Id	**1**
Question	Based on availability of controlling the direction and path of propagation the media classified as…
A	guided propagation and unguided or free space propagation
B	guided propagation and waveguide based propagation
C	waveguide based propagation and optical fiber guided propagation
D	optical fiber guided propagation and guided propagation
Answer	
Marks	2
Unit	UNIT - I

Id	**2**
Question	In computer network transmission media exists below the layer known as…
A	data-link layer,
B	network layer,
C	physiological layer,
D	physical layer
Answer	
Marks	2
Unit	UNIT - I

Id	**3**
Question	Type of signal or energy present in optical fiber…
A	sound energy,
B	light or optical energy,
C	shadow energy,
D	ultrasound energy
Answer	
Marks	2
Unit	UNIT - I

Id	**4**
Question	examples of guided and unguided media…
A	guided - waveguide and optical fiber and unguided - free space,
B	guided - sky waves and unguided - free space,
C	guided - free space and unguided - ground waves,
D	guided - missile optical fiber and unguided – satellite misile
Answer	
Marks	2
Unit	UNIT - I

Id	**5**
Question	Types of the electrical wired cables for propagation…
A	dish antenna,
B	cable TV set,
C	coaxial cable and twisted pair wires,
D	optical fibers
Answer	
Marks	2
Unit	UNIT - I

Id	**6**
Question	Out of two types of electrical cables which is less susceptible to noise…
A	dish antenna,
B	Flat cable of tv,
C	coaxial cable and twisted pair wires,
D	optical fibers
Answer	
Marks	2
Unit	UNIT - I

Id	**7**
Question	Cable with two wire twisted together is called as…
A	wire wound,
B	wire cable,
C	twisted cable,
D	optical fibers
Answer	
Marks	2
Unit	UNIT - I

Id	**8**
Question	Cable with inner and outer electrical conductors is called as…
A	coaxial cable,
B	twisting wiring,
C	dish antenna cable,
D	optical fiber wires
Answer	
Marks	2
Unit	UNIT - I

Id	**9**
Question	When a beam of light travels through media of higher to lower densities if the angle of incidence is smaller than the critical angle light ray undergoes ...
A	relaxation,
B	reflection,
C	refraction,
D	total internal reflection
Answer	
Marks	2
Unit	UNIT - I

Id	**10**
Question	When a beam of light travels through media of higher to lower densities if the angle of incidence is greater than the critical angle light ray undergoes ...
A	total internal refraction,
B	reflection,
C	refraction,
D	total internal reflection
Answer	
Marks	2
Unit	UNIT - I

Id	**11**
Question	Type of propagation with which signals of frequencies below 2MHz uses...
A	line of sight propagation,
B	ground wave propagation,
C	sky wave propagation,
D	space wave propagation
Answer	
Marks	2
Unit	UNIT - I

Id	**12**
Question	Type of propagation with which signals of frequencies about 2MHz to 30MHz uses…
A	space wave propagation,
B	line of sight propagation,
C	sky wave propagation,
D	ground wave propagation
Answer	
Marks	2
Unit	UNIT - I

Id	**13**
Question	Type of propagation with which signals of frequencies about 30MHz up to 300MHz uses…
A	line of sight propagation,
B	sky wave propagation,
C	ground wave propagation,
D	space wave propagation
Answer	
Marks	2
Unit	UNIT - I

Id	**14**
Question	Type of propagation with which signals of frequencies about 8 GHz to 12MHz uses…
A	ground wave propagation,
B	sky wave propagation,
C	line of sight propagation,
D	space wave propagation
Answer	
Marks	2
Unit	UNIT - I

Id	**15**
Question	The two names of transparent parts of optical fiber are…
A	glass,
B	plastic,
C	both A and B,
D	core and cladding
Answer	
Marks	2
Unit	UNIT - I

Id	**16**
Question	The refractive index of core and cladding is compared then with lower refractive index is for...
A	cladding,
B	cable,
C	both A and D,
D	core
Answer	
Marks	2
Unit	UNIT - I

Id	**17**
Question	The refractive index of core and cladding is compared then with higher refractive index is for...
A	cladding,
B	core,
C	coaxial,
D	both A and B
Answer	
Marks	2
Unit	UNIT - I

Id	**18**
Question	The distance that the wave travels in one cycle is called as?
A	cyclic distance,
B	frequency,
C	wavelength,
D	both B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**19**
Question	The lowest frequency of wave in visible spectrum has color…
A	infra red,
B	ultra violet,
C	violet,
D	red
Answer	
Marks	2
Unit	UNIT - I

