MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)

SECOND SEMESTER EXAMINATION

(2024 ADMISION ONWARDS)

MG1MDCECT101 – Python for Electronics

Duration: 1.5 hour **Maximum Marks: 35**

PracticalExamination–ModelQuestionPaper

Instructions:

- **Demonstrate**thegiventask
- **Viva session** (Minimum 5 questions from the practicalmodule)
- **LabReport**

EvaluationCriteria:

- **Viva**:7 marks
- **LabReport**:8marks
- **Demonstration**:20marks

Tasks:*(Chooseanyone)*

1. Given a List of Radii of circles. Write a Python program to find the area and circumference. Print these as a list
2. Given a List of length of squares. Write a Python program to find the area and perimeter. Print these as a list
3. Given a two Lists of length and breadth of rectangles. Write a Python program to find the area and perimeter. Print these as a list
4. Find the sum of the first 100 numbers using for loop
5. Find the sum of square of the first 100 odd numbers using for loop
6. Find the sum of square of the first 100 even numbers using while loop
7. Given a string. Find the number of characters in the string. Print the result. If it is even print “The length is even”, else print “The length is odd”
8. Given a string. Get thestring in the reverse order
9. Given a string. Get the odd index characters in the string
10. Given a string. Get the even index characters in the string
11. Find the sum of square of the first 100 multiples of 5 using while loop
12. Given a string, get all the characters in lower case and upper case
13. Given a string, get the middle of the string in upper case.

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)

SECOND SEMESTER EXAMINATION

(2024 ADMISION ONWARDS)

MG2DSCECT100 Essential Concepts in Digital Electronics

Duration: 1.5 hours **Maximum Marks: 50**

Students should attempt atleast one question from each course outcome to enhance their overall *outcome attainability.*

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

Part A

Multiple Choice Questions

Answer **All** Questions

Each question carries 1 mark

1	What is the decimal equivalent of the binary number 1011? a) 9 b) 10 c) 11 d) 12	U	CO1
2	What is the output of an AND gate if both inputs are 1? a) 0 b) 1 c) 2 d) Undefined	K	CO2
3	Which of the following gates is known as a universal gate? a) AND b)OR c) NOT d)NAND	K	CO2
4	What is the main characteristic of a flip-flop? a) It stores binary data b) It performs arithmetic operations c) It converts binary data to decimal d) It amplifies signals	K	CO3
5	Which of the following is the Boolean expression for the Sum output of a Full Adder? a) A ⊕ B ⊕ Cin b) (A + B) ⊕Cin c) (A * B) ⊕ Cind) A + B + Cin	K, U	CO3
6	Which of the following is a characteristic of a shift register? a)Store data in sequence b) Perform logical operations c) Convert analog to digital signals d) Amplify weak signals	K	CO3
7	The Karnaugh map (K-map) is used for: a)Simplifying Boolean expressions b) Converting binary numbers c) Generating truth tables d) Analyzing circuit diagrams	U	CO2
8	What is the binary form of the hexadecimal number A? a) 1011 b) 1100 c) 1010 d) 1001	K	CO1
9	Which of the following is the result of the Boolean expression A + $\bar{A}B$? a) Ab) A + B c) A' d) A'B	U	CO2
10	Which Boolean expression is in canonical SOP form? a) A'B + AB' b) A + B c) AB d) A + A'B	U	CO2

1 * 10 = 10

Part B

Short Answer Questions

Answer any**4** Questions

Each question carries 5 marks

11	Explain the operation of a **Half Adder** and a **Full Adder**. Draw their logic diagrams and truth tables.	U	CO3
12	Simplify the following Boolean expression using a Karnaugh Map: $F(A, B, C) = \Sigma(1, 3, 5, 7)$	U	CO2
13	Convert the following numbers: a) Binary 101110 to Decimal b) Decimal 45 to Binary c) Octal 12 to Decimal Explain the steps involved in each conversion.	K	CO1
14	Explain the basic logic gates (AND, OR, NOT) with their symbols and truth tables. Also, show the truth table for a **NAND gate** and explain its operation.	K	CO2
15	Convert the following hexadecimal number to decimal a) E5 b) A85	U	CO1
16	Express the decimal number -39 as an 8 bit number in the sign magnitude. 1's complement and 2's complement	U	CO1

4 * 5 = 20

Part C

Essay Questions

Answer any**2** Questions

Each question carries 10 marks

17	a) Discuss the different types of logic gates, with their truth tables and symbols? b) write the laws and rules of Boolean algebra?	K	CO2
18	Simplify the following Boolean expressions using **K-map** a)A′B′C′D+AB′C′D+ABC′D+ABC′D′ b)A′B′C+AB′C′+AB′C+A′BC′	U	CO2
19	a) Determine the binary number for the following hexadecimal number I) 10A4 II) CF8E III) 9742 b) Convert the following octal number to decimal I) 1024 II) 7765	U	CO1
20	Explain the working principle of aRing Counter**.**	K	CO3

2 * 10 = 20

Reg.No :.....

