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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(S), MAY 2019 |
| **Course Code: CE301** |
| **Course Name: DESIGN OF CONCRETE STRUCTURES I** |
| Max. Marks: 100 |  | Duration: 3 Hours |
|  |
| **PART A**  |
|  |  | ***Answer any two full questions, each carries 15 marks.*** | Marks |
| 1 | a) | Depth of NAXumaxMoment of resistanceMu lim | (3 )(2)(3)(2) |
|  | b) | ExplanationEquation | (3 )(2) |
| 2 | a) | Definitions and explanation 2.5x2 | (5) |
|  | b) |  pt, Permissible shear strength and VucVusTotal shear strengthMax shear strength and Limiting value | (3)(2)(2)(3) |
| 3 | a) | Selfweight, total load, factored load,Shear ForceNominal shear stresspt, permissible shear strengthVus, svCheck for max spacing of stirrupsDetailing | (3)(1)(2)(2)(1)(1) |
|  | b) | Explanation 2.5x2 | (5) |
| **PART B**  |
| ***Answer any two full questions, each carries 15 marks.*** |
| 4 | a) | DimensionsLoad/m , SF, BMMu limitArea of steelCheck for min and max steelShear Design- Nominal shear stressPt, Permissible shear stressVus, svMax spacing of stirrupsCheck for deflectionDetailing | (1)(2)(1)(2)(1)(1)(1)(1)(1)(2)(2) |
| 5 | a) | DimensionsDesign load, Moment, ShearMu limAst, spacingMin steel/Distribution steelAnchorage lengthCheck for deflectionDetailing | (1)(2)(1)(2)(1)(1)(2)(2) |
|  | b) | Explanation | (3) |
| 6 | a) | MtMeMu limAstMin steel/Max steel | (2)(1)(1)(2)(2) |
|  | b) | Explanation 2x2 | (4) |
|  | c) | Detailing of ss one way slab | (3) |
| **PART C**  |
| ***Answer any two full questions, each carries20 marks.*** |
| 7 |  | Dimensions and Design loadMoment coefficients, Design moments and Ast-shorter spanMoment coefficients, Design moments and Ast-longer spanMin steelEdge stripCheck for shearCheck for deflectionDetailing | ( 2)(4)(4)(2)(2)(2)(2)(2) |
| 8 |  | Factored load, leffDimensions , slenderness, min eccentricityPercentage steel AscCheck for min/max steelDesign of lateral reinforcementDetailing | (2 )(5)(2)(2)(5)(4) |
| 9 | a) | Explanation 2 x 3 | (6) |
|  | b) | Eqn for Pu with substitutionAsc & reinforcementAsc Check Min&max | (3)(3)(2) |
|  | c) | Detailing | (5) |
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