GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

(An Autonomous Institute of Govt. Of Maharashtra)

EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL : - **FIRST** PROGRAM : **INFORMATION TECHNOLOGY**

COURSE CODE :- **ITG104**

COURSE NAME **BASIC ELECTRONICS**

MAX. MARKS : **40** TIME : **02Hrs.** DATE :- **07/ 06 / 2023**

Instruction :-

1) Answers must be written in the main answer book provided.(and supplements if required)
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	Question Text	R/U/A	Co ITG 104	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	Identify color code for the following i) 4.7KΩ, 5% ii) 330Ω, 10%	A	1	
	b)	State different types of capacitors.	R	1	
	c)	State cut in voltage for Si and Ge diode.	R	2	
	d)	Give application of zener diode (any two)	A	2	
	e)	State need of regulator.	A	3	
	f)	Define operating point of transistor.	R	4	
Q.2		Attempt any **FOUR:**			**16**
	a)	With neat diagram explain the working principle of capacitor.	U	1	
	b)	What is doping? Why doping is done in semiconductors.	U	2	
	c)	Draw and explain VI characteristics of PN junction diode.	U	2	
	d)	Draw and explain Half Wave Rectifier with capacitive filter.	U/A	3	
	e)	Draw pin diagram of IC 79XX voltage regulator. Also write any four features of it.	A	3	
	f)	Draw and explain the input characteristics of NPN transistor in CE configuration.	A	4	
Q.3		Attempt any **FOUR:**			**16**
	a)	Explain the working of zener diode as voltage regulator.	U/A	2	
	b)	Draw the circuit diagram of full wave rectifier. Explain with input and output waveform.	U/A	3	
	c)	What is need of rectification? Give the classification of rectifier.	R/U	3	
	d)	Give the comparision between full wave center tap rectifier and bridge rectifier (any four point)	U	3	
	e)	What is need of transistor biasing? State the different types of biasing.	R/U	4	
	f)	Draw circuit of single stage amplifier. Give any two applications if it.	A	4	

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EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL: **THIRD** PROGRAM: **INFORMATION TECHNOLOGY**

COURSE CODE: **ITG 304** COURSE NAME: **Oop using C++**

MAX. MARKS: 80 TIME: **3 HRS.** DATE: **08/06 /2023**

Instruction :-

1) Answer must be written in main answer book provided. (and supplements if required)
2) Illustrate your answers with sketches where ever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables will be made available on request.
5) Assume and mention suitable additional data necessary.
6) Use of Mobile is strictly prohibited.
7) **QN**-Question No, **SQN**-Sub-Question No, **R**- Remembering, **U**-Understanding, **A**-Application **CO**-Course outcome

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QN	SQN	QUESTION TEXT	RUA	CO ITG 304	Marks
Q.1		Attempt any **FOUR**			**(08)**
	a)	State any four applications of Oop.	R	1	
	b)	Define Token & constant.	R	1	
	c)	Define call by value with example.	R	1	
	d)	Define function.	R	1	
	e)	State the difference between class and object.	A	2	
	f)	State any four characteristics of friend function.	R	2	
Q.2		Attempt any **FOUR**			**(16)**
	a)	Write C++ program to swap two numbers.	A	1	
	b)	Describe inline function and state purpose of inline function.	U	1	
	c)	Write C++ program to find out maximum number between two numbers using friend function.	A	2	
	d)	Explain the concept of static data members with example.	U	2	
	e)	Describe the concept of copy constructor.	U	3	
	f)	Write a program for parameterized constructor.	A	3	
Q.3		Attempt any **FOUR**			**(16)**
	a)	Describe the concept of scope resolution operator.	U	1	
	b)	Explain the concept of function overloading.	U	1	
	c)	Write a C++ program to implement list of managers of company having details such as name, age, salary for creates and uses array of object of a class.	A	2	
	d)	Describe the concept of private member function in detail.	U	2	
	e)	Define constructor with its characteristics.	U	3	
	f)	Write a C++ program to implement concept of destructor.	A	3	

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GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

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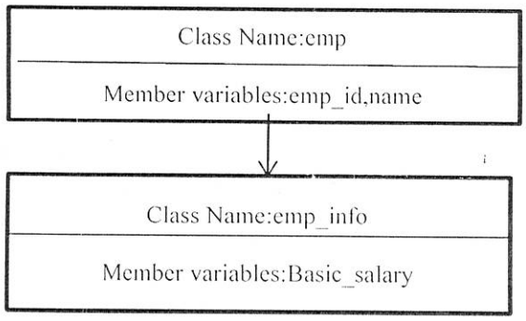
WINTER/SUMMER- 2023

EXAM SEAT NO. | | | | | | |

LEVEL : - THIRD
PROGRAM : Information Technology
COURSE CODE :- ITG304
COURSE NAME :- OOP Using C++
MAX. MARKS : TIME : DATE :- 8/6/2023

QN	SQN	SECTION –II	R/U/A	Co ITG 304	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	State the need of virtual function in C++.	U	5	
	b)	What is multilevel inheritance? Draw the diagram to show multilevel inheritance. using classes with data member and member function	A	4	
	c)	Explain virtual base class with suitable example	R	4	
	d)	Give syntax and use of fclose ( ) function.	U	5	
	e)	Give meaning of following statements: int * ptr, a = 5; ptr = & a ; cout << * ptr ; cout << (* ptr) + 1;	A	5	
	f)	Define Stream.	R	6	
Q.5		Attempt any **FOUR:**			**16**
	a)	Write a C++ program to declare a class college with name and code. Derive a new class as student with members as name. Accept and display details of one student along with college data.	A	4	
	b)	Describe the mechanism of Exception Handling in C++	U	5	
	c)	Write any four rules for operator overloading	U	5	
	d)	State and describe visibility modes and its effects used in inheritance.	U	4	
	e)	Write a program in C++ to overload unary '_' operator to negate values of data members of class.	A	5	
	f)	Explain Different File modes with example(any 4)	U	5	
Q.6		Attempt any **FOUR:**			**16**
	a)	Describe 'this' pointer with an example.	U	5	
	b)	Write a program to implement single inheritance from the following 	A	4	
	c)	What is inheritance? Give different types of inheritance.	U	4	
	d)	Differentiate Run time polymorphism and compile tile polymorphism	U	5	
	e)	Explain Unformatted I/O Operations	U	5	
	f)	Write a C++ program to open a text file and write 5 students name in it.	A	5	

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EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL : - **THIRD** PROGRAM : **INFORMATION TECHNOLOGY**

COURSE CODE :- **ITG303/ITF303**

COURSE NAME **DATA COMMUNICATION**

MAX. MARKS : **80** TIME : **03Hrs.** DATE :- **08/ 06 / 2023**

Instruction :-

1) Answers must be written in the main answer book provided.(and supplements if required)
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	Question Text	R/U/A	Co ITG 303	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	Enlist characteristics of data communication system.	R	1	
	b)	Define protocol.	R	1	
	c)	Define peer-to-peer process.	R	1	
	d)	Compare frequency and time domain representation (any two points)	A	2	
	e)	Define carrier signal.	R	3	
	f)	Enlist applications of FDM (any four)	R	3	
Q.2		Attempt any **FOUR:**			**16**
	a)	Explain components of data communication system with neat diagram.	U	1	
	b)	State amplitude, frequency, period and phase of analog signal.	R	2	
	c)	Explain Amplitude shift keying with neat diagram.	U	3	
	d)	Explain baseband transmission of digital signal.	U	2	
	e)	Explain various transmission impairments.	U	2	
	f)	Explain the process of synchronous time division multiplexing.	U	3	
Q.3		Attempt any **FOUR:**			**16**
	a)	Explain functions of data link layer.	U	1	
	b)	Explain analog and digital signal.	U	2	
	c)	Compare ASK & FSK (any four points)	A	3	
	d)	Differentiate between half duplex and full duplex mode. (any four)	A	1	
	e)	Calculate the frequency of a signal if its period is i) 100 miliseconds ii) 50 miliseconds.	A	2	
	f)	Explain Amplitude Modulation.	U	3	

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QN	SQN	Question Text	R/U/A	Co ITG 303	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	State characteristics of line coding schemes.	R	4	
	b)	Define transmission media with example.	R	4	
	c)	How would you achieve error control?	R	5	
	d)	Define Hamming distance.	R	5	
	e)	Enlist protocols for noiseless channels.	R	6	
	f)	What is framing?	R	6	
Q.5		Attempt any **FOUR:**			**16**
	a)	Explain the situations, conditions where analog to digital conversion is required.	U	4	
	b)	Explain Twisted pair cable with diagram.	U	4	
	c)	Explain how error correction can be achieved in block coding.	U	5	
	d)	Explain the idea of checksum with example. Illustrate the significance of one's complement in it.	U	5	
	e)	Explain selective Repeat ARQ protocol.	U	6	
	f)	A sender sends a series of packets to same destination using 5-bit sequence number. If the sequence number starts with 0, what are sequence number after sending 100 packets..	A	6	
Q.6		Attempt any **FOUR:**			**16**
	a)	Draw and explain serial transmission modes.	U	4	
	b)	Explain with diagram pulse code modulation.	U	4	
	c)	Explain simple parity check codes.	U	5	
	d)	Find the minimum hamming distance for following coding scheme.	A	5	
	e)	Explain piggybacking/	U	6	
	f)	Describe stop and wait protocol.	U	6	

Dataword	Codewords
00	000
01	011
10	101
11	110

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EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL : - **THIRD** PROGRAM : **INFORMATION TECHNOLOGY**

