

S-72.1130 Telecommunication Systems

Select true (T), false (F) or unknown (U). Correct answer yields +1 points, wrong answer -1 points and unknown answer 0 points. Please, select (U) if you don't know the answer.

Return your answers in the supplied form.

1 The number of speech channels (which is one measure of transmission capacity) needed between exchanges is much smaller than the number of subscribers because only a small fraction of them have calls connected at the same time.

2 Which two basic service classes are provided by transport layer to session layer?

- a) Framing
- b) Access control
- c) Physical addressing
- d) Error-free point-to-point channel
- e) Transport of isolated datagrams through the network

3 The telephone network provides a dialed-up or circuit-switched service that enables the subscriber to initiate and terminate calls.

4 The ringing voltage is often about 12V ac with a 50-Hz frequency, which is high enough to activate the bell on any telephone.

5 In SCTP, client can access several points of attachments (hosts) simultaneously.

6 In IEEE 802.11, distributed coordination function (DCF) is a scheduled access method.

7 MPLS is called multi-protocol because it works with the Internet Protocol (IP), Asynchronous Transport Mode (ATM), and frame relay network protocols.

8 The timing distribution chain in an SDH network is designed to minimize the amplitude fluctuation between network nodes references.

9 In OFDM, Guard interval (GI) provides robustness to received power variations.

10 SDH enables dynamic drop-and-insert capabilities on the payload without having to demultiplex and remultiplex the higher rate signal, causing delays and requiring additional hardware.

11 In DHCP protocol, arriving client will send DHCP discover message that only one DHCP server will answer.

12 In ISDN, each S interface port can operate in full duplex mode over 4-wire twisted pairs.

13 ADSL can allocate transmission band in PSTN local loop cables by using a dedicated echo cancellation technique.

14 Carrier Sense Multiple Access / Collision Avoidance (CSMA/CA) protocol improves media access by using efficient frequency multiplexing techniques.

15 ADSL modems offer two data paths: fast and non-interleaved.

16 Space switch makes switching between PCM lines.

17 Supplementary services in Intelligent Terminal (IN) implementation support specialized routing techniques as for instance virtual private networks (VPN).

18 Single line digital subscriber line (SDSL) offers simplex connections only.

19 DMT is a modulation technique which is used in ADSL system, what are the *advantages* of DMT?

- a) Large crest factor
- b) High perceived conceptual complexity
- c) Flexible power spectral density control
- d) Inherent programmable data rate capability

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21 PCM is a sampling, quantization, and coding process that converts a voice conversation into a 64-Mbps standard rate. This basic transmission level is known as digital signal — level zero (DS0).

22 Group 3 transmitting faxes apply modified Fourier coding for parity checking.

23 ISDN exchanges apply signaling system 7 (SS7) that is a common channel signaling method.

24 The crosstalk effect is worse for upstream than for downstream signals in ADSL.

25 IEEE 802.11 basic medium access behavior allows interoperability between compatible PHYs through the use of the CSMA/CA protocol and a random backoff time following a busy medium condition.

26 802.11 supports roaming with 2G and 3G networks.

27 Per trunk signaling in local loop is sensitive to interference & cross-talk sensitive.

28 IP6 supports data fragmentation.

29 While using DHCP server arriving client needs to know DHCP server address before anything can be done for own, temporary IP discovery.

30 OFDM signal has high peak-to-average power ratio (PAPR) that greatly alleviates (makes easier) design of transmitter and receiver amplifiers.