

PAPER-III

SUNJECT CODE & NAME-801510-MEDICAL ELECTRONICS, BIOPHYSICS AND COMPUTER USAGE RELEVANT TO CARDIAC TECHNOLOGY AND BASIC ELECTROCARDIOGRAPHY

UNIT -IV –TOPIC- SYLLABUS INTRODUCTION TO MEDICAL PHYSICS BLOOD PRESSURE RECORDING PRESSURE TRANSDUCERS DEFIBRILLATORS, CATHODE RAY TUBES AND PHYSIOLOGICAL MONITORS IMPEDANCE PLETHYSMOGRAPHY PULSE OXIMETRY

REFERENCE – THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY QUESTION PAPER

S. No.	Question/Topic	Month & Year	Bloom's Taxonomy Level
1	What is defibrillator and explain its function?	Aug 2015, Feb 2016	Elaborate
2	Explain the measures to reduce the radiation exposure. (Introduction to Medical Physics)	Aug 2015, Feb 2016, Aug 2017	Analyze
3	Explain the methods of Blood Pressure Measurements.	Aug 2016	Elaborate
4	Mention indication and contra-indication for defibrillation. Explain the working principle of DC Defibrillator.	Feb 2017	Analyze
5	Explain working principle and mechanism of Pulse Oximeter.	Feb 2017	Analyze
6	Explain impedance Plethysmography.	Feb 2018	Elaborate
7	Discuss on impedance plethysmography.	Aug 2018	Elaborate
8	Explain in detail the direct and indirect method of blood pressure monitoring.	Feb 2019	Elaborate
9	Explain on the radiation dose reduction strategies for minimizing radiation exposure in cath lab. (Introduction to Medical Physics)	Aug 2018, Feb 2019, Aug 2019	Analyze
10	Explain different types of defibrillators.	Aug 2019	Elaborate

11	What is the function of a defibrillator and differentiate between pacemaker and implantable defibrillator?	Feb 2020	Analyze/Differentiate
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5 marks

S. No.	Question/Topic	Month & Year	Bloom's Taxonomy Level
1	Explain impedance Plethysmography.	Aug 2015, Feb 2017	Understand
2	Describe Differential Auscultatory Technique. (Blood Pressure Recording)	Aug 2015	Understand
3	Write note on Dc defibrillator.	Aug 2015	Understand
4	Write about Strain gauge transducer. (Pressure Transducers)	Aug 2015	Remember
5	Write the applications or CRT. (Cathode Ray Tubes)	Aug 2015	Remember
6	Write notes on DC Defibrillator with synchronization mode.	Feb 2016	Understand
7	Write about unbounded strain gauge transducers. (Pressure Transducers)	Feb 2016	Understand
8	What is Blood Pressure and Mean Arterial Pressure?	Feb 2016	Remember
9	Define Pulse Pressure and Mean Arterial Pressure.	Feb 2016	Remember
10	Explain the methods of Blood Pressure Measurements.	Aug 2016	Elaborate
11	What is the importance of Blood Pressure Measurement?	Aug 2016, Feb 2020	Understand
12	Mention the types of Pulse Oximeter probes and it's parts.	Aug 2016	Understand
13	Advantages of Biphasic Defibrillator over Monophasic Defibrillator.	Aug 2016	Understand
14	What are the parameters monitored during defibrillation?	Feb 2017	Remember
15	What is Ascultatory method of blood pressure measurement?	Feb 2017, Aug 2018	Understand
16	How Defibrillator restores the normal rhythm of heart?	Aug 2017	Understand

17	Differentiate cardioversion and defibrillation.	Aug 2017	Understand
18	What are the causes for false Pulse Oximeter reading?	Aug 2017	Understand
19	What is Synchronized and Asynchronized Defibrillator?	Feb 2018, Aug 2018	Understand
20	Differentiate Pace maker and implantable Defibrillator.	Feb 2018	Analyze
21	What are the factors interfere with Pulse Oximeter reading?	Feb 2018	Understand
22	Method of monitoring oxygen saturation using pulse oximeter.	Aug 2018	Understand
23	Write a note on strain guage transducer. (Pressure Transducers)	Aug 2018	Understand
24	Write a note on synchronization in defibrillator.	Feb 2019, Aug 2019	Understand
25	Write a short note on impedance plethysmography.	Feb 2019	Understand
26	Write note on monophasic and biphasic defibrillator and discuss its advantages.	Feb 2019	Understand
27	Working principle of pulse oximeter.	Feb 2019, Aug 2019	Understand
28	Cathode ray tube.	Aug 2019	Remember
29	Direct method of blood pressure monitoring.	Feb 2020	Understand

3 marks

S. No.	Question/Topic	Month & Year	Bloom's Taxonomy Level
1	Write about patient monitor? (Physiological Monitors)	Aug 2015	Remember
2	Calculate Pulse Pressure and MAP (Mean Arterial Pressure) for the following parameters.	Aug 2015	Apply
3	Difference between a transducer and a sensor. (Pressure Transducers)	Aug 2015, Aug 2016	Remember
4	Write about AED. (Defibrillators)	Feb 2016	Remember
5	Write about oximetry. (Pulse Oximetry)	Feb 2016	Remember
6	Explain impedance Plethysmography.	Feb 2016	Remember
7	Write the recommended range for delivering shock during Defibrillation.	Aug 2016	Remember

8	What is pressure transducer? (Pressure Transducers)	Aug 2016	Remember
9	Write the types of Defibrillator electrodes.	Aug 2016	Remember
10	What is Ascultatory gap? (Blood Pressure Recording)	Feb 2017	Remember
11	What are the effects of body position in BP measurement?	Feb 2017	Understand
12	What is mean arterial pressure and pulse pressure?	Feb 2017	Remember
13	What are the parameters that can be measured in Physiological Monitor?	Aug 2017	Remember
14	What are the Phases of Korotkoff Sound? (Blood Pressure Recording)	Aug 2017	Remember
15	When do the alarm rise in Pulse Oximetry?	Feb 2018	Remember
16	What is the necessity of Defibrillator?	Feb 2018, Aug 2018	Remember
17	What is the cause of the appearance, change in quality and disappearance of the sound at various phases of blood pressure measurements?	Feb 2018	Understand
18	What are the main components of an Intra arterial blood pressure measuring system?	Feb 2018	Remember
19	Sensor used in pulse oximeter.	Aug 2018	Remember
20	Positioning of defibrillator paddles during defibrillation.	Feb 2017, Feb 2019, Feb 2020	Remember
21	What is mean arterial pressure?	Feb 2019, Aug 2019	Remember
22	Transducer. (Pressure Transducers)	Feb 2019, Feb 2020	Remember
23	Mean Arterial Pressure.	Aug 2019	Remember
24	Maximum energy used in defibrillator.	Feb 2020	Remember
25	Impedance plethysmography.	Feb 2020	Remember
26	Three methods to reduce radiation exposure. (Introduction to Medical Physics)	Feb 2020	Remember