Mid Term Exam ECOM4313-1 Time 830am-1000am Date 25-11-2021

Name_____Matric No._____

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

1) It is not necessary for a device to interface with the transmission system in order to communicate. 1) _____

2) Data communications deals with the transmission of signals in a reliable and efficient manner. 2) _____

3) There are several fundamental differences between data processing and data communications. 3) _____

4) There are no fundamental differences among data, voice, and video communications. 4) _____

5) Effective and efficient data communication and networking facilities are vital to any enterprise. 5) _____

6) Growth in services and growth in traffic capacity go hand in hand. 6) _____

7) The increasing use of optical fiber, while greatly increasing capacity, has caused an increase in transmission prices as well. 7) _____

8) Convergence refers to the merger of previously distinct telephony and information technologies and markets. 8) _____

9) Changes in corporate data traffic patterns are driving the creation of high–speed WANs. 9) _____

10) It is not necessary for a device to interface with the transmission system in order to communicate. 10) _____

11) A modem is required to establish communication between a workstation and a server over a public telephone network. 11) _____

12) Compression refers to the ability of a number of devices to share a transmission facility. 12) _____

13) The basic building block of any communications facility is the transmission line. 13) _____

14) Developing switching systems with the capacity and rapid response to support the demand requirements with the increased use of fiber optic transmission is no longer a challenge. 14) _____

15) Frame relay networks are commonly used for terminal–to–computer and computer–to–computer communications. 15) _____

16) The LAN is owned by the same organization that owns the attached devices. 16) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

17) The key elements of a simple communications model are _____. 17) _____

A) signal, transmission, receiver
B) source, signal, receiver
C) source, signal, destination
D) source, transmission, destination

18) Enterprises have formed _____ to reach customers, suppliers, and partners while isolating their proprietary information from unwanted access. 18) _____

A) internets and extranets
B) WANS and extranets
C) LANS and WANS
D) intranets and extranets

19) DWDM enables capacities of _____ per second. 19) _____

A) terabits B) megabits C) gigabits D) picobits

20) The growth of _____ enhances the ability of employees to take their business context with them as they move about, resulting in the ability to use enterprise information resources and services from virtually anywhere. 20) _____

A) WANS
B) remote data access
C) high–speed wireless access
D) extranets

21) An _____ uses Internet and Web technology in an isolated facility internal to an enterprise. 21) _____

A) intranet
B) application network
C) extranet
D) Internet portal

22) A network in which small chunks of data are passed through the network from node to node, and at each node the entire data chunk is received, stored briefly, and then transmitted to the next node, is a _____ network. 22) _____

A) frame relay
B) packet switching
C) circuit switching
D) ATM

23) A dominant architecture in the business environment and the more recent Web–focused intranet trend is _____ computing. 23) _____

A) Ethernet B) GUI C) client/server D) token ring

24) The rapid conversion of consumer electronics to digital technology is having an impact on both the Internet and corporate intranets. Two examples of this trend are _____. 24) _____

A) DVDs and CD–ROMs
B) server farms and DVDs
C) power workgroups and server farms
D) digital versatile disks and digital still cameras

25) The key elements of a simple communications model are _____. 25) _____

A) source, transmission, destination B) source, signal, destination

C) signal, transmission, receiver D) source, signal, receiver

26) Once an interface is established _____ is required for communication. 26) _____

A) signal generation B) synchronization

C) transmission D) digital conversion

27) In order for data processing devices to communicate certain conventions must be decided on. These requirements can collectively be termed _____. 27) _____

A) transmission systems B) flow control

C) synchronization D) exchange management

28) In situations in which an information exchange is interrupted due to a fault somewhere in the system, _____ techniques are needed to either resume activity at the point of interruption or to restore systems to their state prior to the beginning of the exchange. 28) _____

A) flow control B) recovery C) routing control D) error correction

29) In a _____ network, a dedicated communications path is established between two stations through the nodes of the network. The telephone network is the most common example. 29) _____

