

**MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR**  
**SEMESTER END THEORY EXAMINATION, B.Tech. Dairy Technology 2018-19**

Semester	: II (V Dean)	Academic Year	: 2018-2019
Course No.	: DE-207	Course Title	: Basic Electrical Engineering
Credits	: 2+1=3	Total Marks	: 50
Day & Date	: Wednesday, 26.06.201	Time	: 11.00 to 13.00

- Note :** 1) All questions from **Section 'A'** are compulsory.  
2) Solve **Any Three** questions from **Section 'B'**.  
3) Draw neat and well labelled diagram wherever necessary.

**SECTION - 'A'**

Q. 1 A) Choose the most appropriate answer from the options given below. (05)

- i) Time period of 50 Hz AC wave is .....
  - a) 0.02 Sec
  - b) 1 Sec
  - c) 0.1 Sec
  - d) None of these
- ii) The direction of statistically induced e.m.f. can be found by .....
  - a) Lenz's law
  - b) Faradays law
  - c) Newtons law
  - d) Coulombs law
- iii) In 3-phase delta connected load, line voltage is ..... as the phase voltage.
  - a)  $\sqrt{3}$ times
  - b)  $1/\sqrt{3}$  times
  - c) Same
  - d) None of Above
- iv) If power factor of circuit is unity its reactive power is .....
  - a) Maximum
  - b) Equal to  $I^2R$
  - c) Zero
  - d) A negative quantity
- v) Which one of the following is not a basic element of transformer .....
  - a) Primary winding
  - b) Secondary winding
  - c) Core
  - d) Mutual flux

B) Define the following. (05)

- i) RMS value of an alternating current
- ii) Conductance
- iii) e.m.f.
- iv) Energy
- v) Power factor

Q. 2. A) State the SI units of following (05)

- i) Potential difference
- ii) Current
- iii) Speed
- iv) Capacitance
- v) Electric resistance

- B) State whether True or False. If false, rewrite the statement. (05)
- i) Unit of magnetic flux is ampere-turn
  - ii) When load is removed shunt motor will run at the highest speed.
  - iii) In a 3-phase induction motor, the rotor field rotates at synchronous speed with respect to rotor
  - iv) The input of a.c. circuit having power factor 0.8 lagging is 20 kVA. The power drawn by the circuit is 20kW.
  - v) In India, electricity for domestic purpose is available at the 50 Hz Frequency.

### SECTION – 'B'

- Q. 3 A) What are different types of D.C. generators? (05)  
B) How separately excited generator works? (05)
- Q. 4 A) What is DC motor. Explain the working principle of DC motor. (05)  
B) Discuss the generation of alternating current with neat sketch. (05)
- Q. 5 A) What is a transformer? Describe the construction of transformer. Write advantages of transformer. (03)  
B) A single phase transformer has 400 primary and 1000 secondary turns. The net cross sectional area of core is  $50 \text{ cm}^2$ . If primary winding is connected to 50 Hz supply of 500 Volt, calculate the peak value of flux density in the core. (03)  
C) What is power factor? Why it is necessary to improve the power factor? (04)
- Q. 6 A) What is alternator? Explain the working principle of an alternator. (03)  
B) Give the detail classification of electrical measuring instruments. (03)  
C) Give the advantages of three phase power over single phase power. (04)
- Q. 7 Classify all type of A.C. motors. Describe the construction of squirrel cage induction motor with the help of neat diagram. (10)

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