General Engineer Interview Questions

- General Knowledge Questions
  - Describe the OSI model.
  - What is the difference between a repeater, bridge, router?
    - relate this to the OSI model
  - Describe an Ethernet switch and where it fits into the OSI model.
    - What is a VLAN?
  - Relate WDM/ATM/SONET to the OSI model.
  - Explain how to configure a host network interface (e.g. IP address, netmask, broadcast address)?
  - Describe Ethernet packet contents: min./max. size, header.
  - Describe TCP/IP and its protocols.
  - Describe ATM and what are its current advantages and disadvantages.
    - Describe SONET
  - What are the maximum distances for CAT5 cabling?
  - Which contacts of an RJ-45 connector are used for 10BaseT? 100BaseT? 1000BaseT?
  - Describe UDP and TCP and the differences between the two.
  - What is your current IP address?
  - Describe what a broadcast storm is.
  - Describe what a runt, a giant, and a late collision are and what causes each of them.
  - How do you distinguish a DNS problem from a network problem?
  - Describe the Bandwidth Delay problem.
  - What is CDP?

- Network Troubleshooting
  - Explain how traceroute, ping, and tcpdump work and what they are used for?
    - Describe a case where you have used these tools to troubleshoot.
  - What is the last major networking problem you troubleshoted and solved on your own in the last year?
  - What LAN analyzer tools are you familiar with and describe how you use them to troubleshoot and on what media and network types.

- Routing
  - Explain the contents of a routing table (default route, next hop, etc.)
  - What routing protocols have you configured?
    - describe the commands to set up a route
    - what routing problems have you troubleshosed
  - How do you display a routing table on a Cisco? on a host?
    - How do you use a routing table and for what?
  - What is a route flap?
  - What is a metric?
  - When do you use BGP, IGRP, OSPF, Static Routes?
- **Network Security**
  - What do you see as current networking security issues (e.g. NFS mounting, spoofing, one time passwords, etc.)?
  - Describe a routing filter and what it does.
  - Describe an access list and what it does.
  - What are some examples of protocols used for VPN connections?

- **Network Management**
  - What is a network management system?
  - Describe how SNMP works.
  - What is a MIB?

- **Previous Work**
  - Describe the working environment you are currently in, e.g. frequent interruptions, frequent priority shifting, team or individual.
  - What do you use to write documentation? Editor? Mail reader?
  - What platform(s) do you currently work on at your desk?
  - How do you manage multiple concurrent high-level projects?
  - Describe a recent short-term stressful situation and how you managed it.
  - How do you manage a long term demanding stressful work environment?
  - Have you worked in an assignment-based environment, e.g. work request/trouble-ticket system, and if so, describe that environment.

- **Programming**
  - What applications have you written in C, JAVA, PERL, or other languages.

- **Network Statistics and Measurement**
  - Describe what network statistics or measurement tools you are familiar with and how you have used them.

- **Wireless**
  - Describe how 802.11b works and the advantages and disadvantages of using it.
  - Describe how WEP works and its strengths and weaknesses
  - Describe what a VPN is and how it works.

- **VoIP**
  - Describe how VoIP works.
  - Describe methods of QoS.
  - Describe the difference between the Integrated Services and the Differentiated Services QoS models.
  - How does the ToS bit work?
  - What is a voice codec?
  - What is a dial plan and what does it do?
  - What is a Mean Opinion Score (MoS)?
o Describe the basic boot up sequence for an IP phone.

- Optical
  o Describe what WDM is and how it works.
  o What's the difference between DWDM and CWDM? Why would each be used?
  o What is an EDFA? What does it do? How does it work?
  o How many dB's of attenuation results in 50% of a signal is getting thru? 10%?
  o What's a typical attenuation for SM fiber at 1310 nM? 1550 nM?

- RAS
  o What is a RAS and how does it work?
  o Describe the current modem standard and how it works.
  o Describe what a PRI is and how it works.

- Project Management
  o Describe a long term, large scale project you managed.
  o What is your experience with scheduling and project management?
    ▪ What computer packages have you used?
    ▪ What tools have you used?
  o How many staff have you directly managed?

- Training/Presentations
  o How would you train other engineers/technicians on network troubleshooting?
  o What is the last formal training you have had including seminars, tutorials, classes, etc.?
  o What conferences have you attended in the last two years?
  o What periodicals do you read on a regular basis?
  o What professional organizations do you belong to and participate in?