

- Q1.** If $x = \frac{\sin^3 t}{\sqrt{\cos^2 t}}$, $y = \frac{\cos^3 t}{\sqrt{\cos 2t}}$, find $\frac{dy}{dx}$ 7 Marks
- Q2.** Find the local maxima and local minima, if any, of the following function. Also find the local maximum and the local minimum values, as the case may be:
 $f(x) = \sin x + \frac{1}{2}\cos 2x$, $0 \leq x \leq \frac{\pi}{2}$ 6 Marks
- Q3.** Of all the closed right circular cylindrical cans of volume $128\pi \text{ cm}^3$, find the dimensions of the can which has minimum surface area. 6 Marks
- Q4.** For what value of k is the following function continuous at $x = 2$

$$f(x) = \begin{cases} 2x + 1 & ; x < 2 \\ k & ; x = 2 \\ 3x - 1 & ; x > 2 \end{cases}$$
- Q5.** Find the absolute maximum and absolute minimum values of the function f given by
 $f(x) = \sin^2 x - \cos x$, $x \in [0, \pi]$.
- Q6.** Find the intervals on which the function $f(x) = (x - 1)^3 (x - 2)^2$ is:
 1. Strictly increasing.
 2. Strictly decreasing.
- Q7.** If $x = a \sec^3 \theta$, $y = a \tan^3 \theta$, then find $\frac{d^2y}{dx^2}$ at $\theta = \frac{\pi}{4}$.
- Q8.** If $y = e^{x^2 \cos x} + (\cos x)^x$, then find $\frac{dy}{dx}$.
- Q9.** If $y = 3e^{2x} + 2e^{3x}$, prove that
 $\frac{d^2y}{dx^2} - 5\frac{dy}{dx} + 6y = 0$.
- Q10.** If $y = \log \left[x + \sqrt{x^2 + a^2} \right]$, show that $(x^2 + a^2) \frac{d^2y}{dx^2} + x \frac{dy}{dx} = 0$.
- Q11.** If $y = \sin(\log x)$, prove that
 $x^2 \frac{d^2y}{dx^2} + x \frac{dy}{dx} + y = 0$ 4 Marks
- Q12.** If $y = x^3(\cos x)^x + \sin^{-1} \sqrt{x}$, Find $\frac{dy}{dx}$. 4 Marks
- Q13.** if $y = \sqrt{\frac{(x-3)(x^2+4)}{3x^2+4x+5}}$, find $\frac{dy}{dx}$ 4 Marks
- Q14.** If $x^y + y^x = a^b$, then find $\frac{dy}{dx}$. 4 Marks
- Q15.** If $x = a(2\theta - \sin 2\theta)$ and $y = a(1 - \cos 2\theta)$, find $\frac{dy}{dx}$ when $\theta = \frac{\pi}{3}$. 4 Marks
- Q16.** If $y = 2 \cos(\log x) + 3 \sin(\log x)$, Prove that $x^2 \frac{d^2y}{dx^2} + x \frac{dy}{dx} + y = 0$. 4 Marks

Q17. If $x^y = e^{x-y}$, show that $\frac{dy}{dx} = \frac{\log x}{\{\log(xe)\}^2}$.

4 Marks

Q18. If $x^m y^n = (x + y)^{m+n}$, prove that $\frac{d^2y}{dx^2} = 0$.

4 Marks

WHATSAPP TEST GROUP FEES

CBSE 10/12 - FEES RS.2000
NEET/JEE - FEES RS.3000

MONTHLY 10 PAPERS YOUR CHOICE.
OVERALL MONTHLY 20 TO 30 PAPERS UPLOAD IN GROUP

ONE TIME FEES
FROM **AUGUST** TO TILL FINAL FINAL EXAM

WHATSAPP NOW

8056206308
ravitestpapers.com

JOIN MY PAID GROUP, IF YOU WANT ALL MY DPP WITH PDF ANSWERS TILL FINAL EXAM

PAY RS.500 TO GET MAY JUNE JULY UPLOADED PAPERS

ONE TO ONE **ONLINE** MATHS TUITION

CLASSES 8TH TO 12TH

CLASS 8TH TO 10TH FEES - RS.600 PER HOUR
CLASS 11TH TO 12TH FEES - RS.750 PER HOUR

WHATSAPP – 8056206308
RAVI MATHS TUITION CENTER, CHENNAI
CHECK FREE DAILY PRACTICE TESTS
www.ravitestpapers.com & www.ravitestpapers.in

RAVI TEST PAPERS & NOTES, WHATSAPP – 8056206308
JOIN MY PAID TEST GROUP WITH ANSWERS