

Answer all Questions .Each Question carry equal marks

1. The differential equation $\left[\frac{d^2y}{dx^2}\right]^2 = \left[1 + \left(\frac{dy}{dx}\right)^2\right]^{3/2}$ is of []
 - a) 1st order & 2nd degree
 - b) 2nd order & 2nd degree
 - c) 2nd order & 4th degree
 - d) None
2. The equation of the form $Mdx + Ndy = 0$ is Exact, if satisfies the condition []
 - a) $\frac{\partial M}{\partial x} = \frac{\partial N}{\partial y}$
 - b) $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$
 - c) $\frac{\partial M}{\partial x} \neq \frac{\partial N}{\partial y}$
 - d) $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$
3. IF of $x \frac{dy}{dx} - y = 2x^2 \text{Cosec}2x$ is []
 - a) x
 - b) $\frac{1}{x}$
 - c) x^2
 - d) $x + y = c$
4. The Extension of Linear differential equation is called []
 - a) Homogeneous D. eq.
 - b) Exact D. eq.
 - c) Bernoulli's D. eq.
 - d) Linear D .eq.
5. $\frac{dy}{dx} + P(x)y = Q(x)$ is which equation []
 - a) Homogeneous D .eq.
 - b) Exact D .eq.
 - c) Bernoulli's D. eq.
 - d) Linear D. eq.
6. If the degree of homogeneous function is zero is called []
 - a) Homogeneous D. eq.
 - b) Exact D. eq.
 - c) Bernoulli's D. eq.
 - d) Linear D .eq.
7. The Substitution to transform homogeneous linear eqn into a linear eqn with constant coefficients is []
 - a) $x = e^z$
 - b) $z = e^x$
 - c) $x = \log z$
 - d) $x = y$
8. A curve which cuts every member of a given family of curves at any angle is called []
 - a) O.T
 - b) Trajectory
 - c) Self O.T
 - d) None
9. A curve which cuts every member of a given family of curves at Right angle is called []
 - a) O.T
 - b) Trajectory
 - c) Oblique Trajectory
 - d) None
10. The number of arbitrary constant in a solution of a D.Eq. of order n is []
 - a) $n + 1$
 - b) $n - 1$
 - c) n
 - d) None
11. In Cartesian coordinate system, for differential of O.T we have replace $\frac{dy}{dx}$ by []
 - a) $-\frac{dy}{dx}$
 - b) $-\frac{dx}{dy}$
 - c) $\frac{dx}{dy}$
 - d) None
12. The rate of decrease of the temp. of a body is proportional to the difference of the temp. of the body and surrounding medium is called []
 - a) Law of Natural Decay
 - b) Law of Natural Growth
 - c) Newton's Law of Cooling
 - d) None
13. The rate of change of amount of the substance is proportional to the amount of the substance present at time t is known as []
 - a) Law of Natural Growth and Decay
 - b) Newton's Law of Cooling
 - c) Newton's Law of Heating
 - d) None
14. In polar coordinate system, for differential equation of O.Twe replace $\frac{dr}{d\theta}$ by []
 - a) $-r^2 \frac{dr}{d\theta}$
 - b) $-r^2 \frac{d\theta}{dr}$
 - c) $r^2 \frac{dr}{d\theta}$
 - d) None
15. Solve $\frac{1}{D^2+D+1} \text{Cos}x$ []
 - a) $\text{Cos}x$
 - b) $-\text{Cos}x$
 - c) $\text{Sin}x$
 - d) $-\text{Sin}x$
16. Complementary function of $(D - 2)^4 y = 0$ is []
 - a) $c_1 + c_2x + c_3e^x + c_4e^{-x}$
 - b) $(c_1+c_2x + c_3x^2 + c_4x^3)e^{2x}$
 - c) $c_1 \cosh 2x + c_2 \sinh 2x + c_3 e^{2x} + c_4 e^{-2x}$
 - d) None
17. $\frac{1}{D^2-1} e^x$ []
 - a) $\frac{e^x}{2}$
 - b) $\frac{xe^x}{2}$
 - c) $\frac{xe^x}{4}$
 - d) None
18. $\frac{1}{D^2+D+1} \text{sin}x$ []
 - a) $\text{cos}x$
 - b) $-\text{cos}x$
 - c) $-\text{sin}x$
 - d) None
19. $\frac{1}{D^2+9} \text{sin}2x$ []
 - a) $\frac{\text{sin}2x}{13}$
 - b) $\frac{\text{sin}2x}{5}$
 - c) $\frac{\text{cos}2x}{13}$
 - d) $\frac{\text{cos}2x}{5}$
20. $\frac{1}{D+1} x =$ []
 - a) $x + 1$
 - b) $x + 2$
 - c) $x - 1$
 - d) $1 - x$