Name :.....

MAHATMAGANDHIUNIVERSITY,KOTTAYAM

MGU-UGP (HONOURS)
SECOND SEMESTER EXAMINATION

(2024 ADMISSION ONWARDS)

MG2DSCECT101-DATACOMMUNICATION

Duration:1.5hoursMaximumMarks:50

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability

PartA

MultipleChoiceQuestions

Answer **All** Questions

Eachquestioncarries**1**mark

Write complete answers of your choice in the answer paper against each question number

1. Identifythetransmissionmodethatallowsdatatoflowinbothdirectionsbutonlyonedirectionata time.[U][1]

a) Simplex b)HalfDuplex c)FullDuplex d)Multiplexing

2.Whatunitisusedtomeasurethebandwidthofasignal? [U] [1]

a)Bitrate b)Baudrate c)Hertz d)Decibel

3.Whatistheprimaryfunctionofarepeaterinadatacommunicationsystem? [U] [1]

a)Amplifyingdatasignals

b)Encodingdata

c)Multiplexingdata

d)Filteringdata

4. Thermalnoiseisintroducedbywhichfactorinacommunicationsystem? [U] [1]

a)Impulsenoise b) Crosstalk c)Thermal noise d)Intermodulationnoise

5. Amongguidedmedia,whichoneprovidesthehighestdatatransmissionrate? [U] [2]

a) STPb)UTP c)Coaxialcable d)Fiberopticcable

6. Identifythewirelesstransmissionmediumthatreliesonline-of-sightcommunication[U] [2]

a) Infrared b)Radiowavec)Satellitemicrowaved)Fiberopticcable

7.HowdoesAmplitudeShiftKeying(ASK)representdigitaldata? [U] [3]

a)Byvaryingtheamplitudeofthecarriersignal

b)Bychangingthefrequencyofthecarriersignal

c)Bymodifyingthephaseofthecarriersignal

d)Bycombiningamplitudeandphasechanges

8.WhatprincipledoesPhaseShiftKeying(PSK)relyonfordatatransmission? [U] [3]

a)Amplitudevariation

b)Frequencymodulation

c)Phasechanges

d)Timedivision

9.Choosethemultiplexingtechniquecommonlyusedinfiberopticcommunication?

a)FDM b)TDM c)WDM d)FHSS [U] [3]

10.Themodulationtechniquepreferredforlong-distanceanalogsignaltransmissionis [U] [3]

a) AmplitudeModulation

b) FrequencyModulation

c) PhaseModulation

d) DeltaModulation

(1 x 10 = 10)

PartB

ShortAnswerQuestions

Answer Any 4 Questions

Each question carries **5** marks

11. Withthehelpofablockdiagramexplainthefivecomponentsinvolvedinacommunicationsystem.[U][1]
12. Distinguishbetweenhalf-duplexandfull-duplextransmissionmodes? [U] [1]
13. Describethestructureofacoaxialcableanditsapplicationsindatacommunication.[U][2]
14. Howdoesskypropagationdifferfromline-of-sightpropagation? [U] [2]
15. Comparesynchronousandasynchronoustransmission . [U] [3]
16. Explainfrequencyshiftkeying [U] [3]

(4 x 5 = 20)

PartC

EssayQuestions

AnswerAny **2**Questions

Each question carries **10** marks

17. Explainthedifferenttypesoftransmissionimpairmentsindatacommunicationandtheireffects. [U] [1]
18. ComparePulseCodeModulationandDeltaModulation[U][2]
19. DescribetheworkingofFrequencyHoppingSpreadSpectrum(FHSS)andDirectSequenceSpread Spectrum (DSSS) techniques with their advantages.[U][3]

(2 x 10 =20)

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)

SECOND SEMESTER EXAMINATION

(2024 ADMISION ONWARDS)

MG2DSCIAM100 Intelligent Automation Techniques

Duration: 1.5 hours **Maximum Marks: 50**

Students should attempt at least one question from each course outcome to enhance their overall *outcome attainability.*

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

Part A

Multiple Choice Questions

Answer **All** Questions

Each question carries 1 mark

1	Which of the following best defines Artificial Intelligence (AI)? a) The ability of machines to perform tasks without human intervention b) A branch of computer science that aims to create intelligent machines c) A software program that mimics human behavior d) A set of rules followed by a computer	K	1
2	What is a key characteristic of neural networks in machine learning? a) They are rule-based systems b) They process information in layers c) They do not require large datasets d) They work only with structured data	U	1
3	Which of the following is NOT a type of machine learning system? a) Supervised Learning b) Reinforcement Learning c) Predictive Learning d) Unsupervised Learning	U	1
4	Which library is commonly used to extract data from a MySQL database in Python? a) NumPy b) Matplotlib c) Pandas d) TensorFlow	K	2
5	Which Python library is commonly used to extract data from a database? a) pandas b) matplotlib c) numpy d) seaborn	U	2
6	Which of the following is NOT a valid way to run Python code? a) Jupyter Notebook b) Pycharm c) Microsoft Excel d) IDLE	K	2
7	In Gradient Descent, what does the learning rate control? a) The number of neurons b) The size of the step taken towards the minimum c) The number of features in the dataset d) The type of activation function used	U	2
8	In reinforcement learning, the system learns by: a) Finding hidden patterns in unlabeled data b) Comparing its predictions with true labels c) Receiving rewards or penalties for actions taken d) Assigning data points to clusters	K	3
9	Which of the following is a type of regression analysis? a) Hierarchical clustering b) Decision trees c) Linear regression d) SVM	U	3
10	Which of the following is an example of supervised learning? a) K-Means Clustering b) Principal Component Analysis c) K-Nearest Neighbors (KNN) d) Hierarchical Clustering	U	3