COURSE CODE :- **ITG302**

COURSE NAME **DIGITAL ELECTRONICS AND MICROPROCESSOR**

MAX. MARKS : **80** TIME : **03Hrs.** DATE :- **06/ 06 / 2023**

Instruction :-

1) Answers must be written in the main answer book provided.(and supplements if required)
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	Question Text	R/U/A	Co ITG 302	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	List the simple examples of Boolean expression for SOP & POS.	U	2	
	b)	List the radix for binary, decimal, Hexadecimal and octal number system.	R	1	
	c)	Define Universal gate. List any one universal gate.	R	1	
	d)	Convert $(736.6)_8$ number into Binary.	A	1	
	e)	Define race around condition and state how it can be minimized in JK flip-flop.	R	3	
	f)	Construct AND & OR gate using NAND gate.	A	1	
Q.2		Attempt any **FOUR:**			**16**
	a)	Minimize the four variable logic function using K-map. $F(A,B,C,D) = \sum m(0,1,2,3,5,7,8,9,11,14)$.	A	2	
	b)	Describe the working of JK flip flop with truth table and logic diagram.	U	3	
	c)	Draw binary to Gray converter and write its truth table.	U	2	
	d)	Design Half substractor using K-map.	A	2	
	e)	Perform BCD addition $(17)_{10} + (57)_{10}$.	U	1	
	f)	Convert the following into Binary and Add them. $(A96)_{16} + (28B)_{16}$.	A	1	
Q.3		Attempt any **FOUR:**			**16**
	a)	State and prove DeMorgan's Theorems .	U	1	
	b)	Reduce the following Boolean expression using Boolean laws. i) $Y = A\overline{B} + \overline{A}B + AB + \overline{A}\,\overline{B}$ ii) $Y = A\overline{B}\,C + \overline{A}BC + ABC$	U	1	
	c)	Design 16:1 Mux using 8:1 Mux.	A	2	
	d)	Draw SR flip flop using NAND gates and describe its working along with its truth table.	U	3	
	e)	Write down the standard SOP equation of given logical equation. i) Y = AB + BC ii) $Y = \overline{A}BC + B$	U	2	
	f)	Draw 3 bit asynchronous up counter with truth table and explain its working.	A	3	

P.T.O

GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

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~~WINTER~~/SUMMER- 2023

EXAM SEAT NO. | | | | | | |

LEVEL : 3 PROGRAM : Information Technology

COURSE CODE :- ITG 302

COURSE NAME :- Digital Electronics and Microprocessor

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- 6/6/23

QN	SQN	Question Text	R/U/A	Co	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	State salient features of 8086 (any 4)	R	4	
	b)	State the meaning of pipelining.	R	4	
	c)	Compare CISC and RISC processors (any 2 points)	R	4	
	d)	State two operating modes of 8086 and state the difference between them.	R	4	
	e)	Write any two data transfer instructions with proper syntax and state their meaning.	R	5	
	f)	State the difference between assembly language and machine language.	R	5	
Q.5		Attempt any **FOUR:**			**16**
	a)	Draw architecture of 8086 microprocessor.	U	4	
	b)	Draw pin schematic of 8086 microprocessor.	U	4	
	c)	Draw timing diagram of memory read operation for minimum mode configuration.	U	4	
	d)	Explain any 4 addressing modes of 8086 with example.	U	5	
	e)	Write the meaning of following instructions. 1. MOV AX, [SI] 2. RAL 2. CMP AX, [DI] 3. IMUL BYTE_PTR[SI]	U + A	5	
	f)	Write ALP to add series of 8 bit numbers.	A	5	
Q.6		Attempt any **FOUR:**			**16**
	a)	If CS contains 1800H and IP contains AB12H, calculate physical address generated by processor during execution of program.	A	4	
	b)	i) Which flags are affected after execution of subtraction instruction. ii) AL = 83H, BL=29H what will be the content of AL after execution of following instructions ADD AL, BL DAA	A	4,5	
	c)	Write ALP for the addition of two 16-bit numbers. SUM = 32 bits.	A	5	
	d)	Write ALP to find smallest number from two 16-bit numbers.	A	5	
	e)	Write ALP to multiply two 16-bit numbers.	A	5	
	f)	Write ALP for the division of two 16-bit signed numbers.	A	5	

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EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL : - **THIRD** PROGRAM : **INFORMATION TECHNOLOGY**

COURSE CODE :- **ITF302**

COURSE NAME **DIGITAL ELECTRONICS**

MAX. MARKS : **80** TIME : **03Hrs.** DATE :- **09/ 06 / 2023**

Instruction :-

1) Answers must be written in the main answer book provided.(and supplements if required)
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	Question Text	R/U/A	Co ITF 302	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	Convert $(BFE)_{16}$ into decimal number.	A	1	
	b)	Give the classification of binary codes.	R	1	
	c)	Draw the symbol of NOR and NAND gate.	R	2	
	d)	State any two applications of logic gates.	R	2	
	e)	Compare between encoder and decoder (any two points)	R	3	
	f)	Draw block diagram of full adder.	R	3	
Q.2		Attempt any **FOUR:**			**16**
	a)	Convert hexadecimal number into decimal number. i) $(4EF)_{16}$ ii) $(DBA7.12)_{16}$.	A	1	
	b)	Compare between binary code and BCD code. (any four points)	U	1	
	c)	State and prove commutative laws.	U	2	
	d)	Convert $Y = \overline{A}B + A\overline{C} + BC$ into standard SOP form.	A	2	
	e)	Draw the logical diagram of full subtractor using half subtractor. Also give its truth table.	U	3	
	f)	Draw the logic diagram of 4:1 multiplexer and write its truth table.	U	3	
Q.3		Attempt any **FOUR:**			**16**
	a)	Perform binary subtraction $(1001)_2$ - $(1011)_2$ using 2's complement.	A	1	
	b)	Perform BCD subtraction, (342-150) using 9's complement.	A	1	
	c)	Show that using boolean algebra, (A+B) (A+C) = A + BC.	A	2	
	d)	Draw pin diagram of ALU IC74181 and explain it.	U	3	
	e)	Draw block diagram of 1:8 demultiplexer and write its truth table.	U	3	
	f)	Describe parallel binary adder with suitable diagram.	U	3	

P.T.O

QN	SQN	QUESTION TEXT`	RUA	CO ITF 302	Marks
Q.4		Attempt any **FOUR**			**(08)**
	a)	State the triggering methods of flip flop.	R	04	
	b)	Draw the symbol of D flip flop and JK flip flop.	R	04	
	c)	Define memory. Give classification of memory.	R	05	
	d)	Draw a neat labeled diagram of RAM cell	R	05	
	e)	List two advantages of DAC.	R	06	
	f)	Write two disadvantages of ADC.	R	06	
Q.5		Attempt any **FOUR**			**(16)**
	a)	How many flip-flops are required to build a shift register to store following number. i) Decimal 28 ii) Binary 6 bits iii) Octal 17 iv) Hexadecimal A	A	04	
	b)	Draw the circuit diagram of SR flip flop using NAND gates. Write truth table.	U	04	
	c)	Draw the block diagram of SISO shift register and describe its operation.	U	04	
	d)	Differentiate between RAM and ROM (four points).	U	05	
	e)	Describe the principle of working of Dual slope ADC with neat diagram.	U	06	
	f)	State four specification of DAC.	R	06	
Q.6		Attempt any **FOUR**			**(16)**
	a)	Draw the logical diagram of MOD-II counter and also draw its truth table.	A	04	
	b)	Design 4-bit Ripple counter and describe its operation.	A	04	
	c)	Compare PROM and EPROM (4 points)	U	05	
	d)	Explain dynamic RAM with diagram.	A	05	
	e)	Draw circuit diagram 4-bit weighted resister DAC and explain its function.	A	06	
	f)	Explain working of R-2R ladder type digital to Analog converter.	U	06	

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SUMMER/ ~~WINTER~~- 23

EXAM SEAT NO. | | | | | | |

LEVEL : - IV PROGRAM : Information Technology

COURSE CODE :- ITG408

COURSE NAME :- PHP/Web development using PHP.

