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| **Scheme of Valuation/Answer Key**(Scheme of evaluation (marks in brackets) and answers of problems/key) |
| **APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**FIFTH SEMESTER B.TECH DEGREE EXAMINATION, JULY 2019 |
| **Course Code: EC365** |
| **Course Name: BIOMEDICAL ENGINEERING** |
| Max. Marks: 100 |  | Duration: 3 Hours |
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| **PART A**  |
|  |  | ***Answer any two full questions, each carries 15 marks.*** | Marks |
| 1 | a) | Explain about electrode-electrolyte interface and the electrical activity associated with one contraction in a muscle.Electrode Electrolyte interfaceGraph with explanation | (5)(5) |
|  | b) | Explain direct blood pressure measurement.Diagram-3 marksExplanation-2 marks | (3)(2) |
| 2 | a) | What is a microelectrode ?Explain any two Diagram-3 marksExplanation of two types- | (3)3 marks each |
|  | b) | Explain ultrasonic blood flow meters with neat diagram DiagramExplanation | (2)(3) |
| 3 | a) | With suitable diagram explain electro conduction system of heart. DiagramExplanation | (5)(5) |
|  | b) | Draw the unipolar lead systems . DiagramsExplanation | (2.5)(2.5) |
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| 4 | a) | Explain 10-20 electrode system with suitable diagram . DiagramsExplanation | (5)(5) |
|  | b) | Explain about spectrophotometer . DiagramsExplanation | (2.5)(2.5) |
| 5 | a) | What are different respiratory parameters ? Explain Minimum 5 parameters-**Equations** | (7)1 mark each(2) |
|  | b) | What is meant by nerve conduction velocity. What is its significance DefinitionDiagram of Neuron | (2)(1) |
|  | c) | Explain ventilator parameters? 5 parameter- | 1mark each  |
| 6 | a) | What is the difference between haemodialysis and peritoneal dialysisDiagramsAny 5 differences | (5)1mark each  |
|  | b) | Explain about ventricular defibrillationDiagramsExplanation | (2)(3) |
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| 7 | a) | How ultrasonic wave propagates throughtissues? Diagrams-3 marksEquations-2 marksExplanation-3 marks | (3)(2)(2) |
|  | b) |  Explain X-Ray imaging Principle-3 marksDiagrams-3 marksExplanation-2 marks | (3)(3)(2) |
|  | c) | Explain basic approaches to protection against shock? Four approaches | 1 mark each  |
| 8 | a) | Explain about micro shock hazards Types -3 marksDiagrams and graph-3 marksCauses-2 marks | (3)(3)(2) |
|  | b) | Draw the diagram of Single channel telemetry and explain Block diagramExplanation of each block | (4)(4) |
|  | c) | What is real time ultrasonic imaging ? Principle-2marksEquations-2 marks | (2)(2) |
| 9 | a) | Explain the biological effects of NMR imaging Principle of NMR-3 marksEffects-4 marks | (3)(4) |
|  | b) | What is basic pulse echo system. Principle-3 marksDiagrams-2 marks | (3)(2) |
|  | c) | What are macroshock hazards Types Diagrams and graphCauses | (3)(3)(2) |
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