A) frame relay B) circuit switching

C) ATM D) packet switching

30) A _____ is a physical facility that provides the infrastructure to move data between connected networks. 30) _____

A) NAP B) NSP C) FDDI D) ATM

31) Individual hosts and LANs are connected to an Internet Service Provider through a _____. 31) _____

A) POP B) NSP C) CPE D) NAP

32) The place where telephone companies terminate customer lines and locate switching equipment to interconnect those lines with other networks is the _____. 32) _____

A) CO B) ISP C) POP D) NAP

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

33) For most applications running as part of the TCP/IP protocol architecture, the transport layer protocol is TCP. 33) _____

34) Each protocol provides a set of rules for the exchange of data between systems. 34) _____

35) The OSI protocol architecture consists of five layers: physical, network access, internet, transport and application. 35) _____

36) Procedures needed to allow data to traverse multiple interconnected networks is found in the internet layer of the TCP/IP protocol architecture. 36) _____

37) The primary function of a gateway is to relay data from one network to the other on its route from the source to the destination end system. 37) _____

38) For most applications running as part of the TCP/IP protocol architecture, the transport layer protocol is TCP. 38) _____

39) VoIP, streaming audio, and streaming video are not considered multimedia applications because each involves a single media type. 39) _____

40) The software used at the network access layer is not dependent on the type of network used because circuit switching, packet switching and local area networks all have the same standards. 40) _____

41) Traffic on a network or internet can be divided into two broad categories: elastic and inelastic. 41) _____

42) FTP provides a basic electronic mail transport facility. 42) _____

43) Secure Shell (SSH) enables the user and the remote server to authenticate each other. 43) _____

44) Distributed data communications can be said to involve three agents: applications, computers, and networks. 44) _____

45) The driving force behind the development of IP was the need for more addresses. 45) _____

46) It is not necessary for each host on a subnet to have an unique global internet address. 46) _____

47) TCP numbers the segments that it sends to a particular destination port sequentially. 47) _____

48) In the application layer of TCP/IP, for each different type of application, a separate module is needed that is peculiar to that application. 48) _____

49) An analog signal can be transmitted only a limited distance before attenuation, noise, and other impairments endanger the integrity of the data. 49) _____

50) Only digital signals can be used to convey information in the communications environment. 50) _____

51) The greater the bandwidth of the signal the greater its information carrying capacity. 51) _____

52) Guided media, also called wireless, provide a physical means for guiding electromagnetic waves through seawater. 52) _____

53) A major problem in designing a communications facility is transmission impairment. 53) _____

54) In full–duplex operation both stations may transmit, but only one at a time. 54) _____

55) A digital signal is one in which the signal intensity maintains a constant level for some period of time and then abruptly changes to another constant level. 55) _____

56) The frequency is the rate at which the signal repeats. 56) _____

57) The sine wave is the fundamental aperiodic signal. 57) _____

58) Analog signals suffer more from attenuation than do digital signals. 58) _____

59) For any given medium, the greater the bandwidth transmitted, the greater the cost. 59) _____

60) There is not a direct relationship between data rate and bandwidth. 60) _____

61) A familiar example of analog data is audio, which, in the form of acoustic sound waves, can be perceived directly by human beings. 61) _____

62) The advantages of digital signaling are that it is generally cheaper than analog signaling and is less susceptible to noise interference. 62) _____

63) An analog signal can be transmitted only a limited distance before attenuation, noise, and other impairments endanger the integrity of the data. 63) _____

64) Delay distortion occurs because the velocity of propagation of a signal through a guided medium varies with frequency. 64) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

65) The term _____ is used to refer to the transmission path between two devices in which signals propagate directly from transmitter to receiver with no intermediate devices other than amplifiers or repeaters used to increase signal strength. 65) _____

A) wireless
B) direct link
C) guided
D) unguided media

66) A key parameter that characterizes any electromagnetic signal is _____, which is the width of the range of frequencies that comprises the signal. 66) _____