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- 5/6/23

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	**SECTION -I**	R/U/A	Co ITG408	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	State syntax of constant with example.	R	1	
	b)	Define global variables.	R	1	
	c)	State types of functions.	R	2	
	d)	State the meaning of validating string.	R	3	
	e)	Define multidimensional array with example.	R	2	
	f)	Write syntax of PHP.	A	1	
Q.2		Attempt any **FOUR:**			**16**
	a)	Write PHP Script to find maximum number out of three given numbers.	A	1	
	b)	Describe break and continue statement with example.	U	1	
	c)	Explain the concept of Anonymous function.	U	2	
	d)	Explain the concept of combining HTML with PHP with example.	U	3	
	e)	Describe the concept of traversing array with example.	U	2	
	f)	Write PHP script to demonstrate Variable function.	A	3	
Q.3		Attempt any **FOUR:**			**16**
	a)	Explain any four features of PHP.	A	1	
	b)	Write short note on preg_match() function.	U	3	
	c)	Create Website Registration Form using text box, check box, radio button, submit button using POST method.	A	3	
	d)	Describe the concept of implode array with example.	U	2	
	e)	Write PHP script to demonstrate string replace function.	A	2	
	f)	Explain the concept of redirecting the user.	U	3	

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~~SUMMER~~/WINTER-23

EXAM SEAT NO. | | | | | | |

LEVEL : - FOURTH PROGRAM : INFORMATION TECHNOLOGY

COURSE CODE :- ITG408

COURSE NAME :- WEB DEVELOPMENT USING PHP

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- 5/6/23

QN	SQN	**SECTION –II**	R/U/A	Co ITG408	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	State use of cookies.	R	4	
	b)	Define session.	R	4	
	c)	List any four features of MySQL.	R	5	
	d)	Write MySQL query to create table.	A	5	
	e)	State different file paths.	R	6	
	f)	Write syntax of fclose() & fopen() with example.	U	6	
Q.5		Attempt any **FOUR:**			**16**
	a)	Explain how to create and modify cookies with example.	U	4	
	b)	Explain hosting website.	R	5	
	c)	Write a PHP script to insert record in MySQL.	A	5	
	d)	Write a PHP script to deleting record in MySQL.	A	5	
	e)	Explain steps to append text to file.	U	6	
	f)	Write a PHP script to display directory content.	A	6	
Q.6		Attempt any **FOUR:**			**16**
	a)	Explain use of session with example.	R	4	
	b)	Write a PHP script to demonstrate passing variables with cookies.	A	4	
	c)	Write PHP script to create & check connection with MySQL.	A	5	
	d)	Explain updating record in MySQL.	U	5	
	e)	Explain coping file with example.	R	6	
	f)	Explain renaming file with example.	R	6	

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EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL: **THIRD** PROGRAM: **INFORMATION TECHNOLOGY**

COURSE CODE: **ITG311** COURSE NAME: **JAVA PROGRAMMING**

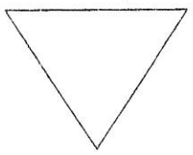
MAX. MARKS: **80** TIME: **3 HRS.** DATE: **05/06 /2023**

Instruction -

1) Answer must be written in main answer book provided. (and supplements if required)
2) Illustrate your answers with sketches where ever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables will be made available on request.
5) Assume and mention suitable additional data necessary.
6) Use of Mobile is strictly prohibited.
7) **QN**-Question No, **SQN**-Sub-Question No, **R**- Remembering, **U**-Understanding, **A**-Application **CO**-Course outcome

QN	SQN	QUESTION TEXT	RUA	CO ITG 311	Marks
Q.1		Attempt any **FOUR**			**(08)**
	a)	Why Java is called as platform independent & portable.	U	1	
	b)	Differentiate between Java & C+ + (Any Two)	R	1	
	c)	State the use of 'this' keyword.	R	2	
	d)	Give the difference between private, public, protected access specifier.	R	2	
	e)	Define String Buffer.	R	2	
	f)	Define package. Give example.	R	3	
Q.2		Attempt any **FOUR**			**(16)**
	a)	Explain any four feature's of Java programming.	U	1	
	b)	Write Java program to implement method overloading.	U	2	
	c)	Explain the vector and wrapper classes concept with example.	U	2	
	d)	Write Java program to implement Interface.	A	3	
	e)	Explain Local & Static inner class concept.	U	3	
	f)	Explain following concept of interface i) Extending interface ii) Nested interfaces.	U	3	
Q.3		Attempt any **FOUR**			**(16)**
	a)	With proper syntax & example, explain any four mathematical functions.	U	1	
	b)	Write Java program to implement multilevel inheritance.	A	2	
	c)	Explain the constructor overloading with proper syntax & example.	U	2	
	d)	Write a Java program by using continue and break statement.	A	1	
	e)	Write Java program to create and import packages.	A	3	
	f)	How inner class used to access object state? Explain it.	U	3	

P.T.O.

QN	SQN	QUESTION TEXT	RUA	CO ITG 311	Marks
Q.4		Attempt any **FOUR**			**(08)**
	a)	Write the syntax of try-catch-finally block.	R	4	
	b)	Name any four built in exceptions in Java.	R	4	
	c)	Differentiate between process and thread.	U	4	
	d)	Give the syntax of <param> tag to pass parameters to an applet.	R	5	
	e)	Define stream class. List its types.	R	6	
	f)	Explain how to create a file in Java.	U	6	
Q.5		Attempt any **FOUR**			**(16)**
	a)	Describe types of errors & exceptions in details	U	4	
	b)	Draw and explain life cycle of a thread.	U	4	
	c)	Write a program to input name & salary of employee and throw user defined exception if entered salary is negative.	A	4	
	d)	Write a Java program in which thread A will display the even numbers between 1 to 50 and thread B will display the odd numbers between 1 to 50.	A	4	
	e)	Differentiate between Java applet and Java application.	R	5	
	f)	Describe Applet life cycle with diagram.	U	5	
Q.6		Attempt any **FOUR**			**(16)**
	a)	Write a Java applet to display the following output in red color. Refer Figure No. 01 	A	5	
	b)	Explain i) drawline ( ) ii) drawoval ( ) iii) drawRect ( ) iv) drawArc ( )	U	5	
	c)	Explain all attributes available in <applet> tag.	U	5	
	d)	Write program to handle primitive data types.	A	6	
	e)	Write a program to copy content of one file to another file.	A	6	
	f)	Explain File input stream class to read the content of a file.	U	6	

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GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

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EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL : - **FIFTH** PROGRAM : **INFORMATION TECHNOLOGY**

COURSE CODE :- **ITF506**

COURSE NAME **CLOUD COMPUTING**

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- **03/ 06 / 2023**

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	SECTION -I	R/U/A	Co ITF 506	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	Define cloud computing.	R	1	
	b)	State the factors which help in deciding whether or not you should use cloud computing.	U	2	
	c)	List cloud components.	R	2	
	d)	List different services provided by Amazon.	R	3	
	e)	Define EC2.	R	3	
	f)	State geo-political concern in cloud computing.	R	2	
Q.2		Attempt any **FOUR:**			**16**
	a)	Explain application of cloud computing.	R	1	
	b)	Stat and explain any one limitation of using cloud computing.	R	1	
	c)	Differentiate between Iaas and Paas.	R	2	
	d)	Explain benefits of using cloud computing.	R	1	
	e)	Explain features of Google App Engine.	R	1	
	f)	Explain NetApp-Offering.	R	2	
Q.3		Attempt any **FOUR:**			**16**
	a)	Explain Microsoft Windows Live.	R	3	
	b)	List first movers in cloud and explain any one.	U	2	
	c)	Explain Paravirtalization.	R	2	
	d)	Explain Scenarios of cloud computing.	R	1	
	e)	Write down features of Google App Engine.	R	1	
	f)	Write note on IBM.	R	2	

P.T.O.

QN	SQN	SECTION –II	R/U/A	Co ITF 506	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	State the difference between thin and thick client.	R	4	
	b)	Why virtualization is important in cloud computing?	U	5	
	c)	Write any two advantages of software as a services.	R	5	
	d)	List out the any four companies providing software as a service.	R	5	
	e)	State the role of skytap solution.	R	6	
	f)	State the meaning of migrating to the cloud.	R	6	
Q.5		Attempt any **FOUR:**			**16**
	a)	Explain following point's of cloud security. i) Logging ii) Forensics Auditing.	U	4	
	b)	With an example explain public Internet and Accelerate Internet.	U	4	
	c)	Consider any Real Company Providing software as a service, then write down the product name its advantages software role, considerations and limitations.	A	5	
	d)	Explain MSexchange and VMotion cloud services in detail.	U	6	
	e)	Explain use wave approach in the migration to cloud with example.	U	6	
	f)	Define software plus service. Write its pros and cons with example.	U	5	
Q.6		Attempt any **FOUR:**			**16**
	a)	With real time example, how the following services provided by cloud? i) Identify ii) Integration iii) Mapping iv) Payments.	A	4	
	b)	Explain the cloud storage basic concepts with advantages. Write down at least two vendors or companies names providing cloud storage as a service.	U + A	4	
	c)	Explain following two points of cloud services. i) Cloud services aimed at the mid market ii) Enterprise-class cloud offering.	U	6	
	d)	State company name providing virtualization software. Write down the steps to use this virtualization in the cloud and its security constraints.	U + A	5	
	e)	Write the name of company providing migration service to clod. How this company can send your existing data to cloud? Write down steps with example.	U	6	
	f)	Which are the different cloud security issues? Explain any four with example.	U	6	

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~~WINTER~~/SUMMER- 2023

EXAM SEAT NO. | | | | | | |

LEVEL : - V PROGRAM : INFORMATION TECHNOLOGY

COURSE CODE :- ITG510

COURSE NAME :- LINUX ADMINISTRATION

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- 3/6/2023

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	SECTION –I	R/U/A	Co	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	State any four Linux features.	R	ITG510-1	
	b)	Differentiate between Linux and Window OS (Any two.)	R	ITG510-1	
	c)	Write the principles of Linux.	R	ITG510-1	
	d)	Which command is used to count the word? Write syntax and example.	U	ITG510-2	
	e)	Write command syntax with proper option to create directory with parent directory? Give example.	U	ITG510-2	
	f)	Define shell. List types of shell.	R	ITG510-3	
Q.2		Attempt any **FOUR:**			**16**
	a)	Explain the Linux file formats.	U	ITG510-1	
	b)	Explain date command with any four options with syntax and examples.	U	ITG510-2	
	c)	How can we display the beginning content of file in Linux using command? Explain it with proper syntax, examples and options.	A	ITG510-2	
	d)	Explain predefine shell variables.	U	ITG510-3	
	e)	Explain read and echo command with syntax and example.	U	ITG510-3	
	f)	Write shell script to perform arithmetic evaluation.	A	ITG510-3	
Q.3		Attempt any **FOUR:**			**16**
	a)	How the system startup and shutting down process take place for Linux operating system? Explain it.	U	ITG510-1	
	b)	Define partitioning and explain types of partitioning.	U	ITG510-1	
	c)	How can we create files as file1.txt and file2.txt with content using Linux command? After creation to concatenate these two files file1.txt and file2.txt and write into another file as file3.txt, write Linux command with explanation. Lastly, write the Linux command to display all these three files content on Linux terminal.	A	ITG510-2	
	d)	Explain vi editor with its mode in detail.	U	ITG510-2	
	e)	Explain exec and sleep command with example.	U	ITG510-3	
	f)	Write steps to write and execute shell script from current directory? Write any simple shell script and write steps to execute.	A	ITG510-3	