Answer all Questions .Each Question carry equal marks

1. In Cartesian coordinate system, for differential of O.T we have replace $\frac{dy}{dx}$ by []
 a) $-\frac{dy}{dx}$ b) $-\frac{dx}{dy}$ c) $\frac{dx}{dy}$ d) None
2. The rate of decrease of the temp. of a body is proportional to the difference of the temp. of the body and surrounding medium is called []
 a) Law of Natural Decay b) Law of Natural Growth
 c) Newton's Law of Cooling d) None
3. The rate of change of amount of the substance is proportional to the amount of the substance present at time t is known as []
 a) Law of Natural Growth and Decay b) Newton's Law of Cooling
 c) Newton's Law of Heating d) None
4. In polar coordinate system, for differential equation of O.Twe replace $\frac{dr}{d\theta}$ by []
 a) $-r^2 \frac{dr}{d\theta}$ b) $-r^2 \frac{d\theta}{dr}$ c) $r^2 \frac{dr}{d\theta}$ d) None
5. Solve $\frac{1}{D^2+D+1} \text{Cos}x$ []
 a) $\text{Cos}x$ b) $-\text{Cos}x$ c) $\text{Sin}x$ d) $-\text{Sin}x$
6. If the degree of homogeneous function is zero is called []
 a) Homogeneous D. eq. b) Exact D. eq. c) Bernoulli's D. eq. d) Linear D. eq.
7. The Substitution to transform homogeneous linear eqn into a linear eqn with constant coefficients is []
 a) $x = e^z$ b) $z = e^x$ c) $x = \log z$ d) $x = y$
8. A curve which cuts every member of a given family of curves at any angle is called []
 a) O.T b) Trajectory c) Self O.T d) None
9. A curve which cuts every member of a given family of curves at Right angle is called []
 a) O.T b) Trajectory c) Oblique Trajectory d) None
10. The number of arbitrary constant in a solution of a D.Eq. of order n is []
 a) $n + 1$ b) $n - 1$ c) n d) None
11. The differential equation $\left[\frac{d^2y}{dx^2}\right]^2 = \left[1 + \left(\frac{dy}{dx}\right)^2\right]^{3/2}$ is of []
 a) 1st order & 2nd degree b) 2nd order & 2nd degree
 c) 2nd order & 4th degree d) None
12. The equation of the form $Mdx + Ndy = 0$ is Exact, if satisfies the condition []
 a) $\frac{\partial M}{\partial x} = \frac{\partial N}{\partial y}$ b) $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$ c) $\frac{\partial M}{\partial x} \neq \frac{\partial N}{\partial y}$ d) $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$
13. IF of $x \frac{dy}{dx} - y = 2x^2 \text{Cosec}2x$ is []
 a) x b) $\frac{1}{x}$ c) x^2 d) $x + y = c$
14. The Extension of Linear differential equation is called []
 a) Homogeneous D. eq. b) Exact D. eq. c) Bernoulli's D. eq. d) Linear D. eq.
15. $\frac{dy}{dx} + P(x)y = Q(x)$ is which equation []
 a) Homogeneous D. eq. b) Exact D. eq. c) Bernoulli's D. eq. d) Linear D. eq.
16. Complementary function of $(D - 2)^4 y = 0$ is []
 a) $c_1 + c_2x + c_3e^x + c_4e^{-x}$ b) $(c_1 + c_2x + c_3x^2 + c_4x^3)e^{2x}$
 c) $c_1 \cosh 2x + c_2 \sinh 2x + c_3e^{2x} + c_4e^{-2x}$ d) None
17. $\frac{1}{D^2-1} e^x$ []
 a) $\frac{e^x}{2}$ b) $\frac{xe^x}{2}$ c) $\frac{xe^x}{4}$ d) None
18. $\frac{1}{D^2+D+1} \text{sin}x$ []
 a) $\text{cos}x$ b) $-\text{cos}x$ c) $-\text{sin}x$ d) None
19. $\frac{1}{D^2+9} \text{sin}2x$ []
 a) $\frac{\text{sin}2x}{13}$ b) $\frac{\text{sin}2x}{5}$ c) $\frac{\text{cos}2x}{13}$ d) $\frac{\text{cos}2x}{5}$
20. $\frac{1}{D+1} x =$ []
 a) $x + 1$ b) $x + 2$ c) $x - 1$ d) $1 - x$

