

Shirpur Education Society's

R. C. PATEL INSTITUTE OF TECHNOLOGY, SHIRPUR



An Autonomous Institute
[Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere]



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A.Y2021-22 – S. Y. B. Tech – Computer Engineering		
ODD SEMSTER (SEM-III)		
Subject- Discrete Structures	Sub Code- PCCO3030T	
Day & Date- Friday, 21/01/2022	Time- 10.45 am to 12 pm	
Term Test – II - Max Marks-15		

Note- Solve any 03 out of 04

Q. N.	Question	Marks
1	Let $f(x) = x+2$, $g(x) = x-2$ & $h(x)=3x$ for $x \in R$, where R is set of real numbers.	5
	Find gof, fog, fof, gog, foh, hog, hof, hoh, fohog.	
2	By using mathematical induction prove that the given equation is	
	true for all positive integers.	5
	$1 \times 2 + 3 \times 4 + 5 \times 6 + \dots + (2n - 1) \times 2n = n(n+1)(4n-1)/3$	
3	How many different strings of length six can be generated using either three uppercase alphabets followed by three digits or four uppercase alphabets followed by two digits.	5
4	Solve following recurrence relation using Homogeneous Solution-	5
	$a_{r}-10a_{r-1}+25a_{r-2}=0$, where $a_{0}=3$ and $a_{1}=17$	3