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~~WINTER~~/SUMMER- 2023

EXAM SEAT NO. | | | | | | |

LEVEL : - FIFTH PROGRAM : Information Technology

COURSE CODE :- ITG510

COURSE NAME :- Linux Administration

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- 3/6/23

QN	SQN	SECTION –II	R/U/A	Co ITG510	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	State the need of backup server.	R	4	
	b)	Write syntax & example of deleting user.	R	4	
	c)	What is Samba server?	R	5	
	d)	Write any two features of HTTP protocol.	R	5	
	e)	State the use of DNS server.	U	5	
	f)	Define the term NFS.	R	5	
Q.5		Attempt any **FOUR:**			**16**
	a)	Explain RAID concept with all levels.	U	4	
	b)	Explain user configuration & password file.	U	4	
	c)	Explain df and du commands with syntax and option.	U	4	
	d)	What is ftp? Illustrate how files can be transferred between two systems with Appropriate commands.	A	5	
	e)	Explain the step for installing and configuring DNS Client.	U	5	
	f)	List and Explain any four components of NFS.	U	5	
Q.6		Attempt any **FOUR:**			**16**
	a)	Explain role & responsibilities of administrator.	U	4	
	b)	Explain passwd command with any four options and example.	U	4	
	c)	Describe and compare various Run levels.	A	5	
	d)	State the features of Apache web server.	R	5	
	e)	Discuss importance of NIS. Explain processes associated with NIS.	U	5	
	f)	Explain init daemon in detail.	U	5	

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SUMMER/~~WINTER~~-23

EXAM SEAT NO. | | | | | | |

LEVEL : - IV PROGRAM : INFORMATTION TECHNOLOGY

COURSE CODE :- ITG404

COURSE NAME :- PYTHON PROGRAMMING

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- 2/6/23

QN	SQN	SECTION –II	R/U/A	Co ITG404	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	List out types of files in python.	R	4	
	b)	Write syntax for appending text to a file in python.	R	4	
	c)	Define findall function.	R	5	
	d)	State the use of regular expression.	R	5	
	e)	Differentiate between mean and mode.	U	5	
	f)	Define Mysql.	R	6	
Q.5		Attempt any **FOUR:**			**16**
	a)	Write python program to work with binary files.	A	4	
	b)	Explain the file reading functions in python.	U	4	
	c)	Write python program to implement URL validation.	A	5	
	d)	Explain machine learning concept of data set and data types.	U	5	
	e)	Explain the GUI programming toolkits in python.	U	6	
	f)	Develop python program to implement GUI programming using Tkinter.	A	6	
Q.6		Attempt any **FOUR:**			**16**
	a)	Explain following functions with syntax and example. I) File exists II)file open & close	U	4	
	b)	Write python program to implement file writing functions in python.	A	4	
	c)	Write python program to implement normal data distribution.	A	5	
	d)	Write python program to connect to database and insert records into database.	A	6	
	e)	Explain the concept of updating records into database using python.	U	6	
	f)	Explain the database connectivity in python with types of databases.	U	6	

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SUMMER/~~WINTER~~-2023

EXAM SEAT NO. | | | | | | |

LEVEL : - IV PROGRAM : INFORMATION TECHNOLOGY

COURSE CODE :- ITG404

COURSE NAME :- Python Programming

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- 2/6/23

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	SECTION -I	R/U/A	Co	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	Give two differences between list and tuple.	U	1	
	b)	Write Syntax to define dictionary in python.	U	1	
	c)	List types of operator.	R	2	
	d)	Define local & global variable.	R	2	
	e)	Define class with its syntax.	R	3	
	f)	List types of exception in python	R	3	
Q.2		Attempt any **FOUR:**			**16**
	a)	Explain building blocks of python.	U	1	
	b)	Write a program to create an array of 5 integers and display reverse order of integers.	A	1	
	c)	Explain decision making statement If and If-else with example.	U	2	
	d)	Write a program to find max of 3 Number using function in python.	A	2	
	e)	Explain method overloading in python.	U	3	
	f)	Write program to create class employee with ID & name and display its contents.	A	3	
Q.3		Attempt any **FOUR:**			**16**
	a)	Explain type conversion in python with example.	U	1	
	b)	Write program to create dictionary.	A	1	
	c)	Explain looping statement While & do-While with example.	U	2	
	d)	Write program to print following 1 1 2 1 2 3 1 2 3 4	A	2	
	e)	Explain exception handling in python.	U	3	
	f)	Write program to demonstrate use of Single Inheritance.	A	3	

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GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

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EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL : - **THIRD** PROGRAM : **INFORMATION TECHNOLOGY**

COURSE CODE :- **ITG310**

COURSE NAME **DATA STRUCTURE**

MAX. MARKS : **80** TIME : **03Hrs.** DATE :- **02/ 06 / 2023**

Instruction :-

1) Answers must be written in the main answer book provided.(and supplements if required)
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	Question Text	R/ U/ A	Co ITG 310	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	Define Recursion.	R	3	
	b)	Differentiate between linear data structure and non linear data structure.	R	1	
	c)	Define sorting. List out any four sorting techniques.	R	2	
	d)	State the use of searching technique. List out different searching techniques (any two)	R	2	
	e)	Define Data structure. State need of Data structure.	R	1	
	f)	State the applications of stack. (any two)	R	3	
Q.2		Attempt any **FOUR:**			**16**
	a)	Explain complexity of algorithm in context of Time complexity and space complexity with example.	U	1	
	b)	Explain Quick sort technique with an example.	U	2	
	c)	Write 'Ç' program to create and insert array elements.	A	1	
	d)	Write 'C' program to implement insertion sort.	A	2	
	e)	Write 'C' program to search particular data element from the given array using Binary search.	A	2	
	f)	Write 'C' program to perform 'POP' operation on stack using array.	A	3	
Q.3		Attempt any **FOUR:**			**16**
	a)	Explain Merge sort technique with an example.	U	2	
	b)	Write 'C' program to implement Bubble sort technique.	A	2	
	c)	Explain different operations on data structure.	U	1	
	d)	Write 'C' program to perform Recursion using stack.	A	3	
	e)	With example explain converting an infix into prefix expression using stack.	U	3	
	f)	Explain following concepts of stack operation conditions with example. i) Stack overflow. ii) Stack underflow.	U	3	

P.T.O

QN	SQN	Question Text	R/U/A	Co ITG 310	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	State the operations on circular linked list.	R	5	
	b)	Define leaf node and level of node.	R	6	
	c)	Define queue. State the operations on queue.	R	4	
	d)	Define node.	R	5	
	e)	Define undirected graph with diagram.	R	6	
	f)	Define doubly linked list.	R	5	
Q.5		Attempt any **FOUR:**			**16**
	a)	Explain implementation of stack using linked list.	U	5	
	b)	Write a program to implement circular queue.	A	4	
	c)	State the difference between tree & graph.	A	6	
	d)	Explain binary tree with example.	U	6	
	e)	Draw the binary search tree for the given Nos. 50, 33, 44, 22, 77, 35, 60, 40.	A	6	
	f)	Describe the concept of linked list with terminologies: node, next Pointer, null Pointer and empty list.	U	5	
Q.6		Attempt any **FOUR:**			**16**
	a)	Describe procedure to delete an element from singly linked list using diagram.	U	5	
	b)	State the difference between stack and Queue.	A	4	
	c)	Explain indegree and outdegree of a graph with example.	U	6	
	d)	Write a C program to inset an element in linear queue.	A	4	
	e)	Explain the difference between path matrix and adjacency matrix.	U	6	
	f)	Explain representation of Queue in memory using array.	U	4	

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GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

(An Autonomous Institute of Govt. Of Maharashtra)

WINTER- 2023

EXAM SEAT NO. | | | | | | |

LEVEL : - IV PROGRAM : INFORMATION TECHNOLOGY

COURSE CODE :- ITG403

COURSE NAME :- INFORMATION SECURITY

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- 31/5/23

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	SECTION -I	RUA	Co	Marks
Q.1		Attempt any **FOUR:**			08
	a)	Define Sniffing.	R	1	
	b)	Define the terms i) ii) Encryption ii) Decryption	R	3	
	c)	What is mean by Shoulder Surfing?	R	2	
	d)	Define Viruses. Enlist the different types of Viruses.	R	1	
	e)	Enlist the types of Biomerics.	R	2	
	f)	Define Active and Passive attacks.	R	3	
Q.2		Attempt any **FOUR:**			16
	a)	Explain threat to security in detail with respect to virus, worms, intruders insiders.	U A	1	
	b)	Explain Caesar's cipher with example.	U	3	
	c)	Explain Fingerprints and Handprints in detail.	U	2	
	d)	Explain Backdoors and Trapdoors.	U	1	
	e)	Define Rail fence cipher . Convert the plaintext to cipher text "WELCOME HOME" by using Rail fence cipher.	A	3	
	f)	Explain the use of Biometrics in Computer security.	A	2	
Q.3		Attempt any **FOUR:**			16
	a)	Define Virus. Explain the types of viruses.	U	1	
	b)	Explain the need and importance of information.	A	1	
	c)	Explain the Model of security with the help of neat diagram	U	2	
	d)	Convert the following plain text to cipher text using Caesar's cipher " GOVERNMENT POLYTECHNIC"	A	3	
	e)	Explain the MAC and RBAC in detail.	U	2	
	f)	Explain the Rail fence cipher transposition technique with example.	U	3	

P.T.O.

GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

(An Autonomous Institute of Govt. Of Maharashtra)

SUMMER/ WINTER-23

EXAM SEAT NO. | | | | | | |

LEVEL : - 4 PROGRAM : INFORMATION TECHNOLOGY

COURSE CODE :- ITG403

COURSE NAME :- INFORMATION SECURITY

MAX. MARKS : **40** TIME : **03 Hrs** DATE :-31/5/23

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	**SECTION –II**	R/U/A	Co	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	Define digital signature	U	ITG403-4	
	b)	Write functions of secure socket layer.	U	ITG403-5	
	c)	Enlist advantages of Secure HTTP.	R	ITG403-5	
	d)	What is password protection?	R	ITG403-6	
	e)	Define DMZ.	U	ITG403-5	
	f)	Enlist Intrusion techniques.	R	ITG403-6	
Q.5		Attempt any **FOUR:**			**16**
	a)	Explain with diagram Asymmetric cryptography.	U	ITG403-4	
	b)	Describe in brief need of Firewall.	R	ITG403-5	
	c)	Explain Encryption Technique in RSA algorithm.	U	ITG403-4	
	d)	Explain types of malicious software.	U	ITG403-6	
	e)	Describe Alert Protocol with neat diagram.	R	ITG403-5	
	f)	Explain password selection strategies in detail.	U	ITG403-6	
Q.6		Attempt any **FOUR:**			**16**
	a)	Explain Pretty Good Privacy in detail	U	ITG403-5	
	b)	Describe Diffie-Hellman Key Exchange algorithm with example.	A	ITG403-4	
	c)	Explain Distributed Denial of Service attacks.	R	ITG403-6	
	d)	Describe distribution of public keys in Asymmetric cryptography.	R	ITG403-4	
	e)	Explain following terms 1) Virus 2) Adware 3) Malware 4) Trojan	U	ITG403-6	
	f)	Describe S/MIME in detail	R	ITG403-5	

P.T.O.

GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

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EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL : - **THIRD** PROGRAM : **INFORMATION TECHNOLOGY**

COURSE CODE :- **ITG308**

COURSE NAME **SOFTWARE ENGINEERING**

MAX. MARKS : **80** TIME : **03Hrs.** DATE :- **31/ 05 / 2023**

Instruction :-

1) Answers must be written in the main answer book provided.(and supplements if required)
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	Question Text	R/ U/ A	Co ITG 308	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	State the 4P's in the software management spectrum.	R	3	
	b)	Define software.	R	1	
	c)	Write characteristics of software./	R	1	
	d)	State the role of management in software development.	U	1	
	e)	Differentiate between functional requirement and on functional requirement. (any two)	U	1	
	f)	Why project planning is important in the software development?	U	3	
Q.2		Attempt any **FOUR:**			**16**
	a)	Which are the different techniques used for size estimation of software? Explain any two with example.	U+ A	3	
	b)	With neat diagram explain spiral Model.	U	1	
	c)	Explain Basic and Intermediate constructive cost Model.(COCOMO)	U	3	
	d)	Explain component Based Development model.	U	1	
	e)	Develop dataflow diagram (Level 0, Level 1) for requirement analysis for any case study or any example.	A	2	
	f)	Explain any four characteristics of good SRS. (with example)	U	2	
Q.3		Attempt any **FOUR:**			**16**
	a)	With an example explain Data Dictionaries concept.	U	2	
	b)	What is the need of Agile Process model? In which application's agile process model can be used. Explain it with an example.	A	1	
	c)	Explain COCOMO-II model.	U	3	
	d)	Write and explain selection criterias for software process model.	U	1	
	e)	Explain Risk analysis concept following points. i) Risk Identification ii) Risk Assessment.	U	3	
	f)	Explain following two points related to Requirement Elicitation. i) Facilitated Application Specification Technique (FAST). ii) The use case Approach.	R + U	2	

P.T.O

QN	SQN	Question Text	R/U/A	Co ITG 308	**Marks**
Q.4		Attempt any **FOUR:**			**08**
	a)	Define software design.	R	4	
	b)	State the types of coupling.	R	4	
	c)	List the software quality features.	R	5	
	d)	Define assurance of software quality.	R	5	
	e)	Define testing.	R	5	
	f)	Draw maintenance process diagram.	R	5	
Q.5		Attempt any **FOUR:**			**16**
	a)	Explain function oriented design with example.	U	4	
	b)	Draw the use case diagram for library management system.	A	4	
	c)	Explain white box testing.	U	5	
	d)	Explain problems during maintenance.	U	5	
	e)	Describe the concept of reverse engineering in detail.	U	5	
	f)	Explain the concept of software re-engineering with source code translation.	U	5	
Q.6		Attempt any **TWO:**			**16**
	a)	Explain the bottom-up design and top-down design strategy in detail.	U	4	
	b)	Explain the concept of ISO 9001 standard and six sigma for software engineering.	U	5	
	c)	Explain potential solution to maintenance problem.	U	5	

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GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

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~~WINTER~~/SUMMER- 2023

EXAM SEAT NO. | | | | | | |

LEVEL : - FOURTH PROGRAM : INFORMATION TECHNOLOGY

COURSE CODE :- ITG406

COURSE NAME :- MOBILE APPLICATION DEVELOPMENT

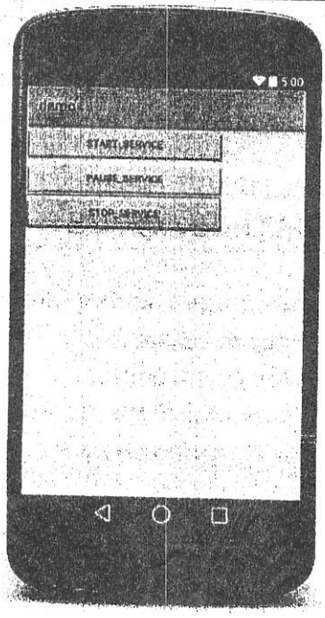
MAX. MARKS : **80** TIME : **03 Hrs** DATE :-30/5/23

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	SECTION -I	R/U/A	Co ITG406	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	State use of Open Handset Alliance.	R	1	
	b)	List types of Operating System.	R	2	
	c)	State use of Emulators.	U	2	
	d)	List main components of Android Application.	R	3	
	e)	Define View & ViewGroups.	R	3	
	f)	State use of android:gravity property.	U	3	
Q.2		Attempt any **FOUR:**			**16**
	a)	Describe Android history with its versions.	R	1	
	b)	Explain Android Ecosystem.	U	1	
	c)	Explain Dalvik Virtual Machine with diagram.	U	2	
	d)	Compare JVM & DVM.	U	2	
	e)	Describe directory structure and its component.	R	3	
	f)	Explain following files: i) Main activity file ii) Manifest file	U	3	
Q.3		Attempt any **FOUR:**			**16**
	a)	Draw and explain android architecture.	U	1	
	b)	Explain software & hardware requirement for android application development.	R	1	
	c)	Describe various installation steps of android studio.	U	2	
	d)	Explain android SDK & Java JDK.	U	2	
	e)	Create following UI for android application using appropriate layout:	A	3	

P.T.O.

					
	f)	Explain any eight Relative Layout attributes.	U	3	

QN	SQN	SECTION –II	R/U/A	Co ITG406	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	State use of android:gravity property.	U	4	
	b)	Define Intent.	R	5	
	c)	State use of Inter filter.	U	5	
	d)	Write classes of SMS telephony.	A	6	
	e)	List methods used to get location.	R	6	
	f)	Write types of google maps.	R	6	
Q.5		Attempt any **FOUR:**			**16**
	a)	Explain Listview with its attributes.	R	4	
	b)	Develop a program to pick up a date from datepicker.	A	4	
	c)	Draw and explain activity life cycle.	U	5	
	d)	Write code to create broadcast receivers.	A	5	
	e)	Explain Geocoding & reverse geocoding.	U	6	
	f)	Write code to send and receive SMS.	A	6	
Q.6		Attempt any **FOUR:**			**16**
	a)	Explain Gridview with its attributes.	R	4	
	b)	Develop a program to create custom toast alert.	A	4	
	c)	Explain use of content provider with its method.	U	5	
	d)	Describe unbound service and bound service with diagram.	U	5	
	e)	Explain android security model.	U	6	
	f)	Explain how to publish android app on playstore.	A	6	

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GOVERNMENT POLYTECHNIC, KOLHAPUR 416004.

