

**B.Tech. SEM -V (Chemical/ Civil/ Electrical/ Mechanical/ Production/
Computer/ Info. Tech./ Electronics / Bio Medical / E & TC) 2014
Course (CBCS) : WINTER - 2018
SUBJECT : ENGINEERING MATHAMATICS - IV**

Day : Thursday
Date : 06/12/2018

W-2018-2383

Time : 02.30 PM TO 05.30 PM
Max. Marks : 60

N. B. :

- 1) All question are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labelled diagram **WHEREVER** necessary.
- 4) Assume suitable data, if necessary.

Q. 1 By using the bisection method, find an approximate root of the equation (10)
 $\sin x = \frac{1}{x}$, that lies between $x=1$ and $x=1.5$ (measured in radians). Carry out
computations upto 7th stage.

OR

Using Newton's iterative method, find the root of $x \log_{10} x = 1.2$ correct to
five decimal places.

Q. 2 Solve the following equations by Gauss Seidel iteration method: (10)
 $10x - 2y - z - t = 3$
 $-2x + 10y - z - t = 15$
 $-x - y + 10z - 2t = 27$
 $-x - y - 2z + 10t = -9$

OR

Solve:

$10x - 7y + 3z + 5u = 6$
 $-6x + 8y - z - 4u = 5$
 $3x + y + 4z + 11u = 2$
 $5x - 9y - 2z + 4u = 7$ by Gauss Elimination method.

Q. 3 Solve simultaneous difference equations: (10)
 $u_{x+1} + v_x - 3u_x = x$
 $3u_x + v_{x+1} - 5v_x = 4^x$

OR

Solve: $u_{n+2} - 4u_{n+1} + 4u_n = 2^n$

P. T. O.