Id	**20**
Question	The highest frequency of wave in visible spectrum has color…
A	red,)
B	violet,
C	ultra violet,
D	infra red
Answer	
Marks	2
Unit	UNIT - I

Id	**21**
Question	The smallest wavelength of wave in visible spectrum has color…
A	infra red,
B	ultrasonic,
C	red,
D	violet
Answer	
Marks	2
Unit	UNIT - I

Id	**22**
Question	The highest wavelength of wave in visible spectrum has color…
A	x-rays,
B	red,
C	ultrasonic,
D	violet
Answer	
Marks	2
Unit	UNIT - I

Id	**23**
Question	Formula relating velocity, frequency and wavelength of electromagnetic wave is…
A	v=m.a,
B	v=m.c^2,
C	c=f. λ,
D	e=h.f
Answer	
Marks	2
Unit	UNIT - I

Id	**24**
Question	The name given to the region of electromagnetic spectrum that is lower frequency side and immediate close to the visible spectrum is…
A	x-rays,
B	infrared,
C	ultrasonic,
D	near infrared
Answer	
Marks	2
Unit	UNIT - I

Id	**25**
Question	The name given to the region of electromagnetic spectrum that is lower frequency side and distant to the visible spectrum but at higher frequency range of millimeter waves is…
A	near infrared,
B	x-rays,
C	ultraviolet,
D	far infrared
Answer	
Marks	2
Unit	UNIT - I

Id	**26**
Question	The wavelength range of visible spectrum is…
A	0.7 µm to 0.4 µm,
B	1.7 µm to 0.8 µm,
C	both A and D,
D	700 nm to 400 nm
Answer	
Marks	2
Unit	UNIT - I

Id	**27**
Question	The wavelength range suitable for optical fiber communication is …
A	0.7 µm to 0.4 µm,
B	1.7 µm to 0.8 µm,
C	1700 nm to 800 nm,
D	both B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**28**
Question	The optical window range is…
A	1.7 μm to 0.8 μm,
B	0.7 μm to 0.4 μm,
C	700 nm to 800 nm,
D	both A and C
Answer	
Marks	2
Unit	UNIT - I

Id	**29**
Question	The energy particle in optical or light energy is called as…
A	proton,
B	electron,
C	photon,
D	bandgap
Answer	
Marks	2
Unit	UNIT - I

Id	**30**
Question	The formula of the energy of photon is…
A	e=h.f,
B	e=h.c / λ ,
C	e=f. λ,
D	both A and B
Answer	
Marks	2
Unit	UNIT - I

Id	**31**
Question	The photon energy out of red color photon and violet color photon lesser one is…
A	red photon energy is more than violet photon,
B	violet photon energy is lesser than red photon,
C	red photon energy is lesser than violet photon,
D	both A and B
Answer	
Marks	2
Unit	UNIT - I

Id	**32**
Question	The photon energy out of red color photon and violet color photon more one is…
A	red photon energy is more than violet photon,
B	red photon energy is equal to violet photon,
C	violet photon energy is lesser red than photon,
D	violet photon energy is more than red photon
Answer	
Marks	2
Unit	UNIT - I

Id	**33**
Question	The blocks of a general communication system are…
A	transmission media,
B	transmitter or modulator linked to the information source,
C	receiver or demodulator at the destination point,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**34**
Question	The electrical information source provides …
A	electric signal,
B	electric current,
C	electric voltage,
D	both B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**35**
Question	What is function of transmitter in a general communication system…
A	convert suitable propagation into a form of signal,
B	convert signal into a suitable form for propagation,
C	convert propagation into a suitable form of signal,
D	both A and C
Answer	
Marks	2
Unit	UNIT - I

Id	**36**
Question	The transmission medium by which the signal is transmitted to the receiver in general communication system are…
A	transmission medium can consist of a pair of wires,
B	transmission medium can consist of a coaxial cable,
C	transmission medium can consist of a radio link through free space,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**37**
Question	The process that put the maximun permissible distance limitation between transmitter and receiver in transmission is…
A	in transmission medium signal attenuation and loss,
B	in transmission medium signal degradation by contamination of random signals and noise,
C	in transmission medium signal distortions imposed by mechanisms within the medium itself,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**38**
Question	For long-haul applications attenuation and signal degradation factors necessitate installation of …
A	repeaters,
B	line amplifiers,
C	connectors,
D	both A and B
Answer	
Marks	2
Unit	UNIT - I

