



BCJ-02011153

Seat No. _____

First Year B. Physiotherapy Examination

January – 2016

Fundamentals of Electrotherapeutics

Time : 2 Hours]

[Total Marks : 50

Instructions :

- (1) Write legibly.
- (2) Draw diagrams where necessary.

1 Long essays : (Any two) 20

- (1) Write in detail about transformer, its construction, types and applications.
- (2) Define Electric Shock and Earth Shock. Describe types of electric shock in short. What are the causes and effects of electric shock ? How would you manage a victim of electric shock ?
- (3) Measurement of resultant resistance in series and parallel resistance circuits.

2 Short notes : (Any two) 10

- (1) Weber's and Ewing's molecular theory of magnetism.
- (2) Write about Pain Pathways in short.
- (3) Magnetic field.

3 Write in short : (Any five) 10

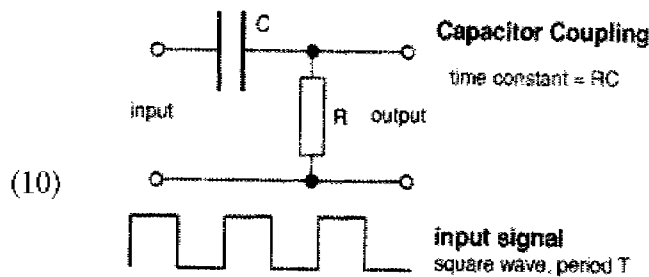
- (1) Inverse-square law
- (2) Choke coil
- (3) Symbols for fixed and variable capacitors.
- (4) Inductive reactance
- (5) Rheostat
- (6) The Grotthuss–Draper law.

4 MCQ :

10

- (1) Which of the following represents function of the skin ?
- (a) To protect against water loss
 - (b) As a first line of defense against infection
 - (c) As a key element of the body's temperature regulation mechanism.
 - (d) All of the above
- (2) Threshold for feeling electric current on skin in humans is :
- (a) 0.01 – 0.05 mA
 - (b) 1 – 5 A
 - (c) 0.5 – 1 mA
 - (d) 0.5 – 1 A
- (3) For fuse to operate in the circuit
- (a) It should be connected in parallel
 - (b) It should be connected in series
 - (c) Both of above
 - (d) None of above
- (4) Change in direction of propagation of a wave due to a change in its transmission medium is defined as
- (a) Reflection
 - (b) Refraction
 - (c) Inverse square law
 - (d) Radiation
- (5) The function of a choke coil as
- (a) To block direct current
 - (b) To block low frequency current
 - (c) To block high frequency current
 - (d) To block all types of current
- (6) The dielectric medium in capacitors can be made up of
- (a) Glass
 - (b) Air
 - (c) Ceramic
 - (d) All of the above

- (7) The function of ampere meter is
- (a) To measure electric current
 - (b) To measure electric voltage
 - (c) To measure electric resistance
 - (d) To measure electromagnetic induction
- (8) To minimize skin resistance during electric stimulation application.
- (a) Skin should be cleansed with alcohol
 - (b) Skin should be shaved off for hair
 - (c) Skin should be wet
 - (d) All of above
- (9) In an electric field the electric lines of force enters the surface at the angle of
- (a) 90 degrees to the surface
 - (b) 45 degrees to the surface
 - (c) 0 degrees to the surface
 - (d) 145 degrees to the surface



In the above diagram of RC circuit, what would be the output wave form when $RC=T$?

- (a)
- (b)
- (c)
- (d) None of the above