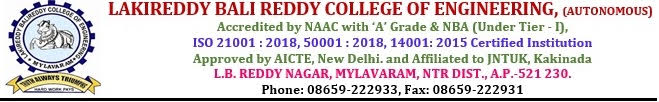
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**FRESHMAN ENGINEERING DEPARTMENT**

**Practice Questions**

**Name of Course Instructor:** **Reg**: R23

**Course Name & Code :** Differential equations & vector Calculus 23FE05 **Cycle**: I

**L-T-P Structure : 3-0-0** **Credits:** 3

**Program/Sem/Sec**  : I B.Tech., Sem II, **A.Y.:** 2024-25

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| --- | --- |
| **Unit 1** | |
| 1 | Find the complete solution of |
| 2 | Find the general solution of |
| 3 | Solve |
| 4 | Find the general solution of |
| 5 | Find the general solution of |
| 6 | Reduce the equation  into linear differential equation and hence evaluate its complete solution. |
| 7 | Find the general solution of the differential equation . |
| 8 | Check the exactness of and find the complete solution. |
| 9 | Solve |
| 10 | Solve |
| 11 | A body originally temperature at 800C cools down to 600C in 20 minutes, when the temperature of the air being 400C. What will be the temperature of the body after 40 minutes from the original? |
| 12 | If the temperature of air is 300K and a substance cools from 370K to 340K in 15 min. find when the temperature will be 310K. |
| 13 | The number N of bacteria in a culture grow at a rate proportional to N. The value of N was initially 100 and increased to 332 in one hour. What was the value of N after 1.5hour? |
| 14 | In a chemical reaction a given substance is being converted into another at a rate proportional to the amount of the substance unconverted. If 1/5th of the original amount has been transformed in 4 min. How much time will be required to transform one – half? |