<p style="text-align:center">Computer Networks Examination (5 marks)</p>

<p style="text-align:center">Bit Stuffing Problem</p>

Question: What would be the bit pattern of the following bit stream after "Bit Stuffing"? Please indicate the stuffed bit. `0101011111101000000101111101`

Answer:

1. **Bit Stuffing Explanation (2-3 lines):** Bit stuffing is a technique used in data link layer protocols to prevent pattern sensitivity. It involves inserting a '0' bit after every sequence of five consecutive '1' bits in the data stream. This ensures that control sequences (like flags) are not accidentally replicated within the data.

2. **Solution:** Original stream: `0101011111101000000101111101`

After bit stuffing:

$$\boxed{010101111100101000000010111110101}$$

3. **Explanation:** - First 11111 sequence: `0101011111` → Insert **0** - Second 11111 sequence: `...01011111` → Insert **0** - No more sequences of five consecutive '1' bits remain

4. **Final Result:** `010101111100101000000010111110101`

*Note: **Red** bits are the stuffed bits.*