Sub: Mathematics-I
Time: 20mins

Date: 19/09/2016
Max.Marks: 10

Answer all Questions .Each Question carry equal marks

1. Complementary function of $(D - 2)^4 y = 0$ is []
 a) $c_1 + c_2x + c_3e^x + c_4e^{-x}$ b) $(c_1 + c_2x + c_3x^2 + c_4x^3)e^{2x}$
 c) $c_1 \cosh 2x + c_2 \sinh 2x + c_3e^{2x} + c_4e^{-2x}$ d) None
2. $\frac{1}{D^2-1} e^x$ []
 a) $\frac{e^x}{2}$ b) $\frac{xe^x}{2}$ c) $\frac{xe^x}{4}$ d) None
3. $\frac{1}{D^2+D+1} \sin x$ []
 a) $\cos x$ b) $-\cos x$ c) $-\sin x$ d) None
4. $\frac{1}{D^2+9} \sin 2x$ []
 a) $\frac{\sin 2x}{13}$ b) $\frac{\sin 2x}{5}$ c) $\frac{\cos 2x}{13}$ d) $\frac{\cos 2x}{5}$
5. $\frac{1}{D+1} x =$ []
 a) $x + 1$ b) $x + 2$ c) $x - 1$ d) $1 - x$
6. The differential equation $\left[\frac{d^2y}{dx^2}\right]^2 = \left[1 + \left(\frac{dy}{dx}\right)^2\right]^{3/2}$ is of []
 a) 1st order & 2nd degree b) 2nd order & 2nd degree
 c) 2nd order & 4th degree d) None
7. The equation of the form $Mdx + Ndy = 0$ is Exact, if satisfies the condition []
 a) $\frac{\partial M}{\partial x} = \frac{\partial N}{\partial y}$ b) $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$ c) $\frac{\partial M}{\partial x} \neq \frac{\partial N}{\partial y}$ d) $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial y}$
8. IF of $x \frac{dy}{dx} - y = 2x^2 \operatorname{Cosec} 2x$ is []
 a) x b) $\frac{1}{x}$ c) x^2 d) $x + y = c$
9. The Extension of Linear differential equation is called []
 a) Homogeneous D. eq. b) Exact D. eq. c) Bernoulli's D. eq. d) Linear D. eq.
10. $\frac{dy}{dx} + P(x)y = Q(x)$ is which equation []
 a) Homogeneous D. eq. b) Exact D. eq. c) Bernoulli's D. eq. d) Linear D. eq.
11. In Cartesian coordinate system, for differential of O.T we have replace $\frac{dy}{dx}$ by []
 a) $-\frac{dy}{dx}$ b) $-\frac{dx}{dy}$ c) $\frac{dx}{dy}$ d) None
12. The rate of decrease of the temp. of a body is proportional to the difference of the temp. of the body and surrounding medium is called []
 a) Law of Natural Decay b) Law of Natural Growth
 c) Newton's Law of Cooling d) None
13. The rate of change of amount of the substance is proportional to the amount of the substance present at time t is known as []
 a) Law of Natural Growth and Decay b) Newton's Law of Cooling
 c) Newton's Law of Heating d) None
14. In polar coordinate system, for differential equation of O.T we replace $\frac{dr}{d\theta}$ by []
 a) $-r^2 \frac{dr}{d\theta}$ b) $-r^2 \frac{d\theta}{dr}$ c) $r^2 \frac{dr}{d\theta}$ d) None
15. Solve $\frac{1}{D^2+D+1} \cos x$ []
 a) $\cos x$ b) $-\cos x$ c) $\sin x$ d) $-\sin x$
16. If the degree of homogeneous function is zero is called []
 a) Homogeneous D. eq. b) Exact D. eq. c) Bernoulli's D. eq. d) Linear D. eq.
17. The Substitution to transform homogeneous linear eqn into a linear eqn with constant coefficients is []
 a) $x = e^z$ b) $z = e^x$ c) $x = \log z$ d) $x = y$
18. A curve which cuts every member of a given family of curves at any angle is called []
 a) O.T b) Trajectory c) Self O.T d) None
19. A curve which cuts every member of a given family of curves at Right angle is called []
 a) O.T b) Trajectory c) Oblique Trajectory d) None
20. The number of arbitrary constant in a solution of a D.Eq. of order n is []
 a) $n + 1$ b) $n - 1$ c) n d) None

