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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**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 markProof – non-causal ----- 2 marksProof – time variant ----- 2 marks | (5) |
| 2 |  | Laplace transform equation – 2 marksPartial fraction - 1 marksSolution – 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 marksii) 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 marksTime 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 marksMagnitude 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) |
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