**09/4/2020 ATHAVALE CLASSES**

**Differential Equation & It’s Applications II\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1) Solution of the differential equation **** is given by

a)b) c)d)

2) Solution of the differential equation **** is given by

a)**** b)****

c) **** d) none

3) If the half life of a chemical substance is 8 years. If the initial amount present was100 gms, then the amount left after 24 years, is : a)gms b) gms c) gms d) 25 gms.

4) The differential equation which is satisfied by all the curves,**** where A and B are non – zero constants, is: a)**** b)**** c)**** d) none

5) The differential equation of the family of circles having their centres on the line y = 10 and touching the x – axis is a) b)

c)  d) none

6) A curve passes through the point (5,3) and at any point (x,y) on it, the product of its slope and the ordinate is equal to its abscissa. The curve is a/ an:

a) parabola b) ellipse c) hyperbola d) circle

7) The solution of**** is

a)**** b) **** c) **** d)****

8) An ice ball melts at the rate proportional to the amount of ice at any time t. If half of the quantity melts in 10 minutes, then the amount of ice left after 30 minutes is:

a)of the original b)of the original c)of the original d)  of the

9) A population grows at the rate of 5% per year. Then the population will be doubled in:

a) 10 log 2 years b) 20 log 2 years c) 30 log 2 years d) none

10) The line normal to a given curve at each point (x,y) on the curve passes through the point (3,0). If the curve contains the point (3,4), then its equation is:

a)**** b)**** c)**** d) none

11) The equation of the curve whose slope is****and which passes through the point (1,0), is a) **** b) **** c) **** d) ****

12) The differential equation  when the particular solution if y = 0 , x = 1 is a)  b)  c)  d) none

13) Solution of the differential equation **** is a)**** b) **** c) **** d) ****

14) The solution of  where a and b are arbitrary constants is

a) b) c) d) none

15) The differential equation by eliminating the arbitrary constants A and B from the equation

 is a)  b) 

c)  d) none

16) Water is dropped at the rate of 2 m3/sec into cone of semi vertical angle of 450. The rate at which periphery of water surface charges when height of water in the cone is 2 meters is

a) 2 m/sec b) 1 m/sec c) 3 m/sec d) 4 m/sec

17) The solution of  is

a) b)  c)  d) none

18) Equation of the curve through the point (2,1) whose slope at the point is a)  b)  c)  d) 

19) The general solution of the differential equation is a)  b)  c)  d) 

20) Find the order and degree of the differential equation 

a) Order = 1; degree = 1 b) Order = 2; degree = 2 c) Order = 1; degree = 2 d) Order = 2; degree = 1

21) The general solution of the differential equation when is a)  b)  c)  d) 

22) The solution of is a) 

b) c)  d) 

23) The order of the differential equation whose solution is is a) 3 b) 4 c) 5 d) 6

24) The population grows at the rate of 5% per year. How long does it take for the population to double. a) 20 log 2 b) 10 log 3 c) 5 log 4 d) 2 log 20

25) A radioactive substance disintegrates at a rate proportional to its present quantity at a instant. If 1% of a certain quantity of a substance disappears in 25 years. What percentage of the original amount will be left after 2000 years?

a) 40.25% b) 42.35% c) 44.75% d) 46%

26) The rate of reduction of person’s assets is proportional to the square-root of his existing assets. If his assets dwindle from 25 Lakhs to 6.25 lakhs in a period. In how many years, the person will be bankrupt? a) 1 year b) 2 year c) 3 year d) 4 year

27) The rate at which the population of city increases, varies as the population at that instant within a period of 30 years, the population grows from 20 lakhs to 40 Lakhs. What will be population of the city after further period of 15 years.

a) 56.4 Lakhs b) 57.2 Lakhs c) 58.5 Lakhs d) 60.4 Lakhs

28) The differential equation of the family of lines where length of the normal is P and inclination ɵ is. a) b) c) d)

29) The differential equation which satisfies the equationis a) b)

c)  d) 

30) The differential equation which satisfies the equationis a) b) c) d)

31) The solution of the differential equation is

a) b) c) d)

32) The order and degree of the differential equationare

a) 4 and 3 b) 3 and 4 c) 2 and 3 d) 1 and 2

33) The general solution of the differential equation is a)  b)  c)  d) 

34) The general solution of the differential equation is a) b)

c)  d)

35) Solve: 

a)  b) 

c)  d) 