Sub: Mathematics-I
Time: 20mins

Date: 19/09/2016
Max.Marks: 10

Answer all Questions .Each Question carry equal marks

1. In Cartesian coordinate system, for differential of O.T we have replace $\frac{dy}{dx}$ by []
 a) $-\frac{dy}{dx}$ b) $-\frac{dx}{dy}$ c) $\frac{dx}{dy}$ d) None
2. The rate of decrease of the temp. of a body is proportional to the difference of the temp. of the body and surrounding medium is called []
 a) Law of Natural Decay b) Law of Natural Growth
 c) Newton's Law of Cooling d) None
3. The rate of change of amount of the substance is proportional to the amount of the substance present at time t is known as []
 a) Law of Natural Growth and Decay b) Newton's Law of Cooling
 c) Newton's Law of Heating d) None
4. In polar coordinate system, for differential equation of O.Twe replace $\frac{dr}{d\theta}$ by []
 a) $-r^2 \frac{dr}{d\theta}$ b) $-r^2 \frac{d\theta}{dr}$ c) $r^2 \frac{dr}{d\theta}$ d) None
5. Solve $\frac{1}{D^2+D+1} \text{Cos}x$ []
 a) $\text{Cos}x$ b) $-\text{Cos}x$ c) $\text{Sin}x$ d) $-\text{Sin}x$
6. Complementary function of $(D - 2)^4 y = 0$ is []
 a) $c_1 + c_2x + c_3e^x + c_4e^{-x}$ b) $(c_1+c_2x + c_3x^2 + c_4x^3)e^{2x}$
 c) $c_1 \cosh 2x + c_2 \sinh 2x + c_3e^{2x} + c_4e^{-2x}$ d) None
7. $\frac{1}{D^2-1} e^x$ []
 a) $\frac{e^x}{2}$ b) $\frac{xe^x}{2}$ c) $\frac{xe^x}{4}$ d) None
8. $\frac{1}{D^2+D+1} \text{sin}x$ []
 a) $\text{cos}x$ b) $-\text{cos}x$ c) $-\text{sin}x$ d) None
9. $\frac{1}{D^2+9} \text{sin}2x$ []
 a) $\frac{\text{sin}2x}{13}$ b) $\frac{\text{sin}2x}{5}$ c) $\frac{\text{cos}2x}{13}$ d) $\frac{\text{cos}2x}{5}$
10. $\frac{1}{D+1} x =$ []
 a) $x + 1$ b) $x + 2$ c) $x - 1$ d) $1 - x$
11. The differential equation $\left[\frac{d^2y}{dx^2}\right]^2 = \left[1 + \left(\frac{dy}{dx}\right)^2\right]^{3/2}$ is of []
 a) 1st order & 2nd degree b) 2nd order & 2nd degree
 c) 2nd order & 4th degree d) None
12. The equation of the form $Mdx + Ndy = 0$ is Exact, if satisfies the condition []
 a) $\frac{\partial M}{\partial x} = \frac{\partial N}{\partial y}$ b) $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$ c) $\frac{\partial M}{\partial x} \neq \frac{\partial N}{\partial y}$ d) $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$
13. IF of $x \frac{dy}{dx} - y = 2x^2 \text{Cosec}2x$ is []
 a) x b) $\frac{1}{x}$ c) x^2 d) $x + y = c$
14. The Extension of Linear differential equation is called []
 a) Homogeneous D. eq. b) Exact D. eq. c) Bernoulli's D. eq. d) Linear D. eq.
15. $\frac{dy}{dx} + P(x)y = Q(x)$ is which equation []
 a) Homogeneous D. eq. b) Exact D. eq. c) Bernoulli's D. eq. d) Linear D. eq.
16. If the degree of homogeneous function is zero is called []
 a) Homogeneous D. eq. b) Exact D. eq. c) Bernoulli's D. eq. d) Linear D. eq.
17. The Substitution to transform homogeneous linear eqn into a linear eqn with constant coefficients is []
 a) $x = e^z$ b) $z = e^x$ c) $x = \log z$ d) $x = y$
18. A curve which cuts every member of a given family of curves at any angle is called []
 a) O.T b) Trajectory c) Self O.T d) None
19. A curve which cuts every member of a given family of curves at Right angle is called []
 a) O.T b) Trajectory c) Oblique Trajectory d) None
20. The number of arbitrary constant in a solution of a D.Eq. of order n is []
 a) $n + 1$ b) $n - 1$ c) n d) None