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EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL: **FIRST**
COURSE CODE: **ITG101**
MAX. MARKS: **80**

PROGRAM: **INFORMATION TECHNOLOGY**
COURSE NAME: **C Programming**
TIME: **3 HRS.** DATE: **27/05/2023**

Instruction :-
1) Answer must be written in main answer book provided. (and supplements if required)
2) Illustrate your answers with sketches where ever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables will be made available on request.
5) Assume and mention suitable additional data necessary.
6) Use of Mobile is strictly prohibited.
7) **QN**-Question No, **SQN**-Sub-Question No, **R**- Remembering, **U**-Understanding, **A**-Application **CO**-Course outcome

QN	SQN	QUESTION TEXT	RUA	CO ITG101	Marks
Q.1	A	Attempt any **FOUR**			**(08)**
	a)	Enlist data types in 'C' language.	R	01	
	b)	Write the syntax of conditional operator.	R	01	
	c)	Evaluate the following expressions float a=3.5, b=2.5 i) a+2.5 / b +4.5 ii) (a + 2.5) / b + 4.5	A	01	
	d)	Write a 'C' program to determine whether given number is odd.	A	01	
	e)	Define function.	R	03	
	f)	Write syntax of for loop.	R	02	
Q.2	A	Attempt any **FOUR**			**(16)**
	a)	Explain with example if else statement.	U	02	
	b)	Describe the compiling and executing a 'C' program.	U	01	
	c)	Differentiate between while and do-while loop.	U	02	
	d)	Two numbers are input through the keyboard into two locations C and D. Write a 'C' program to interchange the contents of C and D.	A	01	
	e)	Write a function to calculate the factorial value of any integer entered through the keyboard.	A	03	
	f)	Explain with example actual and formal arguments.	U	03	
Q.3		Attempt any **FOUR**			**(16)**
	a)	Explain formatted input and formatted output statement.	U	01	
	b)	Write a program to print the following output. 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5	A	02	
	c)	Distinguish between global and local variables.	U	03	
	d)	Explain unary operators with example.	U	01	
	e)	Explain syntax of switch case statement.	U	02	
	f)	The Fibonacci numbers are defined recursively as follows. $F_1 = 1$ $F_2 = 1$ $F_n = F_{n-1} + F_{n-2}$ $n>2$ Write a function that will generate and print the first n Fibonacci numbers.			

P.T.O.

Q.4		Attempt any **FOUR**			**(08)**
	a)	Write syntax for declaring an array and initializing array elements.	R	04	
	b)	State the meaning of these expressions int marks [15]; marks [15] = 56;	U	04	
	c)	State use of strcmp() function with example.	R	05	
	d)	Write how strings are read from terminal.	U	05	
	e)	Write a program to take password and retype-password as an input display error message if both are not same.	A	05	
	f)	Define structure and give one example of structure.	R	06	
Q.5		Attempt any **FOUR**			**(16)**
	a)	Define array write syntax for declaring two dimensional array.	R	04	
	b)	Explain two-dimensional array declaration and initialization with example.	U	04	
	c)	Write a program to assign address of same variable to the pointer and accessing value of that variable through pointer.	A	06	
	d)	Write a program for taking a name of user as an input and displaying welcome message to the user "welcome username"	A	05	
	e)	Explain the meaning of following statements int a, *P; a = 38; p=&a; printf ("%u",P);	U	06	
	f)	Write a program for defining structure customer having member's custid, custname, and custcity. Accept data for five employees and display it.	A	06	
Q.6		Attempt any **FOUR**			**(16)**
	a)	Write a program for matrix addition.	A	04	
	b)	List and explain any four string handling functions.	R	06	

	c)	Find & explain output of following C program
		#include <stdio.h>
		# include <string.h>
		int main()
		{
		char S1[10]="hello", S2 [10]= world";
		strcpy (S1,S2);
		printf ("%S %.S", S1, S2);
		return 0,
		}
			U	05	

	d)	Define pointer and write syntax for declaring a pointer and assigning value to the pointer.	R	06	

	e)	Write & explain the output of following C program.
		void main ()
		{
		int a=32;
		int *p=&a;
		printf ("%d",*p);
		}
			U	06	

	f)	Write a program for searching particular element in the array.	A	04	

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EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL : - **THIRD** PROGRAM : **INFORMATION TECHNOLOGY**

COURSE CODE :- **ITG307**

COURSE NAME **OPERATING SYSTEM**

MAX. MARKS : **80** TIME : **03Hrs.** DATE :- **29/ 05 / 2023**

Instruction :-

1) Answers must be written in the main answer book provided.(and supplements if required)
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	Question Text	R/U/A	Co ITG 307	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	Define Multitasking with suitable example.	R	1	
	b)	Define operating system and list different types of Operating System.	R	1	
	c)	Enlist any four system calls related to file management.	R	2	
	d)	State the role of operating system in process management.	R	2	
	e)	Draw process state diagram with neat labeling.	R	3	
	f)	List advantages of threading.	R	3	
Q.2		Attempt any **FOUR:**			**16**
	a)	Describe Time sharing system with suitable example.	U	1	
	b)	Explain the Generations of operating system.	U	1	
	c)	Explain any four services provided by operating system.	U	2	
	d)	Explain :- i) Process Creation ii) Process Termination.	U	3	
	e)	What are the responsibilities of memory management? Illustrate with example.	A	2	
	f)	Describe Microkernel Operating System structure (with suitable Diagram)	U	2	
Q.3		Attempt any **FOUR:**			**16**
	a)	Define term system calls. Explain system call implementation with its working.	A	2	
	b)	Explain process of Booting in detail.	A	2	
	c)	Explain different characteristics of following operating system. i) Windows XP ii) Windows 7 (Any Two points for each Operating System)	A	1	
	d)	Explain the concept of mutual exclusion.	A	3	
	e)	Explain process control Block with suitable diagram.	U	3	
	f)	Draw types of schedulers. Explain any one scheduler used in scheduling.	A	3	

P.T.O

QN	SQN	Question Text	R/U/A	Co ITG 307	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	Define deadlock.	R	4	
	b)	State types of scheduling.	R	4	
	c)	Define internal and external fragmentation.	R	5	
	d)	State dynamic loading in memory management.	R	5	
	e)	Define paging.	R	5	
	f)	Write any two advantages of direct file access methods.	A	5	
Q.5		Attempt any **FOUR:**			**16**
	a)	Explain deadlock prevention methods.	U	4	
	b)	Explain segmentation hardware with neat diagram.	U	5	
	c)	Explain concept of address binding.	U	5	
	d)	Enlist operations that can be performed on files and directory.	R	5	
	e)	Explain single level directory structure with neat diagram.	U	5	
	f)	Compare FCFS and STF scheduling algorithm (any four points)	A	4	
Q.6		Attempt any **FOUR:**			**16**
	a)	Explain resource allocation graph.	U	4	
	b)	Explain concept of segmentation.	U	5	
	c)	Explain steps in DMA transfer with neat diagram.	U	5	
	d)	Explain SJF scheduling algorithm with suitable example.	A	4	
	e)	Compare logical and physical address space.	A	5	
	f)	Solve given problem by using FCFS to calculate average waiting time and turnaround time.	A	4	

Process	Arrival Time	Burst Time
P1	0	7
P2	1	4
P3	2	9
P4	3	6
P5	4	8

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EVEN TERM END EXAM SUMMER -2023

EXAM SEAT NO. | | | | | | |

LEVEL : - **FOURTH** PROGRAM : **INFROMATION TECHNOLOGY**

COURSE CODE :- **ITF404**

COURSE NAME **WEB TECHNOLOGY**

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- **27/ 05 / 2023**

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	**SECTION -I**	R/ U/ A	Co ITF 404	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	Write any four properties of option button.	R	4	
	b)	Write steps to create web form.	R	1	
	c)	What is a web application?	R	2	
	d)	State use of execute method of server object with example.	R	2	
	e)	How we can handle error in asp.net?	R	3	
	f)	Define on ODBC.	R	3	
Q.2		Attempt any **FOUR:**			**16**
	a)	Compare between ASP and ASP.net.	A	1	
	b)	Explain cookies with advantages and disadvantages.	U	4	
	c)	Explain global.aspx file content.	U	2	
	d)	Develop a program to implement application and session object.	A	2	
	e)	Explain SQL making and closing connection with example.	U	3	
	f)	Develop a program to implement show, insert update, delete using SQL command object.	A	3	
Q.3		Attempt any **FOUR:**			**16**
	a)	Define IIS. State purpose and explain its architecture.	U	1	
	b)	Explain methods of listbox with example.	A	1	
	c)	Develop ASP.NET program to read and transfer data from one pate to another page using cookies.	A	1	
	d)	Define Web.config file. Describe steps to create Web.config file. Explain content of file.	U	2	
	e)	Explain methods i) HTML Encode method with example ii) MapPath method.	U	2	
	f)	Explain ADO & ADO.NET as Microsoft universal data access strategies.	A	3	

P.T.O.

