1. The machine that cannot connect to the server are 192.168.3.3, 192.168.2.4, 192.168.3.2. When we apply the mask to these addresses and to the server machine, we find that the do not belong to the same network (the network v is different):
   mask 24 => the Net-id part is 3first bytes of the address
   We find : 192.168.3.0, 192.168.2.0, 192.168.3.0 for the three respective machines and 192.168.1.0 for the server

2. Solution give addresses in the same network to the machines, for example : 192.168.1.3, 192.168.1.4, 192.168.1.5

3. The router stops the broadcast because the 255.255.255.255 broadcasts messages (packets) in the current subnet (physical network), and the router split our network into different subnets (into different broadcast domains)

4. Classical IP addressing with /26 mask to define three subnets:

Network Address	Usable Host Range	Broadcast Address:
192.168.1.0	192.168.1.1 - 192.168.1.62	192.168.1.63
192.168.1.64	192.168.1.65 - 192.168.1.126	192.168.1.127
192.168.1.128	192.168.1.129 - 192.168.1.190	192.168.1.191

5. We replace the switch in the middle with a router

Destination	Interface/port
192.168.1.1/26	Port 2
192.168.1.2/26	Port 2
192.168.1.3/26	Port 2
192.168.1.65/26	Port 1
192.168.1.66/26	Port 1
192.168.1.7/26	Port 1
192.168.1.129/26	Port 3

6. The table size = n if the is n machines in the network
7. We use network addresses instead of machine addresses to optimize:

Destination	Interface/port
192.168.1.0/26	Port 2
192.168.1.64/26	Port 2
192.168.1.128/26	Port 2

Part2

1. No we cannot define 5 subnets with the mask /26 => we need /27 to define 5 subnets:

Network Address	Usable Host Range	Broadcast Address:
192.168.1.0	192.168.1.1 - 192.168.1.30	192.168.1.31
192.168.1.32	192.168.1.33 - 192.168.1.62	192.168.1.63
192.168.1.64	192.168.1.65 - 192.168.1.94	192.168.1.95
192.168.1.96	192.168.1.97 - 192.168.1.126	192.168.1.127
192.168.1.128	192.168.1.129 - 192.168.1.158	192.168.1.159

2. Yes, we can assign P addresses to the new machines in the extended rooms 1 and 2 (10 and 20 machines) using the same subnets defined previously /27: subnets can contain up to 30 machines (2^5-2)
3. No, we cannot assign IP addresses to 50 machines on using our current subnet configuration with /27, because a subnet can contain only 30 machines.
4. VLSM