A) analog B) wavelength C) digital D) bandwidth

67) In _____ transmission signals are transmitted in only one direction; one station is the transmitter and the other is the receiver. 67) _____

A) half duplex B) multipoint C) simplex D) full duplex

68) The term _____ is used to refer to the transmission path between two devices in which signals propagate directly from transmitter to receiver with no intermediate devices other than amplifiers or repeaters used to increase signal strength. 68) _____

A) guided B) wireless

C) direct link D) unguided media

69) A guided transmission medium is _____ if it provides a direct link between two devices and those are the only two devices sharing the medium. 69) _____

A) multipoint B) wireless C) point to point D) simplex

70) A(n) _____ signal is a continuously varying electromagnetic wave that may be propagated over a variety of media, depending on spectrum. Examples are wire media and fiber optic cable. 70) _____

A) analog B) periodic C) aperiodic D) digital

71) The _____ is the maximum value or strength of the signal over time; typically this value is measured in volts. 71) _____

A) phase B) frequency C) period D) peak amplitude

72) The _____ of a signal is the distance occupied by a single cycle. 72) _____

A) amplitude B) frequency C) wavelength D) bandwidth

73) The _____ of a signal is the range of frequencies that it contains. 73) _____

A) bandwidth B) wavelength

C) effective bandwidth D) spectrum

74) A _____ signal is a sequence of voltage pulses that may be transmitted over a wire medium. 74) _____

A) text B) digital C) audio D) analog

75) The communication of data by the propagation and processing of signals is _____. 75) _____

A) interlacing B) effective bandwidth

C) signaling D) transmission

76) An example of digital data is _____ or character strings. 76) _____

A) interlaced B) audio C) text D) video

77) _____ is generated by terminals. computers, and other data processing equipment and then converted into digital voltage pulses for transmissions. 77) _____

A) Voice B) Text C) Binary data D) Audio

78) A reduction in strength is _____. 78) _____

A) pulsing B) interlacing C) attenuation D) delay distortion

79) The rate in bits per second at which data can be communicated is the _____. 79) _____

A) analog transmission B) channel capacity

C) data rate D) digital transmission

80) When signals at different frequencies share the same transmission medium the result may be _____ noise. 80) _____

A) white B) crosstalk

C) impulse D) intermodulation

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

81) A category of encoding techniques known as multilevel binary addresses some of the deficiencies of the NRZ codes. 81) _____

82) Both analog and digital information can be encoded as either analog or digital signals. 82) _____

83) In general, the equipment for encoding digital data into a digital signal is more complex and expensive than digital to analog modulation equipment. 83) _____

84) Some transmission media, such as optical fiber and unguided media, will only propagate analog signals. 84) _____

85) A digital signal is a sequence of discrete, discontinuous voltage pulses. 85) _____

86) The modulation rate of a signal is the rate, in bits per second, that data are transmitted. 86) _____

87) The most familiar use of transmitting digital data using analog signals is the public telephone network. 87) _____

88) The encoding scheme is the mapping from data bits to signal elements. 88) _____

89) Using two different voltage levels for the two binary digits is a difficult way to transmit digital signals. 89) _____

90) A category of encoding techniques known as multilevel binary addresses some of the deficiencies of the NRZ codes. 90) _____

91) The biphase codes are known as self–clocking codes. 91) _____

92) Amplitude shift keying is less susceptible to error than binary frequency shift keying. 92) _____

93) More efficient use of bandwidth can be achieved if each signaling element represents one bit. 93) _____

94) Bandwidth efficiency measures the efficiency with which bandwidth can be used to transmit data. 94) _____

95) PCM starts with a continuous time, continuous amplitude signal from which a digital signal is produced. 95) _____

96) Modulation does not permit frequency division multiplexing. 96) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

97) Frequency modulation and phase modulation are special cases of _____ modulation. 97) _____

