1. Explain Switch:

A **switch** is a network device that connects multiple devices in a LAN. It sends data only to the device it's meant for, using MAC addresses. This makes it faster and more secure than a hub.

2. Explain Switch Boot Sequence:

Steps when a switch starts (boots up):

1. **POST (Power-On Self Test)** – Checks hardware.
2. **Boot loader** – Loads the system software.
3. **IOS loads** – The switch's operating system (Cisco IOS) starts.
4. **Startup config loads** – Settings from memory are applied.

3. Methods to Access Switch CLI (Command Line Interface):

1. **Console Cable (Directly)** – Connect a PC to switch with a console cable.
2. **Telnet** – Remote access using IP address (not secure).
3. **SSH (Secure Shell)** – Remote access with encryption (more secure than Telnet).

4. Explain and Configure Cisco IOS (Internet Operating System):

Cisco IOS is the software that runs on routers and switches.
 To configure IOS:

- Connect to CLI using console/SSH.
- Use commands like:

```bash
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enable
configure terminal
hostname Switch1
```

```
interface fastEthernet 0/1
switchport mode access
```

5. Explain Switch Port:

A **switch port** is a physical connection point on the switch where you plug in cables from PCs, routers, or other switches. Ports can be configured in **access** (single VLAN) or **trunk** (multiple VLANs) mode.

VLAN Neighbor Relationship Question:

You mentioned a diagram showing router configs, but without seeing the actual exhibit, based on typical OSPF behavior:

- **Routers must be in the same subnet, area, and use the same hello/dead timers to form neighbor relationships.**

Correct Answer:
 A. R1 and **D. R4**
 (Assuming these two have matching OSPF configs and default settings.)

Password hashed with "enable secret" uses:

A. MD5
 MD5 is used by the `enable secret` command to hash passwords in Cisco IOS.

OSPF FULL/BDR Neighbor Status:

D. Router 2.2.2.2 is a backup designated router.
 In OSPF, BDR = Backup Designated Router, used in multi-access networks for redundancy.

Command to View Neighbor Discovery Table on PC:

C. netsh interface ipv6 show neighbor

What type of variable is shown?

```python
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Routers = [R1, R2, R3]
```

A. List
 A list is a collection of items in square brackets [ ].

IPv4 Header Fields (Choose 3):

Correct fields:
 B. Time to Live
 C. Source address
 D. Destination address