

BCA/ITA : 103 (O)



2025

(1st Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper : ITA : 103 (Old Course)

(IT Tools and Applications)

Full Marks : 70

Pass Marks : 45%

Time : 3 hours

(PART : B—DESCRIPTIVE)

(Marks : 45)

*The figures in the margin indicate full marks
for the questions*

1. (a) Define a computer and describe its key characteristics. Explain the difference between hardware and software. 1+3+2=6
- (b) What is Information Technology (IT)? Describe three practical applications of IT in modern society. 3

Or

- (c) Explain the function of a CPU and its two main components. How is processor speed measured? 1+2+1=4

- (d) Differentiate between the FAT and the NTFS file systems. 3
- (e) List and describe two types of Optical Disks. 2

2. (a) What is the function of an I/O bus in a computer system? Explain the three main types of system bus : address bus, data bus, and control bus. 1+3=4
- (b) Explain the three main stages of the instruction cycle. 3
- (c) Define memory interleaving. 2

Or

- (d) What is virtual memory? What are the main benefits of using virtual memory? 1+3=4
- (e) What do you understand by Pipeline Hazard? Explain the three main types of hazard. 1+3=4
- (f) Define cache. 1
3. (a) Convert the following numbers into their required bases, showing all the steps for each conversion :
- (i) $(10110)_2$ into Decimal 1
- (ii) $(145)_{10}$ into Binary 1
- (iii) $(527)_8$ into Hexadecimal 2
- (iv) $(AD)_{16}$ into Binary 1
- (v) $(1101101)_2$ into Decimal 2

- (b) Define logic gate and explain its role in a computer. 2

Or

- (c) Explain how a full adder differs from a half adder. 3
- (d) What do you understand by Boolean algebra? What are the different types of Boolean Algebra laws? $1+4=5$
- (e) Differentiate between data and information. 1
4. (a) Explain the roles of a compiler and an interpreter. 2
- (b) Describe the characteristics and uses of the following types of application software : $2+2+2=6$
- (i) Word processing
 - (ii) Spreadsheet
 - (iii) Presentation Graphics
- (c) What are the full forms of PDF and JPEG? 1

Or

- (d) Define an operating system (OS) and describe three of its core functions in a computer. $1+3=4$
- (e) Describe two different types of viruses and explain a key method for virus detection and prevention. $2+2=4$
- (f) Name two types of operating system. 1

5. (a) Explain the advantages and disadvantages of optical fibre and coaxial cables. 4
- (b) What is bandwidth in data communication? Name and describe two common transmission impairments. 1+2=3
- (c) Provide a brief overview of the HTTP protocol. 2

Or

- (d) Explain the relationship between a Domain Name and an IP Address. 2
- (e) Give four examples of search engines. 2
- (f) Describe the three basic types of communication mode. 3
- (g) Explain MAN and provide a typical example. 2

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(1st Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper : ITA : 103 (Old Course)

(IT Tools and Applications)

(PART : A—OBJECTIVE)

(Marks : 25)

The figures in the margin indicate full marks for the questions

- 1. Choose the most appropriate answer from the given options by putting a Tick (✓) mark in the brackets provided :** **1×10=10**

(a) Which of the following languages does the computer understand?

- (i) Only C Language ()**
- (ii) Only Assembly Language ()**
- (iii) Only Binary Language ()**
- (iv) Only BASIC ()**

(b) Which of the following is the smallest unit of data in a computer?

(i) Bit ()

(ii) kB ()

(iii) Nibble ()

(iv) Byte ()

(c) Which of the following units is responsible for converting the data received from the user into a computer understandable format?

(i) Output Unit ()

(ii) Input Unit ()

(iii) Memory Unit ()

(iv) Arithmetic and Logic Unit ()

(d) Which of the following parts of a processor contains the hardware necessary to perform all the operations required by a computer?

(i) Controller ()

(ii) Registers ()

(iii) Cache ()

(iv) Data path ()

(e) Which of the following services allows a user to log in to another computer somewhere on the Internet?

(i) E-mail ()

(ii) Usenet ()

(iii) Telnet ()

(iv) FTP ()

(f) Why is a firewall used in a computer?

(i) Monitoring ()

(ii) Data Transmission ()

(iii) Authentication ()

(iv) Security ()

(g) What is the size of IPv4 Address?

(i) 32 bits ()

(ii) 24 bits ()

(iii) 16 bits ()

(iv) 12 bits ()

(h) Which of the following is not a method of communication technology?

(i) Satellite-based communication ()

(ii) Telepathy ()

(iii) Terrestrial-based communication ()

(iv) Videoconferencing ()

(i) A logic circuit that produces a HIGH output only when all its inputs are HIGH is a/an

(i) OR gate ()

(ii) AND gate ()

(iii) XOR gate ()

(iv) NOT gate ()

(j) What is the term for the loss of signal strength as it travels through a transmission medium due to factors like resistance?

(i) Distortion ()

(ii) Noise ()

(iii) Attenuation ()

(iv) Interference ()

2. State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark : 1×5=5

- (a) A computer can only have one operating system running at any given time.

True () *False* ()

- (b) A terabyte is equal to 1 million gigabytes.

True () *False* ()

- (c) A virus is a type of malware that requires a host program to spread.

True () *False* ()

- (d) The primary function of a Web Browser is to create and edit text documents.

True () *False* ()

- (e) The Internet and the World Wide Web are two different names for the exact same thing.

True () *False* ()

3. Answer the following questions in short : 2×5=10

- (a) Describe the difference between primary storage and secondary storage.**

(b) Define the basic input/output system (BIOS) and explain its role in a computer.

(c) What is the fundamental need for a coding system in computers?

- (d) What is embedded software? Provide an example of a device that uses embedded software.

- (e) Describe in short the relationship between client and server in a client-server architecture.