A) amplitude B) FM C) angle D) PM

98) The simplest form of digital encoding of _____ is to assign one voltage level to binary– one and another to binary–zero. 98) _____

A) carrier data B) digital data C) AM data D) analog data

99) A _____ converts digital data to analog signal so that it can be transmitted over an analog line. 99) _____

A) router B) modem C) receiver D) satellite

100) A scrambling coding technique based on bipolar–AMI and commonly used in North America is _____. 100) _____

A) HDB3 B) B8ZS C) ASK D) MFSK

101) In _____, the two binary values are represented by two different amplitudes of the carrier frequency. Commonly, one of the amplitudes is zero. One binary digit is represented by the presence, at constant amplitude, of the carrier, the other by the absence of the carrier. 101) _____

A) phase shift keying B) high density bipolar–3 zeros

C) amplitude shift keying D) frequency shift keying

102) In _____ signaling an analog or digital data source is encoded into a digital signal. 102) _____

A) polar B) digital C) analog D) carrier

103) Analog data in electrical form can be transmitted as _____ signals easily and cheaply with voice transmission over voice grade lines. 103) _____

A) carrier B) broadband C) modulating D) baseband

104) If digital signaling elements all have the same algebraic sign, all positive or all negative, then the signal is _____. 104) _____

A) polar B) differential C) unipolar D) baseband

105) Because of their simplicity and relatively low frequency response characteristics, _____ codes are commonly used for digital magnetic recording. 105) _____

A) NRZ B) VSES C) AMI D) B8ZS

106) The binary 1 represented by the absence of a line signal and the binary 0 by alternating positive and negative pulses is _____. 106) _____

A) differential Manchester B) NRZ–L

C) pseudoternary D) bipolar–AMI

107) The _____ code has been specified for the IEEE 802.3 (Ethernet) standard for baseband coaxial cable and twisted pair bus LANs. 107) _____

A) differential Manchester B) HDB3

C) NRZ D) Manchester

108) In _____ the phase of the carrier signal is shifted to represent data. 108) _____

A) MFSK B) ASK C) PSK D) FSK

109) A common encoding technique in which each of the two modulated streams is a BPSK signal at half the data rate of the original bit stream is _____. The combined signals have a symbol rate that is half the input bit rate. 109) _____

A) MPSK B) QAM C) QPSK D) MFSK

110) The device used for converting analog data into digital form for transmission, and subsequently recovering the original analog data from the digital, is a _____. 110) _____

A) PAM B) ASK C) modem D) codec

111) Frequency modulation and phase modulation are special cases of _____ modulation. 111) _____

A) angle B) PM C) FM D) amplitude

112) A coding scheme that is commonly used in Europe and Japan is the _____. 112) _____

A) amplitude shift keying B) B8ZS

C) HDB3 D) AMI

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

113) Error correction is best used with wireless applications. 113) _____

114) Sending data in large blocks is more efficient than sending data one character at a time. 114) _____

115) The transmission of a stream of bits from one device to another across a transmission link does not involve a great deal of cooperation or agreement between the two sides. 115) _____

116) The receiver must know the rate at which bits are being received so that it can sample the line at appropriate intervals to determine the value of each received bit. 116) _____

117) The CRC process can be represented by a dividing circuit consisting of XOR gates and a shift register. 117) _____

118) Asynchronous transmission works best for long blocks of data. 118) _____

119) The use of Manchester encoding is a form of synchronization. 119) _____

120) With serial transmission, signaling elements are sent down the line one at a time. 120) _____

121) For NRZ–L signaling, idle would be the presence of a negative voltage on the line. 121) _____

122) The exact format of the frame depends on which data link control procedure is being used. 122) _____

123) The effects of burst errors are less at higher data rates. 123) _____

124) Regardless of the design of the transmission system, there will be errors, resulting in the change of one or more bits in a transmitted frame. 124) _____