Id	**39**
Question	In optical fiber communications system the information source provides signal to a transmitter in form of …
A	electric signal,
B	optical signal,
C	optical pulse,
D	both B and C
Answer	
Marks	2
Unit	UNIT - I

Id	40
Question	For which stage in optical communication transmitter system electrical stage drives give signals to have modulation of the light-wave carrier.
A	optical source,
B	optical fiber cable,
C	optical detector,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**41**
Question	What are the optical sources which provides the electrical-optical conversion in the optical communication system?
A	semiconductor laser,
B	light-emitting diode (LED),
C	incandescent tubelight,
D	Both A and B
Answer	
Marks	2
Unit	UNIT - I

Id	**42**
Question	What is the medium in the optical communication system?
A	optical source,
B	optical fiber,
C	optical detector,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**43**
Question	What links in between transmitter and receiver in the optical communication system?
A	laser source,
B	optical fiber cable,
C	optical detector,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**44**
Question	What the receiver consists of in the optical communication system to drive electrical system?
A	optical detector APD,
B	optical fiber cable,
C	optical source LED,
D	optical source laser
Answer	
Marks	2
Unit	UNIT - I

Id	45
Question	Which devices are converting optical to electrical signal in receiver of optical communications?
A	photo-conductors,
B	Photo-diodes (p-n, p-i-n or avalanche),
C	photo-transistors,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**46**
Question	Which devices are utilized for the optical-electrical conversion in receiver?
A	photo-conductors,
B	Photo-diodes (p-n, p-i-n or avalanche),
C	photo-transistors,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**47**
Question	Two types of the information used in optical carrier modulation …
A	analog information signal,
B	digital information signal,
C	analog information signal and digital information signal,
D	none of A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**48**
Question	How the light emitted in analog modulation have variations?
A	discrete variation of the light emitted,
B	continuous variation of the light emitted,
C	pulsed variation of the light emitted,
D	none of A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**49**
Question	How the light emitted in digital modulation have variations?
A	continuous variation of the light emitted,
B	sinusoidal variation of every time instant,
C	discrete variation of the light emitted,
D	co-sinusoidal variations for all time
Answer	
Marks	2
Unit	UNIT - I

Id	**50**
Question	What is advantage of the analog modulation over digital modulation in optical communication system?
A	simple implementation,
B	continuous signal,
C	light emitted,
D	none of A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	51
Question	What are disadvantages of the analog modulation as compared to digital modulation in optical fiber communication system?
A	less efficient,
B	linearity is not always provided,
C	requiring a far higher signal-to-noise ratio,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**52**
Question	Where the analog optical fiber communication links are generally preferred?
A	simple implementation,
B	shorter distance,
C	low bandwidth operation,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**53**
Question	What is function of the encoder in optical fiber communication system?
A	encoder encodes input digital signal,
B	encoder encodes input continuous signal,
C	encoder generates photons,
D	encoder codes and programs in software
Answer	
Marks	2
Unit	UNIT - I

Id	**54**
Question	What is function of the laser driver circuit in optical fiber communication system?
A	modulates intensity of semiconductor laser,
B	demodulates signal into carrier and signals,
C	low bandwidth amplification,
D	drives relays in optical circuits
Answer	
Marks	2
Unit	UNIT - I

Id	**55**
Question	What is function of the optical source in optical fiber communication system?
A	demodulates signal into carrier and signals,
B	launches analog optical signal into optical fibers,
C	launches digital optical signal into optical fibers,
D	both B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**56**
Question	Which device converts optical to electrical signal in optical fiber communication system?
A	optical detectors,
B	avalanche photo-diode (APD),
C	PIN diode detector,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**57**
Question	What are the functions of front-end amplifier and equalizer or filter used after detector in optical fiber communication system?
A	provide gain,
B	linear signal processing,
C	noise bandwidth reduction,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**58**
Question	What is the typical bandwidth of coaxial cable and over what distance?
A	20 MHz and 10 km,
B	20 GHz and 20 km,
C	20 GHz and 10 km,
D	20 MHz and 20 km
Answer	
Marks	2
Unit	UNIT - I

Id	**59**
Question	What is the typical bandwidth of millimeter wave radio systems and over what distance?
A	20 GHz and 10 km,
B	10 GHz and 20 km,
C	850 MHz and 10 km,
D	700 MHz over a few hundreds of meters
Answer	
Marks	2
Unit	UNIT - I

