

Visvesvaraya Technological University, Belagavi

CBCS Scheme: 2016-17

MODEL QUESTION PAPER

15BM54

Fifth Semester Biomedical Engineering

BIOMEDICAL EQUIPMENTS

Time: 3 Hrs

Max. Marks: 80

Note: Answer FIVE FULL Questions, selecting ONE FULL Question from each Module

Question Number	Question	Marks Allotted
	Module -1	
1 a)	Define Electrocardiography? Draw the standard ECG waveform and explain the significance of each parameters of it.	8M
b)	Explain the working of Instantaneous Heart Rate meter with block diagram.	8M
	or	
2 a)	Define Electroencephalograph. List the benefits of it. Draw the diagram showing the standard 10/20 montage system.	8M
b)	Explain the principle of blood pressure measurement based on Korotkoff's method.	8M
	Module -2	
3 a)	Why isolated preamplifier is used for bioelectric signal acquisition.	2M
b)	How the 12-lead system can be used for recording of ECG signal from the human body.	10M
c)	Mention any two advantages in using the multichannel ECG machine	4M
	or	
4 a)	Explain how pulmonary variables are accessed using wedge and Ultrasonic spirometers	8M
b)	With necessary block diagram explain the working of Evoked	8M

	response Audiometry system.	
	Module -3	
5 a)	Define Pacemaker? With block diagram explain the working of ventricular synchronous demand pacemaker	8M
b)	Explain the principle of surgical diathermy. Explain Electrotomy, Fulguration, Coagulation and Desiccation techniques employed in electro-surgery with necessary diagrams	8M
	or	
6 a)	Explain the working of a D C defibrillator with a sketch	8M
b)	With block diagram explain the working of PACER-CARDIOVERTER-DEFIBRILLATOR	8M
	Module -4	
7 a)	Explain the principle of dialysis in artificial kidney. In brief discuss on parallel flow, Coil, Hallow Fibre dialyzers	8M
b)	List the main parts of Heart-Lung machine and explain their working in brief	8M
	or	
8 a)	With block diagram explain the working of Hemodialysis Machine	8M
b)	Explain the techniques used to eliminate the stone formed in kidney, with necessary diagram.	8M
	Module -5	
9 a)	With necessary diagram discuss on components of Man-Instrumentation system.	8M
b)	Brief on the physiological effects of electric current	8M
	or	
10 a)	Related to electrical safety, mention what are the precautions to minimize the electric shock hazards? Mention methods for preventing the accidents	8M
b)	Discuss on Shared service Maintenance Repair Organization [MROs], In-House MROs, In-House contractor MRO	8M