1 * 10 = 10

Part B

Short Answer Questions
Answer any **4** Questions
Each question carries 5 marks

11	Mention two major challenges in implementing machine learning models.	U	1
12	What are variables in Python? Give an example.	A	2
13	What is the primary purpose of the gradient descent algorithm?	U	2
14	Explain the working principle of Hierarchical Clustering with an example.	A	3
15	What is the purpose of regression analysis in machine learning?	U	3
16	What is the primary difference between supervised and unsupervised machine learning?	U	3

4 * 5 = 20

Part C

Essay Questions
Answer any **2** Questions
Each question carries 10 marks

17	Explain the different types of machine learning systems with examples.	U	1
18	Discuss the applications of machine learning in medical treatment and business, highlighting their impact.	U	1
19	Describe Python's control flow statements (if-elif-else, loops) with syntax and examples.	A	2
20	Describe the working of K-Nearest Neighbors (KNN) and its applications in machine learning.	U	3

2 * 10 = 20

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)
SECOND SEMESTER EXAMINATION
(2024 ADMISION ONWARDS)

MG2DSCIAM101 -Automotive Systems for E-Vehicles

Duration: 1.5 hours **Maximum Marks: 50**

Students should attempt atleast one question from each course outcome to enhance their overall *outcome attainability.*

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

Part A
Multiple Choice Questions
Answer **All** Questions
Each question carries 1 mark

1	In a comparator circuit, when the non-inverting input voltage is higher than the inverting input voltage, the output will be: A) High B) Low C) Zero D) Undefined	U	CO1
2	What is the main function of an Operational Amplifier A) Amplify high-frequency signals B) Amplify low-frequency signals C) Perform mathematical operations like addition, subtraction, etc. D) Convert digital signals to analog signals	K	C01
3	The primary purpose of a Unity Gain Amplifier (Buffer Amplifier) using an Op-Amp is: A) To amplify the input signal with high gain B) To provide isolation between different stages of a circuit C) To filter the input signal D) To oscillate at a fixed frequency	U	C01
4	The primary function of a Schmitt Trigger is A) To amplify a signal without distortion B) To convert a sinusoidal signal into a square wave C) To filter high-frequency noise from a signal D) To regulate the output voltage	U	CO2
5	What does a capacitor filter do in a power supply? A) Increase the voltage B) Smooth the output voltage C) Decrease the current D) Store electrical energy	U	C02
6	What is the primary function of a 78XX voltage regulator IC A) To increase voltage B) To provide a constant output voltage C) To store electrical energy D) To convert AC to DC	U	CO2
7	The output waveform of a bridge rectifier is A) A pure sinusoidal waveform B) A smooth DC signal C) A pulsating DC signal D) An inverted AC waveform	K	CO2

8	In a Brushless DC motor, the rotor contains which of the following? A) Permanent magnets B) Induced electromagnets C) Copper windings D) Brushes	U	CO3
9	In an induction motor, what is the relationship between the speed of the rotor and the synchronous speed? A) The rotor speed is always higher than the synchronous speed B) The rotor speed is always equal to the synchronous speed C) The rotor speed is always lower than the synchronous speed D) The rotor speed is independent of synchronous speed	A	CO3
10	What type of current is delivered to the battery in DC fast charging? A) Alternating Current (AC) B) Direct Current (DC) C) Pulsating Current D) Inductive Current	K	CO3

1 * 10 = 10

Part B

Short Answer Questions

Answer any**4** Questions

Each question carries 5 marks

11	What is the gain of an inverting amplifier ifR_f=10K and R_{in} =1K	U	CO1
12	What is an LDR. Explain with proper circuit diagram to amplify the signal from LDR using op-amp	U	CO1
13	Draw the output waveform of a Schmitt trigger whenV_{UT} =2V and V_{LT}= - 2V	U	CO2
14	What is a bridge rectifier.How does it convert AC voltage to DC voltage using diodes?	U	CO2
15	What is a Battery Management Unit (BMU)?	A	CO3
16	What is commutation. How is it achieved in a BLDC motor	A	CO3

4 * 5 = 20

Part C

Essay Questions

Answer any**2** Questions

Each question carries 10 marks

17	Explain the working of a non-inverting amplifier with proper circuit diagram. Write the gain formula of non-inverting amplifier	K	CO1
18	How we can use an IC 741 as a zero-crossing detector. Explain with proper circuit diagram and also draw the input and output waveforms	U	CO2
19	With the help of block diagrams explain the working of SMPS	U	CO2
20	Explain the working of BLDC motor. Why it is called brushless	A	CO3

2 * 10 = 20

Reg.No :.....

