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| **Question Number** | **I** | **II** | **III** | **Total** |
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| **Question I:** Choose the correct answer  (1) The initial value problem , has(a) no solutions (b) many solutions (c) a unique solution (d) None of the previous |
|  (2) The following conditions make the differential equation a boundary value problem  (a) , (b) , (c) None of the previous |
|   (3) If and are two linearly independent solutions of the same second order differential equation, then  (a) is a constant (b) is a function in (c) is a function in and (d) None of the previous\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| (4) If are roots of the auxiliary equation of a homogeneous Cauchy- Euler differential equation then (a) (b) (c) (d) None of the previous\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(5) A linear differential equation with constant coefficients having solutions is (a) (b) (c) (d) None of the previous |
| **Question II:** A. Find a second solution of the differential equation if is a solution of the differential equation.B. Find the integrating factor for the following linear differential equation **Question III**: A. Solve the following differential equations (2) = 4B. Solve the Initial Value ProblemGood Luck☺ |
|  B. Find only the form of the particular solution for the differential equation using the annihilator method by  **Question III:** A. Solve the initial-value problem by superposition approach |

B. Solve the following differential equation

Good Luck ☺