



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Food Technology) 2021 Admission
I Semester Final Examination - May 2022

Fmpe.1101

Electrical Engineering (2+1)

Marks: 50
Time: 2 hours

I Fill in the blanks

(10x1=10)

1. Form-factor = RMS value/ _____
 2. Knowledge of this _____ factor is of importance in dielectric insulation testing.
 3. When an _____ voltage is applied to the plates of a capacitor, the capacitor is charged first in _____ and then in the opposite direction.
 4. An a.c. current given by $i = 14.14 \sin(\omega t + \frac{\pi}{6})$ has an r.m.s value of _____ amperes.
 5. As sine wave has a frequency of 50 Hz. Its angular frequency is _____ radian/second.
- State True or False**
6. An alternating current or voltage is one the circuit direction of which reverses at regularly recurring intervals.
 7. If the fundamental frequency is 50 Hz, then the frequency of the second harmonic is 75 Hz and of the third is 100 Hz and so on.
 8. A cycle may also be sometimes specified in terms of angular measure. In that case, one complete cycle is said to spread over 360° or 2π radians.
 9. The maximum value or peak value or amplitude of an alternating voltage is given by the coefficient of the sine of the time angle.
 10. The r.m.s. value of a complex current wave is equal to the square root of the sum of the squares of the r.m.s. values of its individual components.

II Write short notes on ANY FIVE of the following

(5x2=10)

1. Write short notes on RMS Value.
2. State the principle of operation of a transformer.
3. Explain separately excited DC generator.
4. What is domestic wiring?
5. Write a note on electrical safety.
6. Write working principle of DC Motor.
7. What is the back EMF concept?

III Answer ANY FIVE of the following

(5x4=20)

1. An alternating voltage $e = 200 \sin 314t$ is applied to a device which offers an ohmic resistance of 20Ω to the flow of current in one direction, while preventing the flow of current in opposite direction. Calculate RMS value, average value, and form factor for the current over one cycle.
2. What is the principle of Transformer action?
3. Explain shunt and series types of dc motor with neat sketch.
4. What are the advantages of 3 phase system over single-phase system?
5. Explain the basic operation of the Induction motor.
6. Explain Cleat, Casing and Capping electrical wiring system.
7. Prepare short notes on Star and Delta connections.

IV

Write an essay on ANY ONE of the following

(1x10=10)

1. What are the various types of drawing used for electrical wiring? Explain in detail.
2. With a neat circuit diagram Explain the construction and principle of operation of DC Motor.
