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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, DECEMBER 2018 | | | | | |
| **Course Code: EC307** | | | | | |
| **Course Name: POWER ELECTRONICS & INSTRUMENTATION** | | | | | |
| Max. Marks: 100 | | |  | Duration: 3 Hours | |
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| **PART A** | | | | | |
|  |  | ***Answer any two full questions, each carries 15 marks.*** | | | Marks |
| 1 | a) | 5 points – 1mark each | | | ( 5) |
|  | b) | Static charcteristics: figure (2.5 marks)+ explanation (2.5 marks)=(5 marks)  Dynamic characteristics:figure (2.5 marks)+ explanation (2.5 marks)=(5 marks) | | | ( 10) |
| 2 | a) | Buck converter circuit : figure(2 marks)+explanation(2 marks)+waveforms(2 marks) = 6 marks | | | (6) |
|  | b) | {Advantages: (3 points)-1mark each =3 marks }+Froward converter circuit (2 marks) +explanation (2 marks)+waveform (2 marks) | | | (9) |
| 3 | a) | Structure (4 marks)+explanation (4 marks) | | | (8) |
|  | b) | figure (3 marks)+explanation (4 marks) | | | (7) |
| **PART B** | | | | | |
| ***Answer any two full questions, each carries 15 marks.*** | | | | | |
| 4 | a) | Push pull single phase circuit : figure (3 marks)+ explanation (3 marks)+ waveform (3 marks) | | | ( 9) |
|  | b) | Space vector modulation (explanation (3 marks)+ figure (3 marks) | | | ( 6) |
| 5 | a) | Block diagram (2 marks)+explaantion (3marks) | | | (5) |
|  | b) | Static chara. Definition (2 marks)+different static parameters( 2marks)+explanation/definition of 6 static parameters ( 1 mark each) | | | (10) |
| 6 | a) | Principle of switched mode inverters:(2 marks)+full bridge circuit (2 marks)+expalantion (2 marks)+waveform(2marks) | | | (8) |
|  | b) | Maxwell’s bridge circuit(3 marks)+derivation(4 marks) | | | (7) |
| **PART C** | | | | | |
| ***Answer any two full questions, each carries 20 marks.*** | | | | | |
| 7 | a) | 5 points-1mark each | | | ( 5) |
|  | b) | Hall effect transducer figure (2 marks)+expalantion (2 marks)+1.5 marks each for each application | | | (7 ) |
|  | c) | Figure(4 marks)+explanation(4 marks) | | | (8) |
| 8 | a) | Principle of strain gauge(2 marks)+types: unbonded type(2 marks)+bonded type:=wire(2 marks)+foil(2marks)+semiconductor type(2marks) | | | (10) |
|  | b) | (i) spectrum analyzer: figure(2 marks)+explanation(3 marks)  (ii)electronic multimeter: figure(2 marks)+explanation(3 marks) | | | (10) |
| 9 | a) | Figure(4)+Explanation(4)+ Examples(2) | | | (10) |
|  | b) | Block dia (5) + Explanation(5) | | | (10) |
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