Name :.....

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)

SECOND SEMESTER EXAMINATION

(2024 ADMISION ONWARDS)

MG2DSCMOS100 Foundations of Mobile Development Systems

Duration: 1.5 hours Maximum Marks: 50

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability

Part A

Multiple Choice Questions

Answer **All** Questions

Each question carries 1 mark

1	Which of the following is a primitive data type in Dart**?** A) ListB) int C) MapD) Set	[U]	CO1
2	Which plugin is required for Visual Studio Code to support Flutter development? A) Flutter and DartB) Android and Dart C) Flutter and JavaD) Dart and Kotlin	[U]	CO2
3	Which of the following is a local storage solution in Flutter? a) SQLite b) Firestore c) Firebase Realtime Database d) Cloud Storage	[K]	CO3
4	What is the purpose of null in programming? A) It represents an undefined value B) It stores integers C) It performs arithmetic operations D) It represents a list	[K]	CO1
5	Which command is used to create a new Flutter project? A) flutter startB) flutter create C) flutter newD)flutter init	[U]	CO2
6	Which operator is used for modulus operation? A) % B) / C) // D) ^	[K]	CO1
7	Which Firebase service is used for storing large files such as images and videos?	[K]	CO3

A) FirestoreB) Firebase Storage

C) Firebase AuthenticationD) Firebase Cloud Functions

8	Which package provides widgets that follow Android design principles? A) Cupertino B) Material C) Bootstrap D) Tailwind	[U]	CO2
9	Which HTTP method is used to retrieve data from a RESTful API? A) POST B) GET C) PUT D) DELETE	[U]	CO3
10	Which command is used to run a Flutter app on an Android emulator or device? A) flutter build apkB) flutter runC) flutter startD) flutter launch	[U]	CO2

(1 x 10 = 10)

Part B

Short Answer Questions

Answer **4** Questions

Each question carries 5 marks

11	Explain the various data types in Dart and also Provide examples of how each data type is used in a Flutter application.	[U]	CO1
12	Name three commonly used Material widgets in Flutter and their purposes.	[U]	CO2
13	What is a class in Dart, and how is it different from an object?	[U]	CO1
14	What is the importance of SQLite used for in Flutter?	[U]	CO3
15	Explain the difference between StatelessWidget and StatefulWidget in Flutter.	[U]	CO2
16	What is the difference between Firestore and Firebase Realtime Database?	[U]	CO3

(4 x 5 = 20)

Part C

Essay Questions

Answer **2** Questions

Each question carries 10 marks

17	What are collections in Dart? Explain List, Map, and Set with examples.	[U]	CO1
18	Explain the different data types available in Dart with examples.	[U]	CO1
19	Explain different data storage options available in Flutter.	[U]	CO3
20	Explain different types of data storage in Flutter, focusing on SQLite and SharedPreferences.	[U]	CO2

(2 x 10 = 20)

Reg.No :.....

Name :.....

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)
SECOND SEMESTER EXAMINATION
(2024 ADMISSION ONWARDS)

MG2MDCECT100 -IoT based smart farming

Duration: 1 hours **Maximum Marks: 35**

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

Students should attempt at least one question from each course outcome to enhance their overall *outcome attainability.*

Part A
Multiple Choice Questions
Answer any 35 questions
Each question carries 1 mark

Write complete answers of your choice in the answer paper against each question number

1	What does IoT stand for? a) Internet of Thingsb) Integration of Technology c) Intelligent Online Trackingd) Internet of Technology	K	1
2	Which statement best defines the Internet of Things (IoT)? a) A collection of unrelated devices without communication b) A system where devices collect and exchange data via the internet c) A type of web browser d) A new social media platform	U	1
3	Who is credited with coining the term "Internet of Things"? a) Tim Berners-Leeb) Kevin Ashton c) Elon Muskd) Bill Gates	K	1
4	What is a key characteristic of IoT devices? a) They must always require human intervention to function b) They collect, share, and analyze data automatically c) They work only with Bluetooth connections d) They are limited to home automation applications	K	1
5	How does IoT help in precision farming? a) By collecting real-time data on soil moisture, weather, and crop health b) By replacing human farmers entirely c) By automating only the sale of crops d) By eliminating the need for fertilizers	R	1
6	What role do sensors play in IoT? a) They store data permanently	K	1

