

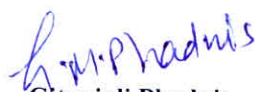
**St. Mira's College for Girls, Pune**  
**(Autonomous-Affiliated to SavitribaiPhule Pune University)**  
**Class: FYBSC Computer Science**  
**Subject: Discrete Mathematics**  
**Subject Code: BS12003**  
**Semester: I**  
**Year: 2020-21**

1. Unit No.: 1
2. Employability/Entrepreneurship/Skill development  
Skill Development : Problem Solving, computing skills
3. Test on Mathematical Induction using Google Classroom

The screenshot shows a Google Classroom interface. At the top, there are browser tabs for 'classroom.google.com', 'PSS Internal Examination', and 'Download'. The main content area displays the assignment title 'FY BSc Internal Examination Assignment Semester 1: BS12003 Discrete Mathematics' and the student's name '5432\_Shrii Sa)'. Below this is a preview of a handwritten assignment document. The document is titled 'Discrete Mathematics Assignment' and dated '17-12-2020'. It contains a question asking to prove that  $(2 \cdot 7^n) + (3 \cdot 5^n) - 5$  is divisible by 24 for all natural numbers  $n$ . The student provides a solution using the first principle of mathematical induction. Step 1: Let  $n=1$ . L.H.S =  $2 \cdot 7^1 + 3 \cdot 5^1 - 5 = 2 \cdot 7 + 3 \cdot 5 - 5 = 14 + 15 - 5 = 24$ . Since 24 is divisible by 24, the result is true for  $n=1$ , so  $P(1)$  is true. Step 2: Assume the result is true for  $n=k$ , i.e.,  $P(k)$  is true. i.e.,  $2 \cdot 7^k + 3 \cdot 5^k - 5$  is divisible by 24.  $2 \cdot 7^k + 3 \cdot 5^k - 5 = 24m$  for some integer  $m$ .



  
**Principal Incharge**  
**St. Mira's College for Girls**

  
**Gitanjali Phadnis**  
**Subject Teacher**