125) The simplest error detecting scheme is to append a parity bit to the end of a block of data. 125) _____

126) Error correction is best used with wireless applications. 126) _____

127) Error detection is a useful technique found in data link control protocols such as HDLC and in transport protocols such as TCP. 127) _____

128) Two characteristics that distinguish various data link configurations are topology and whether the link is half duplex or full duplex. 128) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

129) _____ is one of the most fundamental requirements in the transmission of a stream of bits from one device to another. 129) _____

A) Standardization B) Configuration

C) Synchronization D) Digitalization

130) _____ is one of the most fundamental requirements in the transmission of a stream of bits from one device to another. 130) _____

A) Digitalization B) Configuration

C) Synchronization D) Standardization

131) A _____ error can occur in the presence of white noise when a slight random deterioration of the signal to noise ratio is sufficient to confuse the receiver's decision of a single bit. 131) _____

A) burst B) digital C) idle D) single-bit

132) In _____ transmission each block of data is formatted as a frame that includes a starting and an ending flag. 132) _____

A) synchronous B) analog C) parallel D) asynchronous

133) Typically _____ parity is used for synchronous transmission. 133) _____

A) synchronized B) odd C) digital D) even

134) In _____ transmission each character begins with a start bit that alerts the receiver that a character is arriving. The receiver samples each bit in the character and then looks for the beginning of the next character. 134) _____

A) analog B) synchronous C) asynchronous D) digital

135) In an _____ there is a cluster of bits in which a number of errors occur, although not necessarily all of the bits in the cluster suffer an error. 135) _____

A) idle state B) error detection C) single-bit error D) error burst

136) When no character is being transmitted in asynchronous transmission the line between transmitter and receiver is in _____ state. 136) _____

A) a streaming B) a receiving C) a transmitting D) an idle

137) In _____ transmission systems, an error occurs when a bit is altered between transmission and reception. 137) _____

A) analog B) idle C) guided D) digital

138) Correction of errors using an error detecting code requires that block of data to be _____. 138) _____

A) streamed B) skipped over C) deleted D) retransmitted

139) Error correction works by adding _____ to the transmitted message. 139) _____

A) decoding B) error burst C) clarification D) redundancy

140) The use of coding allows a reduction, referred to as the _____, and defined as the reduction in decibels to achieve a specified BER of an error correcting coded system compared to an uncoded system using the same modulation. 140) _____

A) block code B) code rate C) coding gain D) fixed coding

141) If the topology on a transmission medium includes only two stations, the link is _____. 141) _____

A) full duplex B) point to point C) half duplex D) multipoint

142) In a _____ configuration, the computer needs only a single I/O port and a single transmission line, which saves costs. 142) _____

A) half duplex B) point to point C) code rate D) multipoint

143) Half–duplex transmission is often used for _____ interaction. 143) _____

A) computer–to–computer B) terminal–to–computer

C) two way simultaneous D) full duplex

144) Two stations can simultaneously send and receive data from each other with _____ transmission. 144) _____

A) two way alternate B) half–duplex

C) full–duplex D) terminal–to–computer

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

145) IP does not guarantee that all data will be delivered or that the data that are delivered will arrive in the proper order. 145) _____

146) Flow control allows routers and receiving stations to limit the rate at which they receive data. 146) _____

147) Data are transmitted over an internet in packets from a source system to a destination across a path involving a single network and routers. 147) _____

148) Priority could be assigned on a message basis or on a connection basis. 148) _____

149) A protocol is concerned with exchanging data between two entities. 149) _____

150) In 1994 the Internet Architecture Board issued a report titled "Security in the Internet Architecture" that stated that the general consensus was that the Internet was secure and there were no areas of security concern. 150) _____

151) The format of the Destination Options Header is the same as that of the Hop–by–Hop Options Header. 151) _____

152) The counterpart of fragmentation is reassembly. 152) _____

153) A connectionless internet service is not good for connectionless transport protocols because it imposes unnecessary overhead. 153) _____