	b) They collect real-time data from the environment c) They act as display screens for IoT devices d) They provide only power to IoT systems		
7	What is the primary function of a microcontroller in an IoT system? a) To provide power to sensors b) To process sensor data and control connected devices c) To function as a storage device d) To act as a wireless communication module	U	1
8	Which feature of microcontrollers makes them ideal for IoT applications? a) High power consumptionb) Large display screens c) Low power consumption and real-time processing capabilities d) Ability to run complex video games	U	1
9	What is the primary function of a sensor in IoT? a) Generate electrical powerb) Collect data from the environment c) Store data permanentlyd) Control mechanical devices	U	1
10	What is the first step in IoT data collection? a) Processingb) Sensing c) Transmissiond) Storage	K	1
11	How can soil moisture sensors help in farming? a) Reduce water wastage b) Reduce soil erosion c) Decrease plant growthd) Increase pesticide use	U	1
12	Which of the following is a commonly used temperature sensor? a) LM35 b) PIR sensor c) Soil moisture sensord) Gas sensor	K	1
13	What do humidity sensors measure? a) Water vapor in the air b) Soil moisture c) Wind speedd) Pressure	U	1
14	Which of the following is NOT an example of an actuator? a) Servo motorb) Relay c) LEDd) Microcontroller	U	1
15	What type of actuator is used in automated irrigation? a) Solenoid valve b) Speaker c) Light sensord) Thermistor	K	1
16	What type of actuator is commonly used in robotic arms? a) Stepper motorb) Ultrasonic sensor c) Thermistord) Light sensor	K	1
17	What does IoT stand for? a) Internet of Thingsb) Internet of Technology c) Integration of Thingsd) Internet of Tasks	K	1
18	Which of the following is a communication protocol commonly used in IoT networks? a) HTTPb) Zigbee c) USBd) HDMI	K	1
19	What is Zigbee primarily used for? a) High-speed internet communication	U	1

	b) Long-distance communication c) Short-range wireless communication in IoT devices d) Satellite communication		
20	What is the main advantage of LoRa technology? a) High data transfer speeds b) Long-range communication with low power consumption c) Compatibility with Bluetooth devices d) Low cost for short-distance communication	U	1
21	Which of the following is essential for plant growth? a) Soil, water, and sunlightb) Soil, water, and plastic c) Soil, water, and metald) Soil, water, and sand	K	2
22	What is the first stage of a plant's life cycle? a) Floweringb) Germination c) Pollinationd) Fruiting	K	2
23	During which stage does a plant develop its roots and first leaves? a) Flowering stageb) Germination stage c) Pollination staged) Fruiting stage	K	2
24	Which of the following is NOT a factor influencing plant health? a) Soil qualityb) Amount of sunlight c) Type of pot usedd) Water availability	K	2
25	What is the primary factor that affects plant yield in agriculture? a) The color of the plants b) Availability of nutrients, water, and sunlight c) The height of the plants d) The number of insects present in the soil	U	2
26	Which of the following is a major challenge in traditional farming? a) Lack of natural fertilizers b) Over-reliance on automated machinery c) Dependency on weather conditions and soil quality d) Excessive production of crops	U	2
27	Why is water conservation important in agriculture? a) It helps increase the cost of farming b) It prevents soil erosion and ensures sustainability c) It reduces the amount of sunlight crops receive d) It eliminates the need for irrigation	U	2
28	Which of the following is a common problem faced in irrigation? a) Excessive rainfall throughout the year b) Unequal water distribution and water scarcity c) The inability of soil to absorb nutrients d) Overuse of artificial lighting in crop production	U	2
29	What is a major disadvantage of excessive pesticide usage in farming? a) It makes plants grow faster b) It leads to soil and water contamination c) It completely removes all pests from crops d) It improves the taste of fruits and vegetables	U	2
30	How does modern agriculture impact the environment? a) It always improves soil fertility b) It can lead to deforestation, water pollution, and biodiversity loss	U	2

c) It eliminates the need for fertilizers

d) It reduces global temperatures

31	Which of the following is a significant impact of climate change on agriculture? a) More consistent rainfall throughout the year b) Increased crop yields in all regions c) Unpredictable weather patterns affecting crop growth d) Permanent elimination of plant diseases	U	2
32	Which modern farming technique helps maximize plant growth with minimal soil use? a) Traditional plowing b) Hydroponics and aeroponics c) Burning of crop residues d) Manual seed planting	U	2
33	In vertical farming, which of the following is the main advantage of growing crops in stacked layers? a) It reduces the need for irrigation. b) It maximizes land use and allows for year-round crop production. c) It eliminates the need for artificial lighting. d) It increases the size of the crops produced.	U	2
34	In a hydroponic system, what is the primary function of the nutrient solution? a) To provide water for the plants. b) To deliver essential nutrients directly to the plant roots without soil. c) To stabilize the temperature of the growing environment. d) To replace the need for artificial lighting.	U	2
35	In an aquaponic system, how do fish contribute to plant growth? a) Fish waste provides essential nutrients for the plants. b) Fish help pollinate the plants. c) Fish absorb excess water from the plants. d) Fish regulate the temperature of the plants.	U	2
36	How does the use of data in farming improve the overall efficiency of agricultural practices? a) It increases the cost of farming by requiring more machinery. b) It allows farmers to monitor and optimize crop health, soil conditions, and resource usage. c) It completely replaces traditional farming methods. d) It eliminates the need for physical labor in farming.	U	2
37	In precision agriculture, why is the use of data considered essential for enhancing crop yield? a) It helps farmers apply water and fertilizers in precise amounts, reducing waste. b) It helps farmers decide when to harvest without considering crop health. c) It ensures that crops are watered uniformly across the entire field. d) It replaces traditional farming machinery with fully automated robots.	U	2
38	Which of the following is a common method of data collection in IoT-based smart farming? a) Manual inspections by farmers every few weeks.	U	2

