.

(iv) A device that is required to record voice.

(d) What is the role of operating system ?

Explain the role of memory management in operating system. 4

(e) You need to write a program in a programming language like C or C++ and

execute it using your computer. Which software will you need for this purpose ?

List the features of all the software that you will need to do so. 5

(f) Draw a flow chart to input three numbers and find the largest amongst them. 5

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- (g) What are the characteristics of optical fiber cable ? What are the advantages and disadvantages of optical fiber ? 4
- (h) What is the role of DNS ? Explain with the help of an example. 4
- (i) Explain the role of any *two* folders that are part of your e-mail account. 4
2. (a) Explain data organization of a disk with the help of diagram(s). 6
- (b) What is an open source software ? Explain open source development model. 6
- (c) Explain the role of the following network devices : 8
- (i) Network Interface Card
 - (ii) Modem
 - (iii) Hub
 - (iv) Router

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8. Compare and contrast any *five* of the following :

$5 \times 4 = 20$

- (a) SRAM and DRAM
- (b) Parallel port and Serial port
- (c) Subroutines and Functions
- (d) Word processing and Spreadsheet software
- (e) Primary search engines and Meta search engines
- (f) Microwave transmission and Infrared transmission

4. (a) What is collaboration in the context of Web application ? What is Wiki ? What are its characteristics ? List various activities for which Wiki can be used. 6

- (b) What is cloud computing ? Discuss key features of cloud computing. 6

P. T. O.

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- (c) Explain the Von Neumann architecture of a computer with the help of a diagram. 5
- (d) What is an Integrated circuit ? What are the advantages of using Integrated circuits ? 3
5. (a) What is op-code in an Instruction of a computer ? Explain with the help of an example. 3
- (b) Give *one* example each of volatile and non-volatile memory. 2
- (c) What is the role of video card of a computer ? 2
- (d) What are the uses of mail merge feature of word processor ? Explain with the help of an example. 5

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(e) Explain the term batch processing in the context of operating system. 3

(f) What is a browser ? What are its features ?
How does a browser communicate with web server ? 5



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**BACHELOR OF COMPUTER
APPLICATION (REVISED)
(BCA)**

Term-End Examination

December, 2020

**BCS-011 : COMPUTER BASICS AND PC
SOFTWARE**

Time : 3 Hours

Maximum Marks : 100

Weightage : 75%

Note : *Question No. 1 is compulsory and carries 40 marks. Attempt any **three** questions from the rest.*

1. (a) Perform the following : 6
 - (i) Convert the number $(16.25)_{10}$ to binary.
 - (ii) Convert the number $(1011\ 1010)_2$ to decimal.

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- (iii) Convert the number $(ABC)_{16}$ to binary.
- (iv) Convert the number $(110011\ 1001)_2$ to hexadecimal.
- (b) List the input/output devices for the following situations. Also describe the features of the device : 4
- (i) For taking photographs
 - (ii) Producing output of photograph
 - (iii) Input of voice
 - (iv) Output of voice
- (c) What is the role of main memory in a Computer ? Why is it called RAM ? How is RAM different from ROM ? 4
- (d) You have attached a new printer to your computer. Which software will you require so that printer is installed correctly and starts to print. List features of the required computer software. 3

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- (e) Draw a flowchart for a program to find the average marks of the students of a class in a subject. The class strength is 15. 5
- (f) List **six** operations that can be performed using a word processor. 3
- (g) Explain the characteristics of hub and a router. Which of the two will be needed if you want to connect from one network to another ? 5
- (h) What is an IPv4 address ? What are its components ? What is the use of a subnet mask ? Explain with help of an example. 6
- (i) What is a Browser ? Why is it needed ? List any **two** features of a browser. 4
2. (a) What is the role of Arithmetic Logic Unit (ALU) and Control Unit (CU) in a computer ? 4
- (b) What is a Super Computer ? How is it different to mainframe computer ? 4

P. T. O.

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(c) What are the uses of magnetic tape ?
Explain, how is the access mechanism of magnetic tape different than that of magnetic disks. 4

(d) Explain the terms pixel, resolution and LEDs in the context of computer monitors. 4

(e) Explain the role of “Recycle Bin” and “Taskbar” on windows operating system. 4

3. (a) What are various components of a Local Area Network (LAN) ? What are the advantages of using LANs ? How are LAN different than WANs ? 6

(b) Explain the ring topology with the help of a diagram. List the advantages and disadvantages of ring topology. 6

(c) Explain the following web application giving their features and advantages : 8

(i) E-learning

(ii) E-mail

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4. (a) What is a Computer Virus ? What role can anti-virus software play to control a computer virus ? 4
- (b) What are open source software ? What are the primary objectives of open source movement ? 4
- (c) What Graphical User Interface ? What are advantages of using these interfaces ? 4
- (d) Explain the terms subroutine and function in the context of programming languages with the help of an example each. 5
- (e) What is meant by Macros in the context of spreadsheet software ? Why are they needed ? 3
5. Discuss the uses of any **eight** of the following in a computer system/networking : $2\frac{1}{2} \times 8 = 20$
- (i) Firewall
- (ii) TCP/IP Protocol
- (iii) Radio waves
- (iv) Twisted Pair Cable

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- (v) Compiler
- (vi) Linker
- (vii) Presentation Software
- (viii) Database Management
- (ix) ASCII
- (x) DVD
- (xi) Mouse
- (xii) Bar code reader



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