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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 2017 | | | | | |
| **Course Code: EC303** | | | | | |
| **Course Name: APPLIED ELECTROMAGNETIC THEORY** | | | | | |
| Max. Marks: 100 | | |  | Duration: 3 Hours | |
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| **PART A** | | | | | |
|  |  | ***Answer any two full questions, each carries 15 marks.*** | | | Marks |
| 1 | a) | i) -1.004ax-1.284ay+ 1.4aznN ( 4m)  ii) -1.004ax-1.284ay+ 1.4azV/m(3m) | | | ( ) |
|  | b) | State(1mx4points) + explanation(1mx4) | | | ( ) |
| 2 | a) | Equations(4m), application(3m) | | | () |
|  | b) | i)1.374 rad/m,(1.5m)  ii)0.5154(1.5m)  iii)177.72<13.63o(1.5m)  iv)7.278x107m/s (1.5m),  v)2.817e –z/3sin(108t - β *z-13.63o) ay*mA/m(2m) | | | () |
| 3 | a) | 2x4m | | |  |
|  | b) | 2x4m | | |  |
| **PART B** | | | | | |
| ***Answer any two full questions, each carries 15 marks.*** | | | | | |
| 4 | a) | 53.31 mW& 59.22mW(2x4m) | | | ( ) |
|  | b) | Derivation(5m) justification(2m) | | | ( ) |
| 5 | a) | Definition 2m, types-5m | | | () |
|  | b) | i) 70.75<-1.3670 Ω (2.5m)  ii) 2.121 x 10-4+ j8.888x 10-3/m(2.5m)  iii) 7.069 x 105m/s.(3m) | | | () |
| 6 | a) | Derivation—7.5m | | |  |
|  | b) | Derivation—Zin—5m and SWR--2.5m | | |  |
| **PART C** | | | | | |
| ***Answer any two full questions, each carries 20 marks.*** | | | | | |
| 7 | a) | Derivation—10m | | | ( ) |
|  | b) | Fc=2.5 GHz,(2m)  λc=12cm,(1.5m)  phase const= 90.69 rad/m,(1.5m)  phase velocity=3.46x 108m/s(1.5)  group velocity= 2.6x 108m/s(1.5m)  Zg= 435.32Ω.(2m) | | | ( ) |
| 8 | a) | i)0.659<400  ii) s= 4.865  ii) 3.07- j4.62mS  iv)21.9+j47.6 Ω (2.5mx 4) | | | () |
|  | b) | Derivation-- 10m | | |  |
| 9 | a) | Derivation and explanation –10m | | |  |
|  | b) | fc= 3.75GHz, α==244.9db/m or 28.2 Np/m  (2x 5m) | | |  |
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