b) Wireless sensors for monitoring soil moisture, temperature, and other environmental factors.

c) Using drones exclusively for aerial surveillance.

d) Collecting data from weather reports alone.

39	In an IoT-based smart farming system, why is cloud storage commonly used for storing farming data? a) It allows data to be stored locally on each IoT device for faster retrieval. b) It enables centralized data storage that can be accessed remotely for analysis. c) It eliminates the need for data analytics in farming. d) It provides an unlimited supply of water for the crops.	U	2
40	What is the primary purpose of data analytics in IoT-based smart farming? a) To reduce the need for human labor in farming operations. b) To analyze environmental data and improve decision-making for farming practices. c) To replace all physical farming equipment with automated systems. d) To generate financial reports for farm owners.	U	2

1 * 35 = 35

Reg.No :.....

Name :.....

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)
SECOND SEMESTER EXAMINATION
(2024 ADMISION ONWARDS)

MG2MDCECT101 Python for Electronics

Duration: 1 hours **Maximum Marks: 35**

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

Students should attempt at least one question from each course outcome to enhance their overall *outcome attainability.*

Part A
Multiple Choice Questions
Answer any 35 questions
Each question carries 1 marks

Write complete answers of your choice in the answer paper against each question number

1	Which of the following is correct about Python? A) Python is case-sensitive. B) Python uses braces {} to define blocks of code. C) Python programs must be compiled before running. D) Python is only used for web development.	U	CO1
2	Which of the following is NOT a Python data type? A) int B) float C)char D) list	K	CO1
3	What will `print("I love", "Python", sep="**")` output? A) I love**Python B) I love Python C) I lovePythonD)Error	A	CO1
4	What is the data type of the value 10 in Python? A) int B)float C) str D) complex	A	CO1
5	Which of the following is a valid variable name in Python? A) my-var B) my_var C) my var D) my.var	U	CO1
6	What is the output of the following code? print("5" + "5") A) 10 B) 55 C) Error D) None of the above	E	CO1
7	Which of the following will raise an error? A) int("5") B) float("5.5") C) int("5.5") D)float(5)	An	CO1
8	What is the result of print(round(3.75))? A) 3 B) 4 C) 3.7 D) 3.8	E	CO1
9	Which of the following is the correct way to declare a multi-line string in Python? A) `"This is a multi-line string"` B) `'''This is a multi-line string'''` C) `"This is a multi-line string"` (split with \) D) `b"This is a multi-line string"`	U	CO1

10	What will lst[2:5] return for lst = [100, 200, 300, 400, 500]? A)[300, 400, 500] B) [200, 300, 400] C) [300, 400] D)[200, 300]	A	CO1
11	What is the output of len([1, 2, 3, 4, 5])? A) 4 B)5 C)6 D)Error	U	CO1
12	How can you create a tuple with a single element? A) (5) B) (5,) C) tuple(5) D) 5,	U	CO1
13	What does range(7, 14, 2) generate? A) [7, 9, 11, 13] B) [7, 9, 11, 13, 15] C) [7, 8, 9, 10, 11, 12, 13] D) [7, 14]	A	CO1
14	What is the output of 16 % 3? A)1 B)5 C)0 D)3	E	CO1
15	What is the output of `5 + 3 * 2`? A)11 B)16 C)10 D)None	E	CO1
16	Which of the following is a logical operator in Python? A) + B)or C)% D) &	K	CO1
17	Which logical operator returns True if either condition is True? A) and B) or C) not D)&	A	CO1
18	Which of the following is a valid assignment operator in Python? A) += B) < C) != D) >	K	CO1
19	Which operator is used to compare equality in Python? A) '= =' B)'=' C) != D) <>	K	CO1
20	What is the output of 5 > 3? A) TRUE B) FALSE C) None D) Error	E	CO1
21	What is the output of 15 & 7? A) 7 B) 8 C) 15 C) 0	E	CO1
22	What is the primary operating system for Raspberry Pi? A)Windows B)macOS C) Raspberry Pi OS (formerly Raspbian) D) Linux Mint	U	CO1
23	Which Raspberry Pi model comes with an integrated keyboard? A) Raspberry Pi 400 B) Raspberry Pi Zero W C) Raspberry Pi 5 D) Raspberry Pi 3 Model B+	K	CO1
24	What type of HDMI ports does Raspberry Pi 4 have? A) Standard HDMI B) Mini HDMI C) Micro HDMI D) DisplayPort	U	CO1
25	What is the default username for Raspberry Pi OS? A) admin B) root C) pi D) user	K	CO1
26	Which processor is used in the original BeagleBoard? A)ARM Cortex-A8 B) Intel i5 C) AMD Ryzen D) ARM Cortex-M4	K	CO1
27	What will be the output of the following code? x = 5 if x > 3: print('Yes') A)Yes B) No C) Error D) None	An	CO2