QN	SQN	SECTION –II	R/U/A	Co ITF 404	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	Define data lable and data raw with syntax.	A	3	
	b)	Define transaction.	R	4	
	c)	What is connection objects in ASP.NET.?	U	4	
	d)	Define Web services.	R	4	
	e)	Define term SGML, HTML.	U	5	
	f)	Write features of XML.	U	5	
Q.5		Attempt any **FOUR:**			**16**
	a)	Demonstrate Read XML, write XML with example.	A	5	
	b)	Explain XML as meta language.	U	5	
	c)	Explain navigation in record set with example.	U	3	
	d)	Write the steps for binding data grid to control step by step.	A	3	
	e)	Explain life cycle of web services.	U	4	
	f)	Write a steps for creating web service. Give example.	A	4	
Q.6		Attempt any **FOUR:**			**16**
	a)	Write procedure to create application which sends email.	A	4	
	b)	Describe XML document components in details.	R	5	
	c)	How database connectivity achieved in ASP.Net using any method of command object? Write example.	A	3	
	d)	Write a Web Application that will display data in data grid in sorted order.	A	3	
	e)	Explain the concept of "consuming third party Web services".	U	4	
	f)	Explain processing directives of Web services.	U	4	

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~~WINTER~~/SUMMER- 2023

EXAM SEAT NO. | | | | | | |

LEVEL: - FOURTH PROGRAM: Information Technology

COURSE CODE: - ITG402

COURSE NAME: - SOFTWARE TESTING

MAX. MARKS: **80** TIME: **03 Hrs** DATE: -27/5/2023

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	SECTION -I	R/U/A	Co ITG402	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	List the objectives of software testing.	R	1	
	b)	Design any four boundary value test cases for textbox which accept numbers from 1-999.	A	2	
	c)	Define black box testing.	R	2	
	d)	Differentiate between Drivers and Stub.	U	3	
	e)	State any 4 guidelines for GUI Testing.	R	3	
	f)	Define Static testing and Dynamic testing.	R	1	
Q.2		Attempt any **FOUR:**			**16**
	a)	Prepare six test cases for home page of marketing site www.makemytrip.com	A	1	
	b)	Describe positive testing & negative testing. Also write test cases for them.	U	2	
	c)	Explain any two special tests in testing process.	U	3	
	d)	Describe V-model with labelled diagram.	U	1	
	e)	Illustrate process of graph-based testing with suitable example.	U	2	
	f)	Define and explain need of Regression Testing.	R	3	
Q.3		Attempt any **FOUR:**			**16**
	a)	Illustrate process of bi-directional integration testing. State its two advantages & disadvantages.	U	3	
	b)	Define software testing. Explain when to start and stop testing.	R	1	
	c)	Explain the importance of decision table in Testing.	U	2	
	d)	Describe the testing approaches that are considered during Client-Server Testing.	U	3	
	e)	Differentiate between alpha testing and beta testing.	U	3	
	f)	Explain white box testing as technical review.	U	2	

P.T.O.

GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

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~~WINTER~~/SUMMER- 2023

EXAM SEAT NO. | | | | | | |

LEVEL : - FOURTH PROGRAM : Information Technology

COURSE CODE :- ITG402

COURSE NAME :- Software Testing

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- 27/5/2023

QN	SQN	SECTION –II	R/U/A	Co ITG 402	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	Write Test Case Specification.	R	4	
	b)	Define Defect.	R	5	
	c)	Explain need for Automated testing tools.	U	5	
	d)	Enlist Defect classification.	R	5	
	e)	Define Test Summary Report.	R	4	
	f)	State types of Metrics.	R	5	
Q.5		Attempt any **FOUR:**			**16**
	a)	Describe scope management for testing.	U	4	
	b)	Differentiate between Static and Dynamic Testing Tools.	U	5	
	c)	Explain Staffing and Training needs.	U	4	
	d)	Design Test Summary Report for Internet Banking System.	A	4	
	e)	Explain Defect Template with example.	A	5	
	f)	State advantages and disadvantages of using Testing Tools.	R	5	
Q.6		Attempt any **FOUR:**			**16**
	a)	Explain various stages in Defect Life Cycle.	U	5	
	b)	Describe criteria for selecting a testing tool.	U	5	
	c)	Design any four test cases for simple calculator application.	A	4	
	d)	Prepare defect report for Amazon login form.	A	5	
	e)	Differentiate between manual and automated testing.	U	5	
	f)	Describe standards included in Test management.	U	4	

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SUMMER/~~WINTER~~- 2023

EXAM SEAT NO. | | | | | | |

LEVEL : - IV PROGRAM : INFORMATION TECHNOLOGY

COURSE CODE :- ITG401

COURSE NAME :- NETWORK ADMINISTRATION

MAX. MARKS : **40** TIME : **03 Hrs** DATE :-26/5/2023

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Assume and mention suitable additional data if necessary.
5) Use of Mobile is strictly prohibited.
6) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	SECTION –I	R/U/A	Co	Marks
Q.1		Attempt any **FOUR:**			**08**
	a	Define term manual allocation.	U	ITG401-2	
	b	Define name space and enlist its types	R	ITG401-2	
	c	State use of the BOOTP and RARP.	U	ITG401-2	
	d	List any four network mediums.	R	ITG401-1	
	e	What is mean by static IP configuration protocol?	R	ITG401-2	
	f	Draw diagram of domain name space.	U	ITG401-2	
Q.2		Attempt any **FOUR:**			**16**
	a	Explain DSL with neat diagram.	U	ITG401-1	
	b	Explain the phases of internetwork design process.	A	ITG401-1	
	c	Explain question record and resource record of DNS with diagram.	R	ITG401-2	
	d	Explain FQDN and PQDN with diagram.	R	ITG401-2	
	e	Explain IPv6 packet format.	U	ITG401-2	
	f	Draw and explain DHCP packet structure.	U	ITG401-2	
Q.3		Attempt any **FOUR:**			**16**
	a	What is mean by root server? explain its types.	R	ITG401-2	
	b	Draw and explain query and response messages.	U	ITG401-2	
	c	Explain network printing issues.	U	ITG401-1	
	d	Explain ISDN with diagram.	R	ITG401-1	
	e	Explain Address space of IPv6 and enlist address types.	U	ITG401-2	
	f	Differentiate between IPv4 and IPv6 address.	R	ITG401-2	

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SUMMER/~~WINTER~~- 2023

EXAM SEAT NO. | | | | | | |

LEVEL : - IV PROGRAM : Information Technology

COURSE CODE :- ITG401

COURSE NAME :- NETWORK ADMINISTRATION

MAX. MARKS :40 TIME : **03 Hrs** DATE :-26/5 / 2023

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	**SECTION –II**	R/U/A	Co ITG401	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	State difference between WINS and active Directory Name spaces.	R	3	
	b)	Define Global Catalog Server.	R	3	
	c)	State the use of Ping command.	R	4	
	d)	Enlist hardware backup devices.	R	4	
	e)	Draw ISAKMP header format.	R	5	
	f)	Identify the protocol which can be used for achieving confidentiality in virtual private network.	A	5	
Q.5		Attempt any **FOUR:**			**16**
	a)	State limitations of a firewall	U	5	
	b)	Explain Oakley key determination Protocol in detail.	U	5	
	c)	Write how to prevent virus infections on network.	A	3	
	d)	Describe the following 1) Canonical Names 2)Globally Unique Identifiers	U	3	
	e)	Explain major updates.	U	4	
	f)	Write how to prevent virus infections on network.	A	4	
Q.6		Attempt any **FOUR:**			**16**
	a)	Write how replay attack occurs and how to deal with replay attacks.	A	5	
	b)	Explain IPsec key management.	U	5	
	c)	Explain Active Directory Architecture in detail.	U	3	
	d)	Describe OS utilities for Network Troubleshoot.	U	4	
	e)	Write the use of following utilities with example i)Trace route ii)Netstat	A	4	
	f)	Draw and Explain VPN architecture.	U	5	

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GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

(An Autonomous Institute of Govt. Of Maharashtra)

WINTER/SUMMER- 2023

EXAM SEAT NO. | | | | | | |

LEVEL : - 1 PROGRAM : Information Technology

COURSE CODE :- ITG102

COURSE NAME :- Web Page Designing

MAX. MARKS : **40** TIME : **02 Hrs** DATE :- 25/5/2023

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN		R/U/A	Co	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	Define HTML. State the use of HTML.	R	ITG102-1	
	b)	Define WWW.	U	ITG102-1	
	c)	Write the syntax, use of anchor tag with example.	R	ITG102-2	
	d)	Write syntax, use of FRAMESET tag with example.	R	ITG102-4	
	e)	Write syntax, use of pull down menus with example.	R	ITG102-4	
	f)	State the meaning of Embedding style Sheets in HTML.	R	ITG102-5	
Q.2		Attempt any **FOUR:**			**16**
	a)	Explain color attribute of FONT tag with example.	U	ITG102-1	
	b)	Write HTML code to create a web page to add hyperlinks - 1.To document in the same folder. 2.To document in the different folder.	A	ITG102-2	
	c)	How can we use EMBED tag to add multimedia in Web page?	U	ITG102-3	
	d)	Explain different attributes used for formatting content in the table cells.	U	ITG102-4	
	e)	Write a HTML and CSS code to create web page and apply style sheet properties (Box and color background properties)	U	ITG102-5	
	f)	Write a HTML code using bootstrap.	A	ITG102-5	
Q.3		Attempt any **FOUR:**			**16**
	a)	Write HTML code to create a Web Page using any four HTML block level elements.	A	ITG102-1	
	b)	Explain list tag and nested list concept in HTML with example.	U	ITG102-2	
	c)	Write HTML code to create webpage using text animation with MARQUEE element.	U	ITG102-3	
	d)	Write HTML code to create a web page using iframe tag.	A	ITG102-4	
	e)	Explain different Form fields in HTML with example.	U	ITG102-4	
	f)	Explain <audio> and <video> HTML5 graphic and multimedia element.	U	ITG102-5	

