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

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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) If is a solution of then a second solution to the differential equation is  (a) (b) (c) (d) None of the previous |
| (3) If and are two linearly independent solutions of the same second order differential equation, then  (a) is a solution (b) is a solution (c) is a solution (d) None of the previous  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| (4) If the general solution of is given by then  (a) (b) (c) None of the previous  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (5) If is particular solution of and is particular solution of , then a particular solution of is given by  (a) (b) (c) (d) None of the previous |
| **Question II:** Consider the nonhomogenous differential equation  Using the superposition approach, find the form of the solution in the following cases:      B. Find the integrating factor for the following linear differential equation    **Question III**: A. Solve the following differential equations    (2) = 4  B. Solve the Initial Value Problem  Good Luck☺ |
| **Question III:**  A. Solve the initial-value problem using the annihilator method |

B. Solve the following differential equation

Good Luck ☺