28	What will be the output of the following code?
	x = 7
	if x > 10:
	 print('Greater')
	elif x > 5:
		E	CO2

```
    print('Medium')
else:
  print('Smaller')
```

A) Greater B) Medium C)Smaller D) Error

29	What will be the output of the following code?
	`for i in range(2, 5):`
	`  print(i)`
	A) 2 3 4 B) 2 3 4 5 C) 3 4 5 D) None
		A	CO2

30	What will be the output of the following code?
	`for i in range(3):`
	`  print(i)`
	`else:`
	`  print('Done')`
	A) 0 1 2 B) 0 1 2 Done C) Done 0 1 2 D) Error
		An	CO2

31	What is the purpose of the while loop in Python? A) To define a function B) To iterate until a condition is met C) To handle exceptions D) To create a sequence	U	CO2

32	What will be the output of the following code?
	`x = 0`
	`while x < 3:`
	`  x += 1`
	`else:`
	`  print('Done')`
	A) 0 1 2 B) 1 2 3 C) Done D) 1 2 3 Done
		E	CO2

33	What will print("The number is {}".format(5)) output? A) The number is 5 B) The number is {5} C) Error D) {The number is 5}	A	CO2
34	How many GPIO pins are available on a Raspberry Pi 4 Model B? A) 26 B) 30 C) 40 D) 50	U	CO2
35	What are the two numbering systems used in Raspberry Pi GPIO programming? A) Physical and Logical B) Board and BCM C) Digital and Analog D) Serial and Parallel	K	CO2
36	Which Python library is commonly used for GPIO programming in Raspberry Pi? A) Rpi.GPIO B) PiGPIO C) GPIOControl D) PyGPIO	K	CO2
37	Which function is used to read the state of a GPIO input pin? A) GPIO.input() B) GPIO.read() C) GPIO.state() D) GPIO.get()	A	CO2
38	Which widget is used to display static text or images in Tkinter? A) Entry B) Label C) Button D) Checkbutton	U	CO3
39	Which geometry manager can be used to place a Label in a specific location? A) pack() B) grid() C) place() D) All of the above	K	CO3
40	Which option is used to specify a function to execute when a button is clicked? A) action B) command C) onclick D) callback	A	CO3

1 * 35 = 35

Reg.No :.....

Name :.....

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)
SECOND SEMESTER EXAMINATION
(2024 ADMISION ONWARDS)

MG2MDCECT102 Office Enhancement Tools

Duration: 1 hours **Maximum Marks: 35**

**Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Skill (S), Interest (I) and Appreciation (Ap)*

Students should attempt at least one question from each course outcome to enhance their overall *outcome attainability.*

Part A

Multiple Choice Questions
Answer any 35 questions
Each question carries 1 marks

Write complete answers of your choice in the answer paper against each question number

1	Which of the following is NOT a basic component of the Microsoft Word window? a) Ribbon, b) Taskbar, c) Status Bar, d) Title Bar	K	CO1
2	What is the shortcut key for creating a new document in MS Word? a)Ctrl + C, b) Ctrl + N, c) Ctrl + V, d) Ctrl + X	K	CO1
3	What happens when you press Ctrl + Z in a Word document? a) Redo the last action, b) Undo the last action, c) Copy the selected text, d) Paste the copied text	A	CO1
4	Which shortcut key is used to find a word in a document? a) Ctrl + F, b) Ctrl + H, c) Ctrl + P, d) Ctrl + S	K	CO1
5	What is the default file extension for a Microsoft Word document in newer versions? a) .txt, b) .pdf, c) .docx, d) .xls	K	CO1
6	Which of the following options is used to print a document? a) Ctrl + S, b) Ctrl + P, c) Ctrl + X, d) Ctrl + V	A	CO1
7	Which option is used to change the page orientation in MS Word? a) Page Layout → Orientation, b) File → Print, c) Insert → Page Number, d) View → Zoom	A	CO1
8	What is the default page margin in Microsoft Word? a) 0.5 inches, b) 1 inch, c) 1.5 inches, d) 2 inches	K	CO1
9	Which key is used to create a manual page break? a) Ctrl + Enter, b) Shift + Enter, c) Alt + Enter, d) Ctrl + Shift + Enter	A	CO1
10	Where can you set Headers & Footers in MS Word? a) Insert → Header & Footer, b) View → Header & Footer,	K	CO1

