

**MAHATMA GANDHI UNIVERSITY, KOTTAYAM**

**MGU-UGP (HONOURS)**

**FIRST SEMESTER PRACTICAL EXAMINATION**

**(2024 ADMISSION ONWARDS)**

**MG1DSCECC102 Computer Fundamentals (practical Lab)**

**Instructions for Practical Examination Invigilators**

Maximum Marks: 35 Marks

Duration: 1.5 Hours

**Session 1: General Instructions for Invigilators**

**a) Before the Examination:**

**1. Preparation and Setup:**

- Ensure all computer systems and equipment are functioning properly and that required software is installed.
- Verify that the questions chosen align with the syllabus for the Computer Fundamentals practical session.
- Confirm the availability of sufficient computers and hardware devices for the scheduled batches.

**2. Student Entry and Document Verification:**

- Allow students to enter the lab 15 minutes before the examination begins.
- Ensure each student submits their fair record and hall ticket upon entry for verification.
- Cross-check the hall tickets or admit cards with student records to verify identity.

**3. Seating Arrangements:**

- Only one student is allowed per desk or table, and students should be divided into batches accordingly.
- Prevent students with the same questions from sitting near each other to maintain exam integrity.

- Ensure students bring their university-prescribed format document, containing their full name, register number, signature, and experiment number.

#### **4. Materials Required:**

- Students are required to bring both their rough and fair records for verification.
- Teachers should verify that students have completed and certified their fair record.

#### **5. Use of Gadgets and Personal Belongings:**

- Instruct students to avoid using mobile phones, smartwatches, or any other electronic gadgets in the examination hall.
- In case of any malpractice or unauthorized gadget use, the invigilator is authorized to take appropriate disciplinary action.

#### **b). During the Examination:**

##### **1. Monitoring and Conduct:**

- Actively monitor the examination to ensure a fair and disciplined environment.
- Only allow essential stationery and rough notes; prohibit any form of unauthorized material or collaboration among students.

##### **2. Documentation and Verification:**

- Ensure each student fills in their name, register number, signature, and experiment number on the attendance sheet.
- Collect and retain the following documents for each student:
  - Written answer sheet detailing the procedure, observations, results.
  - Viva Voce and mark distribution sheet for the assessment of theory, conduction, output, viva, and records.
  - Attendance and Record Sheet with student details, signatures, and exam information.
  - The invigilator should also retain their invigilation duty confirmation letter or university order and submit these, along with all student answer sheets and evaluation sheets, to the Chairman or University in the prescribed format.

##### **3. Completion and Submission:**

- At the end of the exam, ensure students submit all answer sheets, or digital records as required.

## **Session 2: Practical Examination Mark Distribution and Duration**

1. Theory & Procedure - 10 Marks
2. Conduction- 5 Marks
3. Output - 5 Marks
4. Viva - 10 Marks
5. Record - 5 Mark

Total Marks: 35

Duration: 1.5 Hours

## **Session 3: Attendance and Record Sheet**

Sl.No	Full Name	Register Number	Signature	Experiment Number	Remarks

## **Session 4: Evaluation Criteria**

Sl.No	Full Name	Register Number	Theory & Procedure - 10 Marks	Conduction- 5 Marks	Output - 5 Marks	Viva – 10 Marks	Record - 5 Mark	Total (35)

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**MG1DSCECC102 Computer Fundamentals**

**Duration: 1.5 hours**

**Maximum Marks: 35**

**Practical Examination – Model Question Paper**

**Tasks: (Choose any one experiment given below)**

**1. Familiarization with Computer Components (CO4, Apply)**

**(Choose any two of the below)**

**Objective:** Understand and identify essential hardware components of a computer.

- a) **Processor Installation:** Describe and demonstrate the process of installing a CPU.
- b) **Memory Identification:** Identify and understand the types of memory (RAM) and its slots on the motherboard.
- c) **Storage Devices:** Recognize and differentiate between storage devices, such as HDD, DVD/CD drive, and their connection types.
- d) **Power Supply Check:** Verify whether the SMPS (Switch Mode Power Supply) is functioning and identify the connector slots (e.g., ATX, SATA power connectors).

**Or b) identify the various components, slots, chips, etc of a given motherboard**

**2. Computer Assembly (CO4, Apply)**

**Objective:** Assemble a functional desktop computer by following the correct sequence.

- a) **Component Assembly:** Assemble the provided computer components into the cabinet, ensuring proper connections for power, data, and peripheral devices.

b) **BIOS Setup:** Access and navigate the BIOS/UEFI settings to verify hardware detection and initial configurations.

