Chapter 15:   Electromagnetic Induction

1.   Principle of an alternating current generator is based on
      a. Coulomb's law   b. Ampere's law   c. Faraday's law   d. Lenz's law

2.   If velocity of a conductor moving through a magnetic field 'B' is made zero, then motional emf is:
      a. $-VBL$ b. $-V/BL$ c. $-BL/V$ d. zero

3.   The self-inductance of a long solenoid with a turns per unit length is:
      a. $L = \mu \, nA/ l$ b. $L = \mu \, n^2 A/ l$ c. $L = \mu \, n^2 A \, l$ d. $L = \mu \, n \, l/ A$

4.   The energy density of an inductor is:
      a. $B^2 / 2 \mu^2$ b. $B / 2 \mu$ c. $B / 2 \mu^2$ d. $B^2 / 2 \mu$

5.   The inductance is more in self-inductance in:
      a. Air cored coil   b. iron cored   c. steel cored   d. tungsten cored

6.   Alternating current generator converts which type of energy into electrical energy?
      a. mechanical energy   b. chemical energy   c. solar energy   d. potential energy

7.   Eddy currents produced in the core of transformer are responsible for:
      a. heat loss   b. step-up process   c. step-down transformer   d. induction phenomenon

8.   One henry is equal to:
      a. $VS^{-1} A$ b. NmA^{-1} c. $V^{-1} S A$ d. $V S A^{-1}$

9.   Power dissipation in a pure inductive or in a pure capacitance circuit is:
      a. infinite   b. zero   c. minimum   d. maximum

10.   To construct a step down transformer:
      a. $N_s > N_p$ b. $N_p < N_s$ c. $N_p = N_s$ d. $N_p . N_s = 1$

11.   Turn ratio of a transformer is 50. If 220 V AC is applied to its primary coil, voltage in the secondary coil will be:
      a. 44 V   b. 4.4 V   c. 220 V   d. 1100 V

12.   The direction of induced current is always so as to oppose the change which causes the current is:
      a. Faraday's law   b. Lenz's Law   c. Ohm's Law   d. Kirchoff's rule.

13.   Elastic current produces magnetic field was suggested by:
      a. Faraday   b. Lenz   c. Ohm   d. Oersted

14.   If the motor is overloaded, then the magnitude of 'back emf'
      a. increases   b. decreases   c. constant   d. becomes zero.

15.   Which one of the following is not present in A.C. generator:
      a. Armature   b. Magnet   c. Slip rings   d. Commutator

16.   Lenz's law is in accordance with the law of conservation of:
      a. Momentum   b. Charge   c. Angular momentum   d. Energy

17.   When a motor is just started, back emf is almost _____.
      a. infinite   b. zero   c. minimum   d. maximum

18. The inductance can be increased by winding the wire around a core made of:

a. copper b. silicon c. iron d. aluminum

19. Farad is defined as :

a. Coulomb / volt b. Ampere / volt c. Coulomb / joule d. Joule / Coulomb

20. A transformer:

a. Works on A.C. only b. Works on D.C only

c. Works on A.C. and D.C. d. Has no hysteresis loss

21. If magnetic field is doubled then magnetic energy density becomes:

a. four times b. two times c. three times d. six times

22. A magnetic field acts on a charged particles so as to change its:

a. speed b. energy c. direction of motion d. all of these

22. Alternating current generator converts which type of energy into electrical energy

a) Mechanical energy b. Chemical energy c. Solar energy d. Potential energy