	c) Format → Page Layout, d) File → Options		
11	How can you apply Bullets and Numbering to a list? a) Home → Font, b) Home → Paragraph, c) Insert → Symbols, d) View → Ruler	A	CO1
12	Which feature is used to change all instances of a word in a document? a) Find, b) Replace, c) Go To, d) Bookmark	A	CO1
13	What is the shortcut key for saving a document in a different format? a) F8, b) F9, c) F12, d) F7	K	CO1
14	Which tab in MS Word allows you to insert a table? a) Home, b) Insert, c) Layout, d) View	K	CO1
15	Which option is used to combine two or more cells in a table? a) Split Cells, b) Merge Cells, c) Insert Cells, d) Align Cells	A	CO1
16	What is the shortcut key to insert a new row in a table? a) Ctrl + R, b) Shift + Enter, c) Tab (when pressed in the last cell), d) Ctrl + T	A	CO1
17	In a table, which feature is used to arrange data in ascending or descending order? a) Merge, b) Sorting, c) Splitting, d) Aligning	A	CO1
18	Which tab allows users to insert ClipArt and Pictures in MS Word? a) Insert, b) Design, c) Layout, d) Home	K	CO1
19	What is a nested table? a) A table placed inside another table, b) A table with different border styles, c) A table with multiple merged cells, d) A table created using formulas	K	CO1
20	Which feature in MS Word is used to perform Mail Merging? a) Review, b) Insert, c) Mailings, d) View	A	CO1
21	What is the purpose of the Thesaurus in MS Word? a) To check grammar, b) To find synonyms and antonyms, c) To check spelling, d) To insert hyperlinks	K	CO1
22	Which of the following allows you to automate repetitive tasks in MS Word? a) Spelling and Grammar, b) Macros, c) Word Art, d) AutoShapes	A	CO1
23	What is a spreadsheet primarily used for? a) Writing documents, b) Managing data in tables, c) Editing images, d) Designing graphics	K	CO2
24	Which option is used to open a spreadsheet in MS Excel? a) File → New, b) File → Open, c) Insert → Worksheet, d) View → Excel	K	CO2
25	The Formatting Toolbar in MS Excel is used for which of the following? a) Inserting charts, b) Applying text styles and cell formatting, c) Sorting data, d) Protecting the worksheet	A	CO2
26	Which of the following is used to select a range of cells in a spreadsheet? a) Clicking one cell only, b) Dragging across multiple cells, c) Pressing Ctrl + A, d) Pressing Shift + Enter	A	CO2
27	How can you move the contents of a cell to another location in Excel? a) Copy and Paste, b) Drag and Drop, c) Use the Delete key, d) Use the Clear All option	A	CO2
28	What happens when you cut a cell in Excel?	A	CO2

	a) The cell content is removed and copied to the clipboard, b) The cell content is permanently deleted, c) The cell is duplicated in the new location, d) The cell content remains in the original position		
29	Which option allows you to insert or delete cells in Excel? a) Right-click → Insert, b) Home → Merge, c) View → Freeze, d) File → Options	A	CO2
30	What is the function of Freezing Cells in Excel? a) To protect cells from being edited, b) To keep selected rows or columns visible while scrolling, c) To delete a cell's content, d) To move cells across different worksheets	A	CO2
31	How can you paste copied cells in Excel? a) Right-click → Paste, b) Click the Paste button on the toolbar, c) Press Ctrl + V, d) All of the above	A	CO2
32	Which option is used to add a new worksheet in Excel? a) Home → New, b) Right-click on a sheet tab → Insert, c) File → New, d) View → New Worksheet	K	CO2
33	How can you rename a worksheet in Excel? a) Double-click the worksheet tab and type a new name, b) Right-click on the worksheet tab → Rename, c) Go to Home → Format → Rename, d) Both a and b	A	CO2
34	To align text within a cell, which option should you use? a) Home → Font, b) Home → Alignment, c) View → Text Direction, d) Insert → Alignment	A	CO2
35	Which feature is used to wrap text within a cell? a) Merge & Center, b) Text Wrap, c) Format Cells → Alignment → Wrap Text, d) AutoFit	A	CO2
36	How can you apply borders to cells in Excel? a) Home → Format → Borders, b) Home → Font → Borders, c) Right-click → Format Cells → Border, d) Both a and c	A	CO2
37	Which function in Excel is used to arrange data in ascending or descending order? a) Filter, b) Sort, c) Rank, d) Format	A	CO2
38	Which option is used to center a heading across multiple columns in Excel? a) Merge & Center, b) Align Center, c) Wrap Text, d) Center Align	A	CO2
39	How can you change the row height in Excel? a) Right-click on the row number → Row Height, b) Home → Format → Row Height, c) Click and drag the row boundary, d) All of the above	A	CO2
40	What feature automatically adjusts cell formatting based on the data type in Excel? a) Conditional Formatting, b) AutoFormat, c) Format Cells, d) Cell Styles	A	CO2