Id	**60**
Question	How much is the optical carrier frequency that yields an enormous potential transmission bandwidth than metallic cable systems?
A	in range of 10^{13} to 10^{16} Hz,
B	around 10^{5} GHz,
C	around 10^{14} Hz,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**61**
Question	What is typical bandwidth-length product of coaxial cable?
A	10 MHz.km,
B	1000 MHz.km,
C	100 MHz.km,
D	500 MHz.km
Answer	
Marks	2
Unit	UNIT - I

Id	**62**
Question	What is typical bandwidth-length product of optical fiber link incorporating optical fiber amplifiers?
A	500 GHz.km,
B	1000 MHz.km,
C	5000 GHz.km,
D	500 MHz.km
Answer	
Marks	2
Unit	UNIT - I

Id	**63**
Question	What is the typical factor with which the optical fiber is demonstrating a bandwidth improvement over coaxial cable?
A	50000,
B	1000,
C	5000,
D	10000
Answer	
Marks	2
Unit	UNIT - I

Id	**64**
Question	Which multiplexing is used for increasing the fiber information-carrying capacity in optical fiber communication system?
A	analog multiplexing,
B	discrete multiplexing,
C	wavelength division multiplexing (WDM),
D	time division multiplexing (TDM)
Answer	
Marks	2
Unit	UNIT - I

Id	**65**
Question	What are the advantages of optical fibers of being human hair like small size and weight?
A	avoiding duct congestion,
B	expansion of signal transmission in aircraft, satellites and ships,
C	both A and B,
D	none of A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**66**
Question	What are the advantages of optical fibers due to electrical isolation?
A	do not exhibit earth loop,
B	do not have interface problems,
C	transmission suited for communication in electrically hazardous environments,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**67**
Question	What make transmission in optical fibers ideally suited for communication in electrically hazardous environments?
A	no arcing or spark hazard at abrasions,
B	create no arcing or spark hazard at short circuits,
C	none of A and B,
D	both A and B.
Answer	
Marks	2
Unit	UNIT - I

Id	**68**
Question	What are the possible interference in electrically noisy environment possible in electrically susceptible materials?
A	switching transients giving electromagnetic pulses (EMPs),
B	electromagnetic interference (EMI),
C	radio-frequency interference (Rfi),
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - I

Id	**69**
Question	What is the protection used in case of the possible interference in electrically noisy environment possible in electrically susceptible materials?
A	electrical shielding,
B	plastic coating,
C	polymer coating,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**70**
Question	What about the lightning strike in case of optical fibers?
A	not susceptible,
B	susceptible,
C	carry charges,
D	both B and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**71**
Question	Is there optical interference in between the optical fibers as?
A	optical coupling,
B	no optical interference,
C	there is optical interference,
D	both A and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**72**
Question	What about the crosstalk between optical fibers as?
A	negligible,
B	there is crosstalk,
C	signal mix from fibers,
D	both A and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**73**
Question	How much light does radiate from optical fibers?
A	negligible,
B	not significant,
C	significant,
D	both A and B.
Answer	
Marks	2
Unit	UNIT - I

Id	**74**
Question	What is the advantage of the non radiation of signal from the optical fiber?
A	resistance to conduct,
B	signal security,
C	no propagation,
D	low dispersion.
Answer	
Marks	2
Unit	UNIT - I

Id	**75**
Question	The non-radiation property attracts which applications of the optical fibers?
A	general data transmission (i.e. computer network),
B	military,
C	banking,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**76**
Question	How much typical low attenuation with which the Optical fibers are possible?
A	1.5 dB.km^{-1},
B	2.5 dB.km^{-1},
C	0.15 dB.km^{-1},
D	3.0 dB.km^{-1}.
Answer	
Marks	2
Unit	UNIT - I

Id	**77**
Question	What are the advantages of very low attenuation optical fiber facilitate for?
A	extremely wide optical repeater or amplifier spacing,
B	reducing system cost,
C	reducing complexity,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**78**
Question	What is the disadvantage of the satellite communication compared to the optical communication?
A	offers very noticeable delay,
B	revolving in sky,
C	antenna requirements,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**79**
Question	Due to which property of optical fibers these can be bent to quite small radii or twisted without damage?
A	ruggedness property,
B	bending loss property,
C	flexibility property,
D	both A and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**80**
Question	Due to which property of optical fibers these can be manufactured with very high tensile strengths?
A	human hair like small structure,
B	flexibility property,
C	ruggedness property,
D	both B and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**81**
Question	Due to which property of optical fibers these can be exhibiting at least comparable strength and durability with copper cables?
A	ruggedness property,
B	glass material property,
C	flexibility property,
D	both A and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**82**
Question	Due to which property of optical fibers these can be exhibiting superiority in terms of storage, transportation, handling and installation with copper cables?
A	flexibility property,
B	ruggedness property,
C	storing property,
D	both A and B.
Answer	
Marks	2
Unit	UNIT - I

