QP code:- 24497 1/2

Paper 1 solution CBGS

Q1a	Cell diagram-1 Description-2 Action potential graph -1 Labeling-1
Q1b	1 mark per each of the design criteria, some are enlisted here: • Battery operated, light weight • Use of dry biochemistry • Simple to use • Safe to handle, non biohazardous • Patient comfort • Easy to interprete the results by operator • Accurate • Easy to calibrate locally
Q1c	Comparative statement about Noise (2 marks) Signal strength (2 marks) Electrode surface area (1 marks) Signal phase (2 marks) Area of study (1 marks)
Q1d	Noise type and explanation of source 2 marks each • Other signal from body • 50 Hz mains noise • Electromagnetic interference from other equipments • Radio frequency communication
Q1e	2 mark for each significance • Biofeedback • Energy delivery in defib • Lie detector
Q2a	Skin electrode interface diagram-1 Labeling-1 Co relation with motion artefacts-3
Q2b	Role of potassium in action potential-2 marks Effect of increase in potassium level-3 marks

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Q2c	Drawbacks of biopotential recording with single ended amplifier types-2 marks Advantages of biopotential recording with differential amplifier types-3 marks
Q2d	2 marks for each explanation of each method • Use shield • Use battery • Use notch filter • Use high CMRR amplifier • Use shielded cable • Use shield drive circuit
Q3a	Einthoven triangle diagram with correct polarity – 3 marks Significance – 4 marks
Q3b	List of ECG leads- 1 mark Placement of leads- I II III and AvR, AvL, AvF- 3 marks Placement of leads v1 to v6- 3 marks
Q3c	Electrode placemnt 4 marks Significance of montages 3 marks
Q4a	Block diagram 4 marks Explanation 6 marks
Q4b	Block diagram 5 marks Explanation 5 marks
Q5a	Block diagram 3 marks Waveforms 3 marks Explanation 4 marks
Q5b	Block diagram 3 marks Waveforms 3 marks Explanation 4 marks
Q6a	Microshock and macroshock 2 mark for each point • Amplitude and current levels, • Effect on body • Current path • Control methds
Q6b	ERG measurement 2 mark for each point

Paper I 5th 03 2/2

	• Source • Electrodes used • Waveform • Significance
Q6c	EMG Biofeedback 2 mark for each point • Block diagram • Significance • Electrodes used • Waveform
Q6d	Baby incubator 2 mark for each point • Necessity • Construction • Working
Q6e	Phonocardiogram 2 mark for each point • Necessity • Block diagram • Significance • Electrodes used • Waveform

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