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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: EC361** | | | | | |
| **Course Name: DIGITAL SYSTEM DESIGN** | | | | | |
| Max. Marks: 100 | | |  | Duration: 3 Hours | |
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| **PART A** | | | | | |
|  |  | ***Answer any two full questions, each carries 15 marks.*** | | | Marks |
| 1 | a) | Sample sequence - 1  State diagram – 1  state table - 1  transition table – 1  excitation table – 1  expressions for output and excitation – 1  circuit diagram –2 | | | (8) |
|  | b) | Difference – 2  ASM chart – 4  number of ASM blocks - 1 | | | (7) |
| 2 | a) | Timing diagram with states – 1  Flow table – 1.5  Flow diagram – 1.5  Transition table –1  Expression –1  circuit diagram –2 | | | (8) |
|  | b) | expressions for output and excitation – 1  Mealy / Moore - 1  excitation table – 1.5  transition table – 1.5  state table - 1  State diagram – 1 | | | (7) |
| 3 | a) | expressions for output and excitation – 1  Mealy / Moore - 1  excitation table – 1.5  transition table – 1.5  state table - 1  State diagram – 1 | | | (7) |
|  | b) | assumptions – 1.5  state diagram – 1.5  state table – 1  excitation table – 2  ckt diagram – 2 | | | (8) |
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| **PART B** | | | | | |
| ***Answer any two full questions, each carries 15 marks.*** | | | | | |
| 4 | a) | static (1 and 0) - 1  dynamic (1 and 0)–1  examples - 2.5 + 2.5 | | | (7) |
|  | b) | contact bounce and explanation with waveform and circuit– 1 + 1 + 1  debounce ckt + waveform+ explanation–1.5 + 1.5 + 1  sr latch – 1 | | | (8) |
| 5 | a) | path selection – 1 + 1  test vector generation for the path – 3 + 3 | | | (8) |
|  | b) | logic diag – 1  df/da and df/dd – 2.5 + 2.5  test vector – 1 + 1 | | | (7) |
| 6 | a) | circuit diag – 1  table for faulty and fault free outputs –3  fault cover table –2  ETV -1  STV -1 | | | (8) |
|  | b) | Deterministic TG – 3.5  Semirandom TG- 3.5 | | | (7) |
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|  |  |  | | |  |
| **PART C** | | | | | |
| ***Answer any two full questions, each carries 20 marks.*** | | | | | |
| 7 | a) | PLA diagram – 2  PLa program array table – 2  SSR notation – 2  SSR specification – 2  compatibility matrix - 2 | | | (10) |
|  | b) |  | | | (10) |
| 8 | a) | 1 + 3 + 4 | | | (8) |
|  | b) | Diagram – 6  Explanation - 6 | | | (12) |
| 9 | a) | Diagram – 5  Explanation - 5 | | | (10) |
|  | b) | PLA diagram – 2  PLa program array table – 2  SSR notation – 2  SSR specification – 2  compatibility matrix - 2 | | | (10) |
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