Id	**83**
Question	The low-loss property of optical fiber cables reduces which requirement for installation of which devices to boost the transmitted signal strength?
A	line amplifiers,
B	intermediate repeaters,
C	none of A and B,
D	both A and B.
Answer	
Marks	2
Unit	UNIT - I

Id	**84**
Question	Due to low-loss property of optical fiber requires fewer optical repeaters or amplifiers, this aspect enhances which feature as an advantage?
A	system working feature,
B	system reliability feature,
C	system operation feature,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**85**
Question	How many years lifetimes is predicted as the reliability of the optical components?
A	20 years,
B	25 years,
C	30 years,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**86**
Question	What are the advantages due to less number of components and long lifetimes of components in optical fiber systems?
A	low attenuation,
B	ease of maintenance,
C	system reliability,
D	both B and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**87**
Question	Which is the material used to make glass optical fibers?
A	sand,
B	metals,
C	silica,
D	both A and C.
Answer	
Marks	2
Unit	UNIT - I

Id	**88**
Question	In comparison to the copper conductors optical fibers offer which cost related advantage?
A	offers very noticeable delay,
B	potential for low-cost line communication,
C	fast communication,
D	load and line communication.
Answer	
Marks	2
Unit	UNIT - I

Id	**89**
Question	What is the role of the cladding in the optical fiber?
A	reduce the radiation loss of light,
B	supports the wave-guide structure,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**90**
Question	What is the major process that reduce the attenuation in glass optical fibers?
A	reduce reflection of light,
B	purification of the materials,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**91**
Question	What is the wavelength band of the first generation of optical sources fabricated from gallium aluminum arsenide alloys operated in this wavelength region?
A	0.8 µm to 1.7 µm,
B	0.8 µm to 0.9 µm,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**92**
Question	What is the material used to fabricate first generation of the optical sources operated in wavelength region of band 0.8 μm to 0.9 μm?
A	germanium,
B	silicon,
C	gallium aluminum arsenide alloys,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**93**
Question	What are the drawbacks reduction observed in a study of silica fibers transmission at longer wavelengths (1.1 μm to 1.6 μm)?
A	reduction in signal dispersion,
B	lowering of losses,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**94**
Question	What is the definition of the refractive index of a medium?
A	ratio of velocity of light in a vacuum to velocity of light in medium,
B	ratio of velocity of light in a medium to velocity of light in vacuum,
C	both A and B,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**95**
Question	What measure the refractive index gives about the dielectric materials and light?
A	dependence of density of light on loss of dielectric material,
B	dependence of velocity of light on density of dielectric material,
C	both A and B,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**96**
Question	what is the relation of the light velocity and density of the dielectric material?
A	light travels slowly in dense dielectric medium,
B	light travels fast in dense dielectric medium,
C	light travels slowly in rare dielectric medium,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**97**
Question	When the refraction of light occurs?
A	a ray is incident at interface of two different refractive indices dielectrics,
B	a ray is incident at interface of two same refractive indices dielectrics,
C	both A and B,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**98**
Question	State the Snell's law of refraction with formula?
A	$n_1 \sin \varphi_1 = n_2 \sin \varphi_2$,
B	$(\sin \varphi_1) / (\sin \varphi_2) = n_2/n_1$,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**99**
Question	What is partial internal reflection of light?
A	all light reflection back into the originating dielectric medium,
B	small amount of light reflection back into originating dielectric medium,
C	small amount of light reflection into next dielectric medium,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**100**
Question	What is critical angle φ_c in case of optical fiber prorogation?
A	incident angle making limiting case of refraction,
B	refraction angle making limiting case of incidence,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**101**
Question	What is the formula for the value of the critical angle?
A	$n_2 \sin \varphi_c = n_1 \sin \varphi_a$,
B	$\varphi_c = n_2 / n_1$,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**102**
Question	What is the total internal reflection in the optical fibers?
A	incident angle more than critical making all light reflection,
B	incident angle more than critical making all light refraction,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**103**
Question	When a beam of light travels through media of higher to lower densities if the angle of incidence is smaller than the critical angle φ_c then in second medium the light ray undergoes ...
A	refraction,
B	reflection,
C	both A and B,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**104**
Question	When a beam of light travels through media of higher to lower densities if the angle of incidence is greater than the critical angle φ_c then in second medium the light ray undergoes ...
