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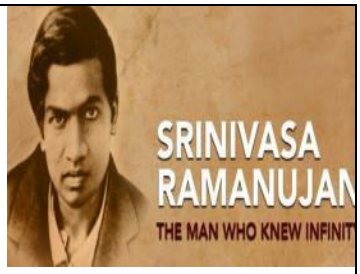
| | **SRM Institute of Science and Technology Kattankulathur** |   |
| | **DEPARTMENT OF MATHEMATICS** | |
| | **18MAB201T- TRANSFORMS AND BOUNDARY VALUE PROBLEMS** | |
| | **UNIT - I Partial Differential Equations Tutorial Sheet - 1** | |

| Sl. No. | Questions | Answer |
|---|---|---|
| | **Part - A** | |
| 1 | **Form the PDE by eliminating arbitrary constants 'a' and 'b' from** $(x-a)^2+(x-b)^2+z^2=c^2$ | $(p^2+q^2+1)z^2=c^2$ |
| 2 | **Form the PDE by eliminating arbitrary constants 'a' and 'b' from** $\log(az-1)=x+ay+b$ | $p=q(z-p)$ |
| 3 | **Eliminate the arbitrary function 'f' from** $z=f(x^2+y^2)$ | $py=qx$ |
| 4 | **Solve** $\sqrt{p}+\sqrt{q}=1$ | $z=ax+(1-\sqrt{a})^2y+c$ |
| 5 | **Solve the equation** $pq+p+q=0$ | $z=ax-\frac{a}{a+1}y+c$ |
| | **Part - B** | |
| 6 | **Form the PDE by eliminating 'f' from** $f(x^2+y^2+z^2,xyz)=0$ | $x(y^2-z^2)p+y(z^2-x^2)q=z(x^2-y^2)$ |
| 7 | **Form the PDE by eliminating 'f' from** $z=xy+f(x^2+y^2+z^2)$ | $p(y+xz)-q(x+yz)=y^2-x^2$ |
| 8 | **Form the PDE by eliminating 'f' from** $xyz=f(x+y+z)$ | $x(y-z)p+y(z-x)q=z(x-y)$ |
| 9 | **Form the PDE by eliminating 'f' and 'g' from** $z=f(x+ct)+g(x-ct)$ | $q^2=c^2p^2$ |
| 10 | **Obtain the PDE by eliminating 'a' , 'b' and 'c' from** $\frac{x^2}{a^2}+\frac{y^2}{b^2}+\frac{z^2}{c^2}=1$ | $zs+pq=0$ |