



Programme: BPT

Course: Principles of Bioelectrical Modalities-1

Course Code: 23A304

Enrolment no. \_\_\_\_\_

Full Marks: 70

Time: 3 Hrs.

Q.No.	Questions	CO	Bloom Taxonomy Category	Marks
<b>Section I</b>				
1	<b>Short Answer type questions. Answer any four.</b>			
a	Write Modern Concept of Electricity.	CO1	Remember	4 x 5 = 20
	or			
b	Write short notes on Fleming's Left Hand Rule.	CO1	Remember	
	What do you understand by Diode and Triode Valve?	CO5	Remember	
c	Write short notes on Ohmmeters.	CO5	Remember	
	If you are working with electrical equipment and you experience a mild electric shock, what immediate steps should you take to ensure safety?	CO3	Apply	
d	or			
	Apply your knowledge of earth shock to assess the safety of a physiotherapy clinic that uses various electrotherapy devices. What specific actions would you take to ensure that the equipment is grounded properly to prevent earth shock incidents during patient treatments?	CO3	Apply	
e	Elaborate Electromagnetic Induction.	CO2	Understand	
	or			
	What do you understand by Electromagnetism?	CO2	Remember	
<b>Section II</b>				
	<b>Long Answer type questions.</b>			
2	Elaborate the Capacitance, Potential Difference and EMF.	CO5	Understand	3 x 10 = 30
	or			
3	Elaborate Ohm's Law. Explain Resistance in Series and Parallel.	CO5	Understand	
	Analyze the differences between Faradic current and other types of electrical currents in terms of their physiological effects on muscle tissue.	CO7	Analyze	
4	or			
	Analyze the effects of different electrode placement strategies for galvanic current when treating edema.	CO7	Analyze	
5	Explain Semiconductors and classify its types with the help of diagram.	CO5	Understand	
	or			
	Describe the functions and applications of Ammeter and Volt Meters.	CO5	Understand	
<b>Section III</b>				
	<b>Application based questions</b>			
5	26 year old male came to PT OPD with c/o Foot drop having history of RTA known case of severe nerve damage. Analyze which type of current would you apply for muscle stimulation and what are the Methods of application, therapeutic effects, indications, contra-indications, precautions and danger.	CO7	Analyze	1 x 20 = 20
	or			
	45 year old female with difficulty in prolonged sitting that causes severe back pain for 2-3 days came to OPD. Evaluate how would you manage her what are the treatment options for her? Explain the physiological, therapeutic effects, indications, contra-indications and precautions of it.	CO7	Evaluate	

**COURSE OUTCOME**

At the end of the course candidate will able to

CO1: Recall the physics principles & Laws of Electricity, Electro-magnetic spectrum & amp.

CO2: Describe effects of environmental & man made electro-magnetic field at the cellular level & risk factors on prolonged exposure.

CO3: Describe the main electrical supply, electric shock – precautions.

CO4: Enumerate production of various the therapeutic electrical currents. Describe the panel diagrams of the machines.

CO5: Describe in brief, certain common electrical components such as transistors, valves Capacitors, transformers etc.; the simple instruments used to test / calibrate these Components (such as potentiometer, oscilloscope etc.) of the circuitry.

CO6: Describe and identify various types of electrodes used in the therapeutics, describe Electrical skin resistance & significance of various media used to reduce skin resistance.