

DIGITAL AND COMPUTER FUNDAMENTALS [15CS21T]

Unit 1-Digital Principles			
1	Explain briefly binary and decimal number system.	5M	Apr2016
2	Convert the following :- A) 671_{10} to binary B) 11010_2 to decimal C) 127662_8 to decimal D) 0101111_2 to octal E) 5112_{10} to hexadecimal F) 321_{10} to binary G) 321_8 to decimal. OR Convert the following :- A) 671_{10} to binary B) 10110011 to decimal	5M 10M 5M	Apr2016/Nov 2018 Nov 2019
3	Define the following :- a) BCD b) EBCDIC c) ASCII code d) GRAY code e) EXCESS-3 code	10M	Apr2016/ Apr2017/ Apr2018/ May2019/ Nov 2019
4	What is BCD and explain.	5M	Nov2016/Apr2017/ Nov 2018
5	Subtraction of 1010 from 1111 using two's compliment method.	5M	Nov 2016
6	What is ASCII code? Mention its Applications.	10M	Nov 2016/Nov 2018
7	How do you represent the number in Excess-3 Code & Gray Code.	10M	Nov 2016
8	Illustrate 1's Compliment and 2's Compliment of a binary number with examples.	5M	Apr 2017/May 2019
9	Convert :- i) 585_{10} to binary. ii) 110110011_2 to hexadecimal. iii) FDH_{16} to decimal. iv) 751_8 to binary.	10M	Apr2017
10	Describe 1's complement method of subtraction.	5M	Apr 2018
11	Convert the following :- i) Decimal to Binary-528 ii) Binary to Octal- 11001011_2 iii) Hexadecimal to Binary- $8E4_{16}$ iv) Octal to decimal- 351_8 Convert the following :- Binary to Decimal 11101_2 Decimal to Binary 456 Binary to Octal 10001_2 Decimal to Octal 567 Hexadecimal to Binary $7AC_{16}$	10M 10M	Apr 2018 May 2019
12	Add 1111 and 1010 using 2's complement.	5M	Nov 2018

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13	What do you mean by number system? List types of number system.	5M	May 2019
14	With an example explain the conversion of octal number to hexadecimal number and vice-versa.	5M	Nov 2019
15	With an example, write the steps to subtract large number from smaller number using 2's compliment method.	5M	Nov 2019
Unit 2 – Logic Gates & Boolean Equations.			
1	Classify Logic gates with truth table and logic symbols.	5M	Apr 2016

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2	State De-Morgan's Theorem	5M	Apr 2016/ Nov 2016/ Apr 2017/Nov 2019
3	List and explain any 5 Boolean algebraic rules.	10M 5M	Apr 2016 Apr 2017/Nov2018/Nov 2019
4	Write the laws of Boolean algebra.	5M	Nov 2016/May 2019
5	Write the truth table & logic symbols of basic gates.	10M	Nov 2017/Nov 2018
6	Write the truth table of a two-input NOR Gate with it's logic symbol.	5M	Apr 2017

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7	Simplify the expressions :- 1) $AB+A(B+C)+B(B+C)$ 2) $C+BC$	10M	Apr 2017
	OR		
	Simplify the expressions :- 1) $\overline{AB+A(B+C)+B(B+C)}$ 2) $\overline{AB+AC+ABC}$	10M	Nov 2019
	OR		
	Simplify the expression $Y=ACD+A'BCD$.	5M	May 2019
8	Write the truth table and logic symbol of AND gate.	5M	Apr 2018
	Write the truth table and logic symbol of NAND gate.	5M	Nov 2018
	Give the logic symbol and truth table of logic gates: (a) AND (b) OR (c) NOT (d) NAND (e) NOR	10M	May 2019
9	Construct OR gate using any of the universal gates.	5M	Apr 2018
10	Simplify the expressions :- -	10M	Apr 2018
	1) $AB+C$, by applying Boolean Algebraic, rules and De-Morgan's thermo.		
11	Write the logic symbol, truth table and logical expression for AND gate.	5M	Nov 2019
Unit 3 – Combinational Circuits			
1	Write half adder logic diagram with truth table.	5M	Apr 2016/May 2019
2	Explain Decimal to BCD encoder with its truth table and logic diagram.	10M	Apr 2016
3	Write the difference between a full adder and half adder.	5M	Nov 2016
4	List the applications of multiplexer.	5M	Nov 2016/Nov 2018/Nov 2019
	OR		
	What is Multiplexer? And list its application		
5	Explain with a neat circuit diagram and truth table the working of BCD to Decimal decoder.	10M	Nov 2016
6	Define (i) encoder (ii) Decoder	5M	Apr 2017
	OR		
	Define Encoder and Decoder, give an example for each	5M	Nov 2019
7	Explain full adder with logic diagram and truth table.	5M	Apr 2017/Nov 2018
	OR		
	Explain the working of full adder with its logic symbol, logic circuit, truth table and logical expression.	10M	Nov 2019
8	Explain the difference between a half adder and full adder.	5M	Apr 2018
9	Explain the working of full adder with logic diagram, logic circuit and truth table .	10M	Apr 2018
10	Discuss the working of 1:4 demultiplexer with logic circuit and truth table.	10M	May 2019
Unit 4 – Sequential circuits.			
1	Define flip-flops. List the different types of flip-flops.	5M	Apr 2016/Nov 2019

