

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Scheme of Valuation/Answer Key**  (Scheme of evaluation (marks in brackets) and answers of problems/key) | | | | | |
| **APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  V SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018 | | | | | |
| **Course Code: EE307** | | | | | |
| **Course Name: SIGNAL AND SYSTEMS** | | | | | |
| Max. Marks: 100 | | |  | Duration: 3 Hours | |
| **PART A** | | | | | |
|  |  | ***Answer all questions, each carries5 marks.*** | | | Marks |
| 1 |  | Proof - dynamic ----- 1 mark  Proof – non-causal ----- 2 marks  Proof – time variant ----- 2 marks | | | (5) |
| 2 |  | Laplace transform equation – 2 marks  Partial fraction - 1 marks  Solution – 2 marks | | | (5) |
| 3 |  | Derivation ----- 5 marks | | | (5) |
| 4 |  | 300Hz | | | (5) |
| 5 |  | ------ 5 marks | | | (5) |
| 6 |  | Statement : 1 mark Proof : 4 marks | | | (5) |
| 7 |  | Statement : 1 mark Proof : 4 marks | | | (5) |
| 8 |  | Explanation of random signals ----- 5 marks | | | (5) |
| **PART B** | | | | | |
| ***Answer any twofull questions, each carries10 marks.*** | | | | | |
| 9 | a) | i) non-periodic T1=4; T2=4π; T1/T2 not rational ------ 2 marks  ii) Periodic N1=3; N2=5; N1/N2 is rational, N=15 ----- 3 marks | | | (5) |
|  | b) | ----- 2 ½ marks  ----- 2 ½ marks | | | (5) |
| 10 |  | pole-zero plot ----- 2 marks  ----- 2 x 3 = 6 marks  ------ 2 marks | | | (10) |
| 11 | a) | Linear, static, causal ----- 3 marks  Time variant ----- 2 marks | | | (5) |
|  | b) | derivation ------ 2 marks  derivation ------ 3 marks | | | (5) |
| **PART C** | | | | | |
| ***Answer any two full questions, each carries10 marks.*** | | | | | |
| 12 | a) | ------ 1 mark  ------- 1 mark  ------- 1 mark  ------ 3 marks  Magnitude spectrum  ------ 1 mark | | | (7) |
|  | b) | ------ 1 mark Proof ------ 2 marks | | | (3) |
| 13 |  | Statement ----- 2 marks Proof ---- 6 marks aliasing ----- 2 marks | | | (10) |
| 14 | a) | ------ 2 marks  ------ 1 mark  ------ 2 marks | | | (5) |
|  | b) | or  ---- 5 marks | | | (5) |
| **PART D** | | | | | |
| ***Answer any twofull questions, each carries 10 marks.*** | | | | | |
| 15 | a) | ------ 4 marks  ROC  ------ 2 marks | | | (6) |
|  | b) | Statement : 1 mark Proof : 3 marks | | | (4) |
| 16 | a) | ------ 3 marks  ------ 4 marks | | | (7) |
|  | b) | ----- 3 marks | | | (3) |
| 17 | a) | ------- 3 marks  ------- 2 marks | | | (5) |
|  | b) | Classification of non-linearities with explanation ----- 5 marks | | | (5) |
| \*\*\*\* | | | | | |