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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 (S)DEGREE EXAMINATION, MAY2019** |
| **Course Code: EC307** |
| **Course Name: POWER ELECTRONICS & INSTRUMENTATION** |
| Max. Marks: 100 |  | Duration: 3 Hours |
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| **PART A**  |
|  |  | ***Answ er any two full questions, each carries 15 marks.*** | Marks |
| 1 | a) | Structure of power BJT -(2 marks)+ explanation(2 marks) + Static characteristics: figure (2 marks)+explanation (1mark)}+ dynamic chara(2 marks)+explanation(1 mark.Quasi saturation phenomenon explanation (2 marks) | ( 12)  |
|  | b) | 3 points- 1 mark each | ( 3) |
| 2 | a) | Buck Boost converter circuit : figure(2 marks)+explanation of modes(2 marks)+waveforms(2 marks) +expln for output voltage (1 mark)+voltage ripple(1 mark)+current ripple(1 mark) | (9) |
|  | b) | Push pull converter circuit (2 marks) +explanation (2 marks)+waveform (2 marks) | (6) |
| 3 | a) | Structure (2 marks)+explanation (2 marks)+{static characteristics : figure (2 marks)+explanation (2 marks)}+{switching characteristics : figure (2 marks)+explanation (2 marks)}+advantages(3 points)-1 mark each | (15) |
| **PART B**  |
| ***Answer any two full questions, each carries 15 marks.*** |
| 4 |  | (i)Principle (3 marks)+fig(2 marks)(ii)Space vector modulation (explanation (2.5 marks)+ figure (2.5 marks)(iii)Push pull single phase circuit : figure (2 marks)+ explanation (2 marks)+ waveform (1 marks) | ( 15) |
| 5 | a) | Any 4 classification (2 marks each)+1/2 mark each for example | (10) |
|  | b) | Static chara. And dynamic chara Definition (2 marks)+ static parameters and dynamic parameters (3marks) | (5) |
| 6 | a) | Circuit:(4 marks)+derivation (4marks) | (8) |
|  | b) | 7 marks | (7) |
| **PART C**  |
| ***Answer any two full questions, each carries 20 marks.*** |
| 7 | a) | Classification (3) + Strain Gauge fig (3) + Explanation (4) | (10) |
|  | b) | figure (4) + Explanation (6) | (10) |
| 8 | a) | (i) Frequency synthesizer (fig(3 marks)+explanation(3 marks)(ii)Electronic multimeter (fig(3 marks)+explanation(3 marks) | ( 12) |
|  | b) | Principle (2 marks)+capacitive type (3 marks)+inductive type (3 marks) | (8) |
| 9 | a) | Figure(4 marks)+explanation(4 marks)+ applications(2marks) | (10) |
|  | b) | (i) hall effect transducer: figure(2 marks)+explanation(3 marks)(ii)LVDT: figure(2 marks)+explanation(3 marks) | (10) |
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