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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**  THIRD SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018 | | | | | |
| **Course Code: ME205** | | | | | |
| **Course Name: THERMODYNAMICS** | | | | | |
| Max. Marks: 100 | | |  | Duration: 3 Hours | |
| **PART A** | | | | | |
|  |  | ***Answer any three full questions, each carries10marks.*** | | | Marks |
| 1 | a) | Closed system, open system and isolated system | | | (3 ) |
|  | b) | Intensive properties – 1.5 marks, extensive properties – 1.5 marks | | | ( 3) |
|  | c) | Explanation with 3 equilibriums | | | (4) |
| 2 | a) | Figure – 1 marks, Explanation – 2marks | | | (3) |
|  | b) | Explanation | | | (3) |
|  | c) | Explanation | | | (4) |
| 3 | a) | Explanation | | | (4) |
|  | b) | Heat transfer = 2615kJ | | | (6) |
| 4 | a) | Derivation – ( Since there is some ambiguity in the question, may be valued liberally) | | | (5) |
|  | b) | Power output = 2325kW, inlet Diameter = 33cm | | | (5) |
| **PART B** | | | | | |
| ***Answer any three full questions, each carries10marks.*** | | | | | |
| 5 | a) | 2 statements – 4 marks, PMM2 – 1 mark | | | (5 ) |
|  | b) | Q4 = 333kJ , Q2 + Q3 = 2433kJ | | | ( 5) |
| 6 | a) | Statement – 2 marks, Proof – 3 marks | | | (5) |
|  | b) | Explanation | | | (5) |
| 7 | a) | Explanation | | | (3) |
|  | b) | Derivation | | | (7) |
| 8 | a) | Diagram | | | (3) |
|  | b) | x1 = 0.963, x4 = 0.948, Maximum moisture that can be determined with this set-up is only 5.2%. | | | (7) |
| **PART C** | | | | | |
| ***Answer any four full questions, each carries10marks.*** | | | | | |
| 9 | a) | Compressibility Factor – 2.5 marks, Law of corresponding states – 2.5 marks | | | (5 ) |
|  | b) | a) The fluid is air: W = 74.61kJ, T2 = 682.97K, Q = 261.27kJ  b) The fluid is steam :W = 118kJ, T2 = 400⁰C, Q = 507.7kJ | | | ( 5) |
| 10 |  | Expression for internal energy – 5 marks, Expression for enthalpy change – 5 marks | | | (10) |
| 11 | a) | Explanation | | | (10) |
| 12 | a) | Maxwell’s Relations | | | (10) |
| 13 | a) | Explanation with diagrams | | | (10) |
| 14 | a) | Explanation ( Since there is some ambiguity in the question, may be valued liberally) | | | (5) |
|  | b) | Definition – 2.5 marks, Significance – 2.5 marks | | | (5) |
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