



भारतीय पेट्रोलियम और उर्जा संस्थान
INDIAN INSTITUTE OF PETROLEUM AND ENERGY

ADVT. NO.: IIPE/NTS/02/2021-22 DATED 04TH JUNE, 2021

SELECTION PROCEDURE
FOR THE POSTS OF
OFFICER IT (NETWORK ENGINEER/ SYSTEM ENGINEER/ SOFTWARE
ENGINEER)

IN THE EVENT OF NUMBER OF APPLICATIONS BEING LARGE, IIPE WILL ADOPT SHORT LISTING CRITERIA TO RESTRICT THE NUMBER OF CANDIDATES TO BE CALLED FOR INTERVIEW TO A REASONABLE NUMBER BY ANY OR MORE OF THE FOLLOWING METHODS, WITH THE APPROVAL OF THE COMPETENT AUTHORITY:

- (i) On the basis of higher educational qualifications than the minimum prescribed in the advertisement;
- (ii) On the basis of higher experience in the relevant field than the minimum prescribed in the advertisement;
- (iii) By counting experience before or after the acquisition of essential qualifications;
- (iv) On the basis of Desirable Qualification (DQ) or any one or all of the DQs if more than one DQ is prescribed;
- (v) By holding a **WRITTEN EXAMINATION**;

NOTE:

In case the number of applications being large and IIPE decides to conduct the WRITTEN EXAMINATION for short listing the candidates to be called for interview, then the scheme of the examination & syllabus for written examination will be as follows: -

Stage	Part	Subject	Maximum Marks	Total Marks	Time allowed
Stage-1	Written Examination (Descriptive)	As per the syllabus mentioned below post-wise	100	100	150 Minutes

INDICATIVE SYLLABUS FOR
WRITTEN EXAMINATION (DESCRIPTIVE PAPER)

<u>Post No.</u>	<u>Name of the Post</u>	<u>Indicative Syllabus</u>
Post No. 2	Officer IT (Network Engineer)	<p>Network Fundamentals: Routers, L2 and L3 switches, firewalls and IPS, Access points, Controllers, Endpoints, Servers, network topology architectures, physical interface and cabling types, interface and cable issues, TCP, UDP, IPv4 addressing and subnetting, IPv6 addressing, Configure and verify IPv6 addressing, IPv6 address types, wireless principles, virtual machines, switching concepts, Cyber Security and Cyber Defense; Network intrusion detection systems, High-Speed Switching Architecture; Convergent Networks; Storage Area Networks; Network Systems Design Using Network Processors;</p> <p>Network Access: Configure and verify VLANs, interswitch connectivity, Layer 2 discovery protocols (Cisco Discovery Protocol and LLDP), (Layer 2/Layer 3) EtherChannel (LACP), Rapid PVST+ Spanning Tree Protocol, Cisco Wireless Architectures and AP modes, WLAN components (AP, WLC, access/trunk ports, and LAG), AP and WLC management access connections (Telnet, SSH, HTTP, HTTPS, console, and TACACS+/RADIUS), Configure the components of a wireless LAN access (WLAN creation, security settings, QoS profiles, and advanced WLAN settings)</p> <p>IP Connectivity: Components of routing table, option to make a forwarding decision, IPv4 and IPv6 static routing, Configure and verify single area OSPFv2, first hop redundancy protocol; High-Speed Switching Architecture; Role of protocols in facilitating interoperability: RIPv1; RIPv2; OSPF; EIGRP; RIPv3; OSPFv3;</p> <p>IP Services: NAT, NTP, DHCP and DNS, SNMP in network operations, syslog features, DHCP client and relay, Configure network devices for remote access using SSH, TFTP/FTP</p>

		<p>Security Fundamentals: Threats, vulnerabilities, exploits, and mitigation techniques, device access control using local passwords, remote access and site-to-site VPNs, access control lists, DHCP snooping, dynamic ARP inspection, and port security, wireless security protocols (WPA, WPA2, and WPA3)</p> <p>Automation and Programmability: Controller-based and software defined architectures (overlay, underlay, and fabric), traditional campus device management and Cisco DNA Center enabled device management, REST-based APIs (CRUD, HTTP verbs, and data encoding), JSON encoded data</p>
Post No. 2	Officer IT (System Engineer)	<ul style="list-style-type: none"> • Linux and Windows commands, tools (input-output redirection, grep and regular expressions, remote SSH, Archive, compress, unpack, and uncompress files using tar, star, gzip, and bzip2, File and directory management, High-Availability); Virtualizations; • Shell scripts and remote operations; • Managing running systems (Boot, reboot, and shut down, Interrupts, Manage processes, network services, log files, file transfer); • Configure local storage, manage centralized/networked storage systems; Create and configure file systems; • Scheduling tasks with cron, Anacron, Jobber, fcron, etc.; • Manage basic networking, users and groups; Manage security; containers; version control system: Git, Github, GitLab or other version control system; • Database Administration; Managing Application and web server Database backup strategy; • Frameworks: MVC framework, Web development framework (like Spring), Hibernate, Maven, JPA • J2EE technologies especially JSP, JDBC, HTML5, JSON, Java script, AJAX, front end framework like jQuery, Bootstrap • Software development processes including various life-cycle models.

		<ul style="list-style-type: none"> • Relational Database design and development (RDBMSs like Postgres SQL, etc.) • Communication protocols like TCP/IP and HTTP.
Post No.2	Officer IT (Software Engineer)	<ul style="list-style-type: none"> • Frameworks: MVC framework, Web development framework (like Spring), Hibernate, Maven, JPA • PHP • Object Oriented Analysis and Design, UML, system and class design, development, testing and maintenance of software systems. • Core Java (Java Class Design, Generics and Collections, Java Stream API, Exceptions and Assertions, Java I/O, Concurrency) • J2EE technologies especially JSP, JDBC, HTML5, JSON, Java script, AJAX, front end framework like jQuery, Bootstrap • XML, Web services. • Relational Database design and development (RDBMSs like Postgres SQL, etc.) • Communication protocols like TCP/IP and HTTP. • Software development processes including various life-cycle models. • Version control system: Git, Github, GitLab, or other version control system

The qualifying marks in the written test for calling the candidates for Interview shall be determined suitably as per the norms of the Institute.

Only those qualified candidates will be called for interviews and the selections will be then done by the Selection Committees.

Date: 05th July, 2021

Registrar (I/c), IIFE