**DAV PUBLIC SCHOOL CNADRASEKHARPUR, BBSR-21**

**POST SUMMER VACATION TEST – 2022-23**

**CLASS – XII**

**SUB : APPLIED MATHEMATICS**

**Time : 2Hours. MaximumMarks:40**

**General Instructions:**

1. This question paper contains two parts A and B. Each part is compulsory. Part A carries 12 marks and part B carries 28 marks.
2. Part A has objective type questions and Part B has descriptive type questions.
3. Both Part A and B have internal choices.

**Part-A**

1. It consists of two sections I and II.
2. Section I comprises of 07 MCQ
3. Section II comprises of one case studies. Case study comprises of 5 case based MCQs.

**Part-B**

1. It consists of three sections III, IV and V.
2. Section –III comprises of 4 questions of 2 marks each.
3. Section –IV comprises of 4 questions of 3 marks each.
4. Section – V comprises of 2 questions of 4 marks each.

**PART-A**

**SECTION-I**

1. The integral value of dx is:

a. b.log5 c. /log5 d. /5

2. The integral value of dx is:

a. b. c. d.

3. The integral value of dx is:

a. b. logx c. d.

4. The integral value of is:

a. logx+C b. x(logx 1) +C c. xlogx +C d. xlogx +1 +C

5. Write the sum of the order and degree of the differential equation:

 ++2=0

1. 5 b. 4 c. 3 d. 2

6. The degree of the differential equation + log( = 0 is:

a. 1 b. 0 c. not defined d. none of these

7. The number of arbitrary constants in a particular solution of a differential equation of order 3 is:

a. 3 b. 2 c. 0 d. none

**SECTION-II**

**CASE STUDY BASED QUESTIONS**:

8. The demand and supply functions for a commodity are = 56- and =8+ . Then answer the followings:

i. The equilibrium point is:

a. The point at which demand attains its peak.

b. The point at which supply is equivalent to supply.

c. The point at which both demand and supply intersect.

d. The point at which demand is less than supply.

ii. At equilibrium point ,if the price per unit of a product is and the market demand is units, then (, is :

 a. (20 ,6 ) b. (30 ,6 ) c. (20 ,4) d. (30 ,4)

iii. The value of the consumer’s surplus is :

a. 120 b.144 c. 140 d. 124

iv. The value of the producer’s surplus is:

a. 54 b. 44 c.68 d. 48

v. The difference between the consumer’s surplus and the producer’s surplus is:

a. 92 b. 96 c. 80 d. 100

**PART-B**

**SECTION-III**

 9. Evaluate dx

10. Evaluate

11. Define the law of demand and draw its graph.

 OR

 Define the law of supply and draw its graph.

12. Show that y= is a solution of the differential equation + 3y = 0.

**SECTION-IV**

13. The marginal cost of production of x-units of commodity is 30+2x. It is known that fixed costs are Rs.120. Find the total cost of producing 100 units.

14. Verify that xy= logy + c is a solution of the differential equation (xy-1)=0.

15. Evaluate .

 OR

 Evaluate .

16. The supply function for a commodity is p=x+4. Determine producer’s surplus if 17 units of goods are sold.

**SECTION-V**

17. The marginal revenue function of a commodity is MR = 15 + 4x 3find the revenue function. Also find the corresponding demand function.

OR

 The marginal revenue function of a commodity is ,find the revenue function. Also, find the corresponding demand function.

18. If = 4 and f(2)=0, then find f(x).