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WINTER/SUMMER- 2023

EXAM SEAT NO. | | | | | | |

LEVEL : - THIRD PROGRAM :IT

COURSE CODE :- ITG301

COURSE NAME :- APPLIED METHEMATICS

MAX. MARKS : **80** TIME : **03 Hrs** DATE :- 24/05/2023

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	SECTION -I	R/U/A	Co ITG301.	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	Evaluate $\int (e^{logx} + e^{xlog2})\, dx$.	U	1	
	b)	Evaluate $\int x.cosx\, dx$	R	1	
	c)	Evaluate $\int_0^2 \frac{2x}{x^2+4} dx$	R	1	
	d)	Evaluate $\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} cot^2 x\, dx$	R	1	
	e)	Find range of the following data 3,6,10,1,15,16,21,19,18	R	2	
	f)	Calculate the mean of the following data 15,22,27,11,9,21,14,9	R	2	
Q.2		Attempt any **FOUR:**			**16**
	a)	Evaluate $\int \frac{3x^2-2x+5}{x\sqrt{x}} dx$	U	1	
	b)	Evaluate $\int \frac{dx}{2-3\cos 2x}$	U	1	
	c)	Evaluate $\int \frac{\log x dx}{x(2+\log x)(3+\log x)}$	A	1	
	d)	Evaluate $\int_0^4 \frac{dx}{\sqrt{4x-x^2}}$	U	1	
	e)	Evaluate $\int_0^{\frac{\pi}{2}} \frac{\cos x}{4-sin^2 x} dx$	A	1	
	f)	Find mean deviation from mean of the following Daily expenditure: 3, 4, 5, 6, 7, 8 No. of Students: 4, 9, 10, 8, 6, 3	A	2	
Q.3		Attempt any **FOUR:**			**16**
	a)	Evaluate $\int \cos(\log x) dx$	U	1	
	b)	Evaluate $\int \frac{1+tan^2 x}{1-tan^2 x} dx$	A	1	
	c)	Evaluate $\int \frac{x+1}{x(x^2-4)} dx$	U	1	
	d)	Evaluate $\int_1^3 \frac{\sqrt[3]{x+5}}{\sqrt[3]{x+5}+\sqrt[3]{9-x}} dx$	A	1	
	e)	Calculate the standard deviation about the mean of the following data: 3,6,5,7,10,12,15,18	U	2	
	f)	Calculate the standard deviation for following distribution Class interval: 5-10, 10-15, 15-20, 20-25, 25-30, 30-35, 35-40 Frequency: 5, 9, 15, 20, 16, 10, 2	U	2	

PTO

QN	SQN	Question Text	R/U/A	Co ITG 301	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	State addition theorem of probability.	R	4	
	b)	Find I.F. of the differential equation $(1-x^2)\frac{dy}{dx}+2xy=x\sqrt{1-x^2}$.	R	3	
	c)	Find order and degree of the differential equation $\left(\frac{d^3y}{dx^3}\right)^{1/2}+\left(\frac{dy}{dx}\right)^{1/3}=5.$	R	3	
	d)	Solve the D.E. : $x\,dy-y\,dx=0$	U	3	
	e)	Three fair coins are tossed. Find the probability that atleast two heads appear.	A	4	
	f)	If a random variable has Poisson distribution with P(2) = P(3), find P(5).	R	4	
Q.5		Attempt any **FOUR:**			**16**
	a)	If the mean of the Binomial distribution is 2 and the variance is 4/3, find the probability of i) Two successes ii) Less than two successes.	U	4	
	b)	Solve the differential equation $\frac{dx}{dt}=6-3x$, *if* $x=0$ *when* $t=0$.	A	3	
	c)	Solve : $x(x+y)\,dy-x^2\,dx=0$	U	3	
	d)	Solve the linear differential equation $\frac{dy}{dx}=\frac{e^{\tan^{-1}x}}{1+x^2}-\frac{y}{1+x^2}$	A	3	
	e)	A manufacturer of pins knows that on an average of 5% of his product is defective. He sells pins in boxes of 100 and guarantees that no more than 4 pins will be defective. In how many boxes out of 1000, he will meet the guaranteed quality?	A	4	
	f)	In a college hostel there are 75 students, out of which 15 students like to drink tea, 40 like to drink coffee and 20 like neither tea nor coffee. Two students from this hostel come to canteen. Find the probability that both will order the same drink.	A	4	
Q.6		Attempt any **FOUR:**			**16**
	a)	Solve : $xy\log y\,dx+(1+x^2)\,dy=0$	U	3	
	b)	Solve : $\cos x\frac{dy}{dx}+2y\sin x=\sin 2x.$	A	3	
	c)	Solve : $(\sin x.\cos y+e^{2x})\,dx+(\cos x.\sin y+\tan y)\,dy=0$	A	3	
	d)	Out of 1000 families having 3 children each, how many would you expect to have i) Two boys and 1 girl. ii) Two girls and 1 boy.	U	4	
	e)	If the mean life time and S.D. of battery cells are 12 hrs and 3 hrs, what % batteries will have life i) Between 10 and 14 hrs. ii) More than 15 hrs. iii) Less than 6 hrs. (Given : For SNV Z, area from Z=0 to Z= 0.67 is 0.2486, that from Z=0 to Z=1 is 0.3413, that from Z=0 to Z=2 is 0.4772).	A	4	
	f)	In an intelligence test administered to 1000 children the mean score was 42 with standard deviation 24. Find the number of children i) Scoring more than 60. ii) Between 20 and 40 Assume distribution to be normal. (Given : For SNV Z, area from Z=0 to Z=0.75 is 0.2734, that between Z=0 to Z=0.9167 is 0.3202 and between Z=0 to Z=0.0833 is 0.0332.	A	4	

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GOVERNMENT POLYTECHNIC, KOLHAPUR – 416004.

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WINTER/SUMMER-23

EXAM SEAT NO. | | | | | | |

LEVEL : - 3 PROGRAM : Information Technology

COURSE CODE :- ITG305

COURSE NAME :- Database Management System

MAX. MARKS : **80** TIME : **03 Hrs** DATE :-24/5/2023

Instruction :-

1) Answers of two sections must be written in separate section answer book provided.
2) Illustrate your answers with sketches wherever necessary.
3) Use of non-programmable pocket calculator is permissible.
4) Mathematical and other tables shall be made available on request.
5) Assume and mention suitable additional data if necessary.
6) Use of Mobile is strictly prohibited.
7) QN- Question No., SQN-Sub Question No. R- Remembering, U- Understanding, A- Application.

QN	SQN	SECTION -I	R/U/A	Co ITG 305	Marks
Q.1		Attempt any **FOUR:**			**08**
	a)	Define Database.	R	1	
	b)	Define database schema.	R	1	
	c)	State uses of synonyms. (Any two)	R	2	
	d)	List any four causes of database failure.	R	3	
	e)	Differentiate between Drop and Truncate command.(Any two)	U	3	
	f)	Describe any two string functions with syntax.	U	3	
Q.2		Attempt any **FOUR:**			**16**
	a)	Explain Entity Relationship Model.	U	1	
	b)	Describe the structure of Relational Database.	U	2	
	c)	Consider schema : Employee (empid, ename, address, designation, salary) Write SQL statements for following: (i) List maximum and minimum salary (ii) Find ename of an employees who belongs to "Mumbai". (iii) Find total salary of all managers. (iv) Find empid of all employees where name ends with 'i'.	A	3	
	d)	Consider the structure as project(projid,projname,cost,manpower, raw_material, Dt_of_completion). Write relational algebraic expression for the following: i) To list project name which have cost less than 50,000. ii) To list project details for which raw material is not available.	A	2	
	e)	Explain any two types of joins.	U	3	
	f)	Draw ER diagram for student management system.	A	2	
Q.3		Attempt any **FOUR:**			**16**
	a)	Perform following operations on table student. (i) Create view Stud–view having marks greater than 80. (ii) Permanently delete Stud_view	A	2	
	b)	List Database users.	R	1	
	c)	Explain any two fundamental operations of Relational Algebra.	U	2	
	d)	Explain any four mathematical functions with example.	U	3	
	e)	Draw ER diagram for Bank management system.	A	1	
	f)	Write SQL commands for following statements: i) Create table for following schema: Student (Roll-No, Name, Class, DOB). ii) To add new column percentage to student table. iii) To drop column DOB from student table.	A	3	

P.T.O.

QN	SQN	Question Text	R/U/A	Co ITG 305	Marks
Q.4		Attempt any **FOUR:**			**08**
	a)	Define First Normal form.	R	4	
	b)	Give the properties of decomposition.	U	4	
	c)	What is PL/SQL? Define % Type.	R	5	
	d)	State the basic parts of trigger.	R	6	
	e)	Give types of failure.	R	6	
	f)	Define Grant command.	R	6	
Q.5		Attempt any **FOUR:**			**16**
	a)	Explain about Functional dependencies.	R	4	
	b)	Explain about Boyce codd Normal form with an example.	R	4	
	c)	Define cursor. Explain its types.	A	5	
	d)	Write a program using Exception handling in PL/SQL.	A	5	
	e)	Define Transaction. Draw and explain transaction state diagram.	U	6	
	f)	Write example for Grant and Revoke command.	A	6	
Q.6		Attempt any **FOUR:**			**16**
	a)	Write example for normalization of database using 2NF.	A	4	
	b)	List properties of Boyce codd normal form.	U	4	
	c)	Discuss immediate database modification.	U	5	
	d)	Explain database system recovery using check points.	U	5	
	e)	Write PL/SQL program using while loop to display 'n' even numbers.	A	5	
	f)	State and explain types of trigger.	U	5	

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