MCM411

Question 1: The price of medicine inventory is Rs. 500,000. The series discounts are 20%, 10%, 5%. What is the single equivalent discount rate?

 Answer:
 if Invoice was dated May 1st and 10% discount is offered if invoice is paid up to 10thMay. What will be net payment for invoice value of Rs. 500,000 if paid up to 10th May.

Question 2: The product that regularly sells for $650 is marked down to $500. What is the rate of markdown?

Question 3: Deduce the special use of logistic Equation "Epidemic Spread"?

Question 4: Find the equation of orthogonal trajectories of the curve $x^2+y^2=cx$

Question 5: If half time(T) of radioactive isotope is 5, then find k.

Question 6: Initially there were 100 milligrams of a radioactive substance present. After 6 hours the mass decreased by 3%. If the rate of decay is proportional to the amount of the substance present at any time, find the amount remaining after 24 hours.

Question 7: One was from find particular integral of the equation.

Question 8: The equation was given,and it was to tell is it linear dependent or independent

Question 9: The population of a town grows at a rate proportional to the population at any time. Its initial population of 500 increases by 15% in 10 years. What will be the population in 30 years?

Question 10: Write equation of free undamped motion.

Question 11: Find the volume of parallelogram of the vertices (1, 2, 4) (2, 4, -7) and (-1, -3, 20).

Question 12: Find vector and parametric equations of the plane that passes through the origin of R3 and is parallel to the vectors $v1 = (1, 2, 5)$ and $v2 = (5, 0, 4)$.

Question 13: A company produces 36000 units per year and the demand of the product is 2400 items per year. The unit cost is Rs 10 per item, the holding cost is one rupee per month per item and the set up cost is Rs 100, determine the following if no shortages are allowed

1. (a) Optimum manufacture quantity
2. (b) The maximum inventory
3. (c) The time between setups
4. (d) The number of setups
5. (e) The manufacturing time
6. (f) The total optimum annual cost

Question 14: Application of inventory

Question 15:

A small plant makes two types of automobile parts Part A and Part B. It buys castings that are machined, bored and polished. You are given the following data.

Castings for Part A cost Rs. 20/- each and for Part B they cost Rs. 30/- each. They sell for Rs. 50/- and Rs.60/- respectively. The three machines have running costs of Rs. 200/-, Rs.140/- and Rs. 175/- per hour.