### 3. **Hard Disk Partitioning and Formatting** (CO4, Apply)

**Objective:** Partition and format a hard disk using any one the tools and understand disk management.

(Choose any one method/experiment given below)

- a) **FDISK:** Use FDISK to create and manage disk partitions.  
C: 20 GB, D: 40 GB, E:.....GB
- b) **Partition Magic:** Demonstrate partitioning using Partition Magic.  
C: 25 GB, D: 30 GB, E:.....GB
- c) **Disk Management (DM):** Partition and format the hard drive using DM or Disk Management software.  
C: 30 GB, D: 20 GB, E:.....GB

d) **OS-Based Partitioning:** Use a built-in utility within an operating system (Windows) for disk partitioning and formatting.

C: 26 GB, D: 44 GB, E:.....GB

### 4. **Operating System Installation** (CO4, Apply)

**Objective:** Install any one operating systems on a computer.

- a) **Windows 7 Installation:** Perform a clean installation of Windows 7 on a computer.
- b) **Windows XP Installation:** Install Windows XP, covering essential installation steps and post-installation tasks.
- c) **Windows 10 Installation:** Complete the installation of Windows 10 and set up the initial system configuration.

### 5. **Driver and Utility Installation** (CO4, Apply)

**Objective:** Install any one/ two essential drivers and utilities to ensure system functionality and compatibility.

- a) **Motherboard Drivers:** Install motherboard chipset drivers and onboard device drivers.

b) **Peripheral Device Drivers:** Install drivers for additional hardware such as sound cards and network interface cards.

c) **Peripheral Setup:** Install and configure printer drivers or other peripheral device drivers.

## 6. Computer Networking Basics

(CO4, Apply)

(Choose any one method/experiment given below)

- **Objective:** Set up network cables and connections to establish computer communication.

a) **Straight-Through Cable Connection:** Identify and create a straight-through Ethernet cable for standard network connections.

b) **Crossover Cable Connection:** Create a crossover cable for direct computer-to-computer connections without an intermediary network device

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**MAHATMA GANDHI UNIVERSITY, KOTTAYAM**

MGU-UGP (HONOURS)

FIRST SEMESTER EXAMINATION

(2024 ADMISION ONWARDS)

**MG1MDCECT102 DATA ANALYTICS**

Duration: 1½ hours

Maximum Marks: 35

**Practical Examination – Model Question Paper**

**Instructions:**

- **Demonstrate** the given task
- **Viva session** (Minimum 5 questions from the Practical Module)
- **Lab Report**

**Evaluation Criteria:**

- **Viva:** 10 marks
- **Lab Report:** 10 marks
- **Demonstration:** 15 marks

**Tasks:** (*Choose any one*)

1. Create a table for recording student details. Format the table with proper headers, borders and alignment.
2. Create a dataset of employee salary with not less than 5 records in Excel worksheet. Use Excel functions to demonstrate the calculation of the total salary and average salary.
3. Create a dataset of marks scored by students in different subjects. Use Excel to sort the dataset based on total marks in descending order and find the maximum marks scored in each subject.
4. Create a dataset for marks scored by students in three different internal exams for a subject. Use Excel to calculate the average mark and find the least score in the dataset.
5. Create a dataset for sales data of salesperson for 3 consecutive months. Highlight the salesperson who achieved the target using conditional formatting.
6. Design a Google Form to collect basic details of students, using at least 5 different data fields. Make sure to include the following field types to gather data: Textbox, Checkbox, and Radio Button.
7. Design a Google Form to conduct a customer satisfaction survey with three main sections: Customer Details, Product Rating, and Feedback.

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**FIRST SEMESTER EXAMINATION**

**(2024 ADMISION ONWARDS)**

**MG1MDCECT101 FOUNDATIONS OF AI AUTOMATION**

Duration: 1½ hours

Maximum Marks: 35

**Practical Examination – Model Question Paper**

**Instructions:**

- **Demonstrate** the given task
- **Viva session** (Minimum 5 questions from the Practical Module)
- **Lab Report**

**Evaluation Criteria:**

- **Viva:** 10 marks
- **Lab Report:** 10 marks
- **Demonstration:** 15 marks

**Tasks: (Choose any one)**

**Using ChatGPT**

*Make a story with a theme. Can specify any theme.*

*Make poems with any theme in any poetic style-Wordsworth, Shakespear etc.*

**Using Google Docs and ChatGPT**

*Prepare resume on a given docs Template.*

*Prepare SOP for applying in a University for Masters*

*Prepare resume for a specific job in a specific template*

*Prepare a leave letter for your absence due to some personal reasons/healthy reasons*

