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| **Protocols (RFC)** | | | | |
| **Year** | **No.** | **Question** | **Marks** | **Answers** |
| 18/19  (Main) | 1. | Name two protocols that were defined in an RFC and provide a short description of what they are for it.  [5 marks each] | 10 | 1. **HTTP**   Hypertext Transfer Protocol (HTTP ) is an important [protocol](https://www.webopedia.com/TERM/P/protocol.html) used by the [World Wide Web](https://www.webopedia.com/TERM/W/World_Wide_Web.html) and this protocol defines how messages are formatted and transmitted, and what actions [Web servers](https://www.webopedia.com/TERM/W/Web_server.html) and [browsers](https://www.webopedia.com/TERM/B/browser.html) should take in response to various commands. For example, when you enter a [URL](https://www.webopedia.com/TERM/U/URL.html) in your browser, this actually sends an HTTP command to the Web server directing it to fetch and transmit the requested [Web page](https://www.webopedia.com/TERM/W/web_page.html). The other main standard that controls how the World Wide Web works is [HTML](https://www.webopedia.com/TERM/H/HTML.html), which covers how Web pages are formatted and displayed.   1. **SMTP**   Simple Mail Transfer Protocol (SMPT) is used to send and receive emails. It’s sometimes combined with IMAP or POP3 which handles the retrieval of messages while SMTP mainly sends messages to a server for the purpose of forwarding it. Though SMTP can send and receive mail, it's bad at lining up incoming messages. Systems like Gmail have their own transfer protocols for the usage of their servers, yet they still use SMTP to email beyond that. SMTP is an asymmetrical protocol which means that there are many clients interacting with a server. SMTP runs on TCP/IP and pays attention to port 25.   1. **TELNET**   Developed in 1969, TELNET Protocol which stands for Teletype Network provides a command line interface for communication with a remote device or server, sometimes used for remote management but it is also used for initial setup of devices like network hardware. A TELNET connection is a Transmission Control Protocol (TCP) connection used to transmit data with embedded TELNET control information. Its main objective is to allow a standard interface between terminal devices and terminal-oriented processes with each other. It is envisaged that the protocol can also be used for terminal-to-terminal communication ("linking") and process-to-process communication (distributed computation). The TELNET Protocol is based on 3 main ideas:   * The concept of a "Network Virtual Terminal" * The principle of negotiated options * A symmetric view of terminals and processes.  1. **DNS**   A Domain Name System is a hierarchical, decentralized naming system for computers and other resources that are connected to the Internet or private networks. It has been in use since 1985 and it connects information with domain names assigned to participating entities and translates domain names into their numeric IP addresses. It is considered an essential part of the functionality of the Internet. DNS functions as a phonebook for the Internet as it stores the IP addresses by an easier to remember website address. From right to left, a domain name is divided by dots into separate parts. DNS Servers are used to look up the domain name when a user types it in a web address or URL. Afterwards, it gets redirected to the correct IP address.   1. **FTD**   FTP stands for File Transfer Protocol; it is the standard internet protocol provided by TCP/IP used for transmitting the files from one host to another. It is mainly used for transferring the web page files from their creator to the computer that acts as a server for other computers on the internet. It is also used for downloading the files to the computer from other servers. However, many sites FTP sites are heavily used and require several attempts before connecting  <https://en.wikipedia.org/wiki/List_of_RFCs> |
| 16/17  (Main) | 1. | By giving examples, discuss four protocols (5 marks for each) that are relevant in distributed architectures. Also, explain where the specifications of each of these protocols are maintained. Your discussion must include possible reasons why these protocols came into existence. | 20 | Protocols for distributed systems: <https://www.google.com/search?sxsrf=ALeKk01FxjmFZm74u5apouQyIt7ESPYtEA:1589922247810&q=protocols+for+distributed+systems&sa=X&ved=2ahUKEwiO_bP26cDpAhVp6XMBHbLhCAkQ1QIoAHoECA4QAQ&biw=1536&bih=722>  <https://www.sciencedirect.com/topics/computer-science/distributed-protocol> |
| 14/15 | 2) b. | Provide two examples of protocols in the context of distributed architectures that were specified in an RFC  [8 marks] | 8 | Same as above |
| 13/14 | 2)  c. | Evaluate the relevance of RFC’s (Requests for Comments) in the development of distributed architectures and protocols by providing two examples of protocols that are standardized within an RFC. (8 marks). | 8 |
| 10/11 | 4 | Give two examples of a protocol in the context of distributed architectures that is **not** specified in an RFC (Request for Comments). (2 marks). | 2 | **Lec Slides**  **Internet protocols that are not maintained in RFC’s**   * XML-RPC   + Dave Winer, www.xmlrpc.com * Java RMI   + Sun Microsystems Inc. (now: Oracle), <http://docs.oracle.com/javase/1.5.0/docs/guide/rmi/index.html> * SOAP Web Services   + By the W3C (346 members). <http://www.w3.org/Consortium/Member/List> * CORBA   + OMG, <http://www.omg.orga> |
| 11/12 | 1 | ftp, telnet, smtp and pop3 are examples of standards that are still in use today. How were these standards defined? | 2 | RFC - Request for Comment |
| 10/11 | 9 | What is the transport protocol of Web Services? | 2 | HTTP/ HTTPS - HyperText Transfer Protocol  <http://docs.embarcadero.com/products/rad_studio/radstudio2007/RS2007_helpupdates/HUpdate4/EN/html/devnet/webservicesprotocol_xml.html> |
| 09/10 | 4 | Give two examples of a protocol in the context of distributed architectures that is specified in an RFC (Request for Comments). (2 marks). | 2 | Protocols for distributed systems: <https://www.google.com/search?sxsrf=ALeKk01FxjmFZm74u5apouQyIt7ESPYtEA:1589922247810&q=protocols+for+distributed+systems&sa=X&ved=2ahUKEwiO_bP26cDpAhVp6XMBHbLhCAkQ1QIoAHoECA4QAQ&biw=1536&bih=722>  NFS  Network File System is a distributed file system protocol originally developed by Sun Microsystems in 1984, allowing a user on a client computer to access files over a computer network much like local storage is accessed.  UDP  UDP-based Data Transfer Protocol, is a high-performance data transfer protocol designed for transferring large volumetric datasets over high-speed wide area networks. Such settings are typically disadvantageous for the more common TCP protocol.  DNS  <https://en.wikipedia.org/wiki/Domain_Name_System> |
| 09/10 | 12 | By giving examples, discuss four protocols (5 marks for each) that are relevant in distributed architectures. Also explain where the specifications of each of these protocols are maintained. Your discussion must include possible reasons why these protocols came into existence. | 20 |  |
| 11/12 | 8 | What is the purpose of the UDDI protocol for Web Services? |  | A UDDI registry, either for use in the public domain or behind the firewall, offers a standard mechanism to classify, catalog and manage Web services, so that they can be discovered and consumed. |