Question Bank – Unit Wise

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2	Illustrate JK Flip-Flop with truth table and logic circuits.	10M	Apr2016
3	Explain the working of 4bit Serial-in & Serial-out (SISO) Shift resistor with logic circuit.	10M 10M	Nov 2016 Apr2016
4	Explain JK Master-Slave Flip-Flop with truth table, logic symbol & logic circuit.	10M	Nov 2016 Apr2017
5	Explain 4bit Synchronous UP/DOWN Counters.	10M	Nov 2016 Apr2018
6	List the application of flip-flop.	5M	Apr2017 Apr2018
7	Explain the working of 4bit Serial-IN-Parallel-OUT (SIPO) Shift Resistor with logic circuit and truth table.	10M	Apr2017/Nov 2018/May 2019
8	Explain RS flip-flop with truth table, logic symbol and logic circuit.	10M	Apr2018/May 2019

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9	Explain D-Flip-flop with truth table.	5M	Nov 2018
10	Explain 4-bit Asynchronous ripple counter.	10M	Nov 2018
11	What is race around condition? In which flip-flop it is overcome?	5M	May 2019
12	What is Shift Registers? List its applications. OR What is Shift Register? List the different types of Shift register.	5M	May 2019/Nov 2019
13	Define Counter. List the applications of counter.	5M	Nov 2019
14	Explain the working of 4bit Parallel-in & Serial-out (PISO) Shift resistor with truth table and logic circuit.	10M	Nov 2019
Unit 5 – Introduction to Computers and Computer Software.			
1	Define High-Level language. Write it's advantage and disadvantages.	5M	Apr 2016/ Nov 2018
2	Explain the components of a computer system with a neat block diagram.	10M	Nov 2016 Apr2017/ Nov 2018/May 2019/Nov 2019

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3	List the classifications of computers.	5M	Apr2017
4	List the software terminologies. OR Explain any five software terminologies.	5M 10M	Apr2017 Nov 2019
5	Describe the characteristics of computer. Define computer. List the characteristics of computer.	5M	Apr2017/Apr2018/ May 2019/Nov 2019
6	Classify different generations of computers Explain the first generations of Computers.	10M 5M	Apr2017 Nov 2018
7	List the various applications of computers.	5M	Apr2018/Nov 2019
8	Write the advantages of high level language over machine level language.	5M	Apr2018
Unit 6- Peripherals & Memory			
1	What is the use of mouse & Touch screen?	5M	Nov 2016
2	Explain the working principle of Keyboard.	10M	Nov 2016 Apr2016/ May2019
3	Write the difference between primary memory and secondary memory.	10M	Nov 2016/Nov 2018
4	List the characteristic of impact printers.	5M	Apr2016
5	Name the input devices of computers. OR List any 5 input devices.	5M	Apr2016/Nov 2018/May 2019/Nov 2019
6	Define ROM. Compare RAM & ROM.	5M	Apr2016 Apr2018/Nov 2018
7	Explain the working principle of CRT with neat diagram.	10M	Apr2016/Nov 2018/May 2019
8	a) State the benefits of secondary storage. b) List the advantages of optical disk. OR List and explain any five benefits of Secondary memory.	5M 5M 10M	Apr2016 Apr2016 Nov 2019
9	Differentiate impact & non-impact printers.	5M	Apr2017/Nov 2018
10	a) List any 4 Input & Output devices each. b) Write a note on scanners.	5M 5M	Apr2017 Apr2017
11	Write a brief note on different types of ROM	10M	Apr2017
12	a) Compare Primary & Secondary Memory. b) Explain the hierarchy of memories. OR List the hierarchy of computer memory with diagram	5M 5M 5M	Apr2017 Apr2017 Nov 2019
13	Explain non-impact printers with an example.	5M	Apr2018
14	Enumerate the characteristics of blu-ray disc.	5M	Apr2018
15	Explain how a light pen is used as an input device.	5M	Apr2018
16	Explain the basic principle of C.R.T. with a neat diagram.	10M	Apr2018
17	Explain the working principle of Hard disc.	10M	Apr2018
18	Describe the following: a) Webcam b)DVD	10M	Nov 2018

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19	List any two uses of (a) Scanner (b) Web Camera (c) Mouse (d) Touch Screen (e) Laser Printer	10M	May 2019
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