154) IP does not guarantee that all data will be delivered or that the data that are delivered will arrive in the proper order. 154) _____

155) A static table is more flexible than a dynamic table in responding to both error and congestion conditions. 155) _____

156) If dynamic or alternate routing is used the potential exists for a datagram to loop indefinitely through the internet. 156) _____

157) Time to Live is similar to a hop count. 157) _____

158) A Class C network is defined as few networks, each with many hosts. 158) _____

159) In IPv6 fragmentation may only be performed by routers along a packet's delivery path. 159) _____

160) The driving motivation for the adoption of a new version of IP was the limitation imposed by the 32–bit address field in IPv4. 160) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

161) Which of the following is NOT an enhancement of IPv6 over IPv4? 161) _____

A) address autoconfiguration B) expanded address space

C) support for resource allocation D) improved error recovery

162) IP attaches a header to upper layer data to form an IP _____. 162) _____

A) packet B) layer C) datagram D) subnet

163) A next generation IP, known as _____, provides longer address fields and more functionality than the current IP. 163) _____

A) IPv5 B) IPv4 C) IPv6 D) IPv3

164) _____ is the foundation on which all of the internet based protocols and internetworking is based. 164) _____

A) IP B) VPN C) datagram D) TCP

165) For virtually all protocols data are transferred in blocks called _____. 165) _____

A) NSAPs B) PDUs C) segments D) datagrams

166) The process in which a protocol may need to divide a block received from a higher layer into multiple blocks of some smaller bounded size is called _____. 166) _____

A) subnetting B) downsizing C) fragmentation D) reassembly

167) A function performed by a receiving entity to limit the amount or rate of data that is sent by a transmitting entity is _____. 167) _____

A) transmission control B) error control

C) data control D) flow control

168) In IPv6 _____ may only be performed by source nodes, not by routers, along a packet's delivery path. 168) _____

A) fragmentation B) ordered delivery

C) bridging D) reassembly

169) An IS used to connect two LANs that use similar LAN protocols and acts as an address filter, picking up packets from one LAN that are intended for a destination on another LAN and passing those packets on, is a _____. 169) _____

A) router B) end system C) bridge D) broadcast

170) A device attached to one of the networks of an internet that is used to support end user applications or services is _____. 170) _____

A) an end system B) a subnet

C) an intermediate system D) a router

171) The _____ is a means of uniquely identifying an end–system–originated datagram. 171) _____

A) Data Unit Identifier B) source address

C) protocol identifier D) protocol layer number

172) The _____ primitive is used to request transmission of a data unit. 172) _____

A) Send B) Source Routing C) Request D) Transmit

173) The effect of the _____ is to erase the portion of the host field that refers to an actual host on a subnet, leaving the network number and the subnet number. 173) _____

A) subnet mask B) echo reply C) address mask D) checksum

174) The principal feature of _____ is that it can encrypt and/or authenticate *all* traffic at the IP level. 174) _____

A) VPN B) TCP, UDP C) IPSec D) IAB

175) A hop–by–hop option that is used to send IPv6 packets with payloads longer than 65,535 octets is _____. 175) _____

A) fragmentation B) PAD1 C) PADN D) jumbo payload

176) Which of the following is NOT an enhancement of IPv6 over IPv4? 176) _____

A) improved error recovery B) support for resource allocation

C) address autoconfiguration D) expanded address space

177) What is your name? 177) _____

A) Mohd Elton Khairuddin B) Johny Zulkepli The Ripper

C) Mohd John Haniff D) None of the above

178) Which year were you born in? 178) _____

A) 1995 B) 1997

C) 1996 D) None of the above

179) Which digits are the last 3 in your matric number? 179) _____

A) 888 B) 555

C) 222 D) None of the above

180) What is your course code? 180) _____

A) EECE 4313 B) ECOM 4313-1

C) ECOM 4313 D) ECE 4313