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|  **Student’s Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

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| **Question Number** | **I** | **II** | **III** | **Total** |
| **Mark** |  |  |  |  |

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| **Question I:** **Choose the correct answer:** |
| 1. **is**

 **(a) an initial value problem (b) a boundary value problem**  **(c) a homogeneous differential equation (d) None of the previous** |
|  **(2) If are two linearly independent solutions of the same second order differential equation, then****(a) (b) (c) (d) None of the previous** |
|  **(3) The initial value problem has** **(a) no solutions (b) many solutions**  **(c) a unique solution (d) None of the previous** |
|  **(4) To obtain the general solution of a homogeneous linear differential equation of order , we construct a linear combination of****(a) any set of linearly independent solutions (b) any set of linearly dependent solutions (c) any set of solutions (d) None of the previous** |
|  **(5) If the auxiliary equation of a homogeneous Cauchy- Euler differential equation is then** **(a) (b)** **(c) (d) None of the previous** |
| **Question II:** **A. Find only the form of the particular solution for the differential equation by superposition approach****B. Find a second solution of the differential equation** **if is a solution of the differential equation.****Question III:** 1. **Solve the initial-value problem using the annihilator method**
2. **Solve the following differential equation**

 **Good Luck☺** |