QP CODE: 24900081

Reg No:.....

Name:.....

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

FIRST SEMESTER MGU-UGP (HONOURS) REGULAR EXAMINATION NOVEMBER 2024

First Semester

Discipline Specific Core Course - MG1DSCECT100, MG1DSCECC100 - EMERGING ELECTRONICS

(2024 ADMISSION ONWARDS)

Duration: 1.5 Hours Maximum Marks: 50

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

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

[Learning Domain][CO No(s)]

Part A

Multiple Choice Questions

Answer all questions.Each question carries 1 mark

1 What is the relationship between the number of turns in the primary and secondary coils of a transformer and the voltage? [U] [1]

a) Directly proportional b) Inversely proportional

c) Unrelated d) Exponentially related

2 What is the unit of inductance? [U] [1]

a) Volt b) Ampere

c) Henry d) Ohm

3 Which of the following is a type of electronic system? [U] [1]

a) Power supply b) Amplifier

c) Filter d) All of the above

4 What type of wave does a half-wave rectifier produce? [U] [2]

a) Pure sine wave b) Full-wave rectified

c) Pulsating DC d) Square wave

5 What is the peak inverse voltage (PIV) for a center-tapped rectifier? [U] [2]
a) Vp b) 2Vp
c) Vp/2 d) Vp^2

6 If the input frequency is 50 Hz, what is the output frequency of a half-wave rectifier? [A] [2]
a) 25 Hz b) 50 Hz
c) 100 Hz d) 75 Hz

7 Which of the following is NOT a characteristic of solid-state relays? [U] [3]
a) No moving parts b) Long lifespan
c) High switching speed d) Noise immunity

8 What does a thermistor measure? [K] [3]
a) Light b) Temperature
c) Sound d) Pressure

9 What happens to a fuse once it blows? [U] [3]
a) It can be reused b) It must be replaced
c) It can trip d) It heats up

10 In P-type semiconductors, what charge carrier is considered to be “missing” from the valence band? [U] [1]
a) Electrons b) Holes
c) Neutrons d) Positrons

(10 × 1 = 10)

Part B

Short Answer Questions

Answer 4 questions.Each question carries 5 marks

11 Extract the characteristics of AC signals. [U] [1]

12 Interpret the color code "yellow-violet-red-gold" and determine the resistance value. [A] [1]

13 Interpret the significance of biometrics in security. [U] [1]

14 What is a Ripple factor?.What is its value of a Half Wave and Full Wave Rectifier? [U] [2]

15 What is a clipper circuit? [K] [2]

16	How does a Miniature Circuit Breaker (MCB) protect against short circuits?	[U]	[3]

(4 × 5 = 20)

Part C

Essay Questions

Answer 2 questions.Each question carries 10 marks

17	Relate AC and DC signals to electronic devices, explaining their applications.	[U]	[1]
18	Describe how a transistor operates as an amplifier, including the importance of biasing and its applications in electronic devices.	[U]	[2]
19	Describe the working of a center-tapped full-wave rectifier, including the role of each component and its advantages over a half-wave rectifier.	[A]	[2]
20	What is an LDR? Describe the applications of Light Dependent Resistors (LDRs) in real-world devices and systems.	[K]	[3]

(2 × 10 = 20)

END OF THE QUESTION PAPER

***