*Prepare a covering letter for applying for job attaching your prepared resume*

**Using Google Slides and ChatGPT**

*Prepare slides for a presentation in a specific template*

**Using DALL-E**

*Create an image from a given textual theme and save it in jpeg format*



**MAHATMA GANDHI UNIVERSITY, KOTTAYAM**

**MGU-UGP (HONOURS)**

**MG1MDCECT100 - HOME APPLIANCES AND TROUBLESHOOTING**

**PRACTICAL EXAMINATION**

**Duration: 1.5 hours**

**Maximum Marks: 35**

**Instructions:**

- Demonstrate the task
- Viva session (*Minimum 5 questions from the Practical Module*)
- Lab Report

**Evaluation Criteria:**

- Viva: 10 marks
- Lab Report: 10 marks
- Demonstration: 15 marks

**Tasks:** (*Choose any one*)

1. Solder a resistor onto a PCB. Ensure there's no excess solder, and verify the strength of the connection.
2. Use a desoldering pump to remove a component from a PCB. Evaluate the cleanliness of the removed joint and identify areas that need improvement.
3. Solder three points on a PCB and intentionally create one "dry solder" joint. Identify and troubleshoot the dry solder.
4. Solder an LED and 1K resistor to a PCB and connect proper power supply to glow the LED
5. Use a desoldering wick to remove solder from a component. Compare the effectiveness with a desoldering pump.
6. Use a multimeter to test for any unintended short circuits between two points.
7. Desolder and resolder a component. Observe and note any damage to the PCB pads.
8. In an LCD/LED TV, use a multimeter to test continuity on the fuse.
9. Demonstrate how we check power supply.
10. Demonstrate how we check capacitor in a board.
11. Test the condition of capacitor of a fan/motor .

12. Test the motor windings with a multimeter. Measure the resistance across each winding and note any discrepancies that indicate a fault.
13. Open an LED bulb and identify each internal component. Use a multimeter to check if each LED module is functional.
14. Measure the output voltages from the PSU of a home theater system.
15. Test an iron box's heating element for continuity and resistance.
16. Use a multimeter to check the motor windings in a mixer grinder. Identify possible symptoms if the windings are open or shorted.
17. Inspect the heating element and thermostat in a water heater.
18. Find the thermal fuse in a high-power appliance, test for continuity, and determine if it needs replacement.
19. Demonstrate the correct way to clean dust and residue from a PCB.
20. Apply solder and flux to a PCB connection. Observe how flux prevents dry solder joints and improves the quality of the joint.
21. Apply a protective coating to a PCB and explain how it prevents environmental damage.
22. Use a multimeter to test the earthing on an appliance.
23. Use a multimeter to test the phase voltage on an appliance/switch Box.

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**FIRST SEMESTER EXAMINATION**  
**(2024 ADMISION ONWARDS)**

**MG1DSCECT100- EMERGING ELECTRONICS**

Duration: 2 hours

Maximum Marks: 35

**Practical Examination – Model Question Paper**

**Instructions:**

- **Demonstrate** the given task
- **Viva session** (Minimum 5 questions from the Practical Module)
- **Lab Report**

**Evaluation Criteria:**

- **Viva:** 10 marks
- **Lab Report:** 10 marks
- **Demonstration:** 15 marks

**Experiments:** (*Choose any one*)

1. Draw a circuit diagram to verify Ohm's law.
2. Generate a sinusoidal wave having frequency 2 KHz and amplitude 10 V.
3. Study and plot the forward characteristics of PN junction Diode. Also find the static resistance, dynamic resistance and knee voltage.
4. Study and plot the characteristics of Zener Diode. Also find the static resistance, dynamic resistance and breakdown voltage.
5. Study and plot the forward characteristics of LED. Also find the static resistance and dynamic resistance.
6. Construct a Centre tapped full wave rectifier and draw its output.
7. Construct a half wave rectifier and draw its output.
8. Design and setup positive and negative clipper and plot its output waveforms.
9. Design and setup positive and negative clamper and plot the output waveforms.
10. Make an extension box with three plug sockets and three switches.
11. Design and develop a staircase lamp using two-way switches.
12. Write a simple Arduino code to blink an LED for one second.
13. Design an Arduino-based LED circuit that flashes three times on power-up.
14. Develop a program for an LED chasing effect.
15. Write an Arduino program to count pulses using an LDR.