A	refraction,
B	total internal reflection,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**105**
Question	When a beam of light travels through media of higher to lower densities if the angle of incidence is equal to the critical angle φ_c then in second medium the light ray undergoes bending with angle ...
A	rectangle,
B	90^o,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**106**
Question	When the ray enters the optical fiber core at acceptance angle θ_a to the optical fiber axis what is the angle it makes at core-cladding interface?
A	incident angle φ_2,
B	critical angle φ_c,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**107**
Question	For rays to be transmitted by total internal reflection within the optical fiber core what is the angle with which they must be incident while launching on the optical fiber core?
A	critical angle φ_c,
B	conical half angle θ_a,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**108**
Question	What is mean by acceptance angle θ_a?
A	minimum angle with axis to enter light in optical fiber and propagate,
B	maximum angle with axis to enter light in optical fiber and propagate,
C	average angle with axis to enter light in optical fiber and propagate,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**109**
Question	What is the formula for numerical aperture in terms of acceptance angle θ_a as well as refractive indices?
A	$NA = (n_1^2 - n_2^2)^{1/2}$,
B	$NA = n_0 \sin \theta_a$,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**110**
Question	What is the formula of numerical aperture NA in terms of the relative refractive index difference Δ between the core and the cladding?
A	$NA = n_1.(2\Delta)^{1/2}$,
B	$\Delta = (n_1 - n_2)^2 / n_1$,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**111**
Question	What the ray theory model describes about a plane wave component in the optical fiber?
A	direction,
B	electric components and magnetic components,
C	interference,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**112**
Question	What the ray theory model does not describe about a plane wave component in the optical fiber?
A	interference,
B	direction,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**113**
Question	When interference phenomena are considered, what is the characteristics with which rays propagate in the optical fiber core?
A	rays with certain continuous characteristics,
B	rays with certain discrete characteristics,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**114**
Question	Whether the optical fiber support a continuous type of or a discrete number of guided modes of propagation?
A	a discrete number of guided modes,
B	a continuous type,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**115**
Question	How many modes of propagation of the light waves are supported by the small diameter optical fiber?
A	one or a few modes,
B	very large number of modes,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**116**
Question	How many types of optical fibers are there based on refractive index profiles?
A	one type,
B	two types,
C	three types,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**117**
Question	What are the types of optical fibers based on refractive index profiles?
A	graded index fibers,
B	step index fiber,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**118**
Question	How many types of optical fibers are there based on modes of propagation?
A	one type,
B	two types,
C	three types,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**119**
Question	What are the types of optical fibers based on modes of propagation?
A	multi-mode fibers,
B	single mode fiber,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**120**
Question	What is the refractive index value distribution in the step index fiber cladding?
A	constant,
B	variable,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**121**
Question	What is the refractive index value distribution in the step index fiber core?
A	constant,
B	variable,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**122**
Question	What is the refractive index value distribution in the graded index fiber cladding?
A	constant,
B	variable,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**123**
Question	What is the refractive index value distribution in the graded index fiber core?
A	maximum at axis and radially reducing towards core cladding interface,
B	variable through out the core region,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**124**
Question	How much large enough the core diameter is required of a multimode step index fiber to allow the propagation of many modes within the optical fiber core?
A	around 15 μm or less,
B	around 50 μm or less,
C	around 50 μm or greater,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**125**
Question	How many modes are allowed by a single mode or mono mode step index optical fiber?
A	ten mode,
B	no mode,
C	many mode ,
D	one mode.
Answer	
Marks	2
Unit	UNIT - II

Id	**126**
Question	How much is the core diameter of a single mode or mono mode step index optical fiber?
A	50 µm to 150 µm,
B	2 µm to 10 µm,
C	100 µm to 200 µm,
D	45 µm to 90 µm.
Answer	
Marks	2
Unit	UNIT - II

Id	**127**
Question	How the path of the ray is shown in a single mode or mono mode step index optical fiber?
A	axial,
B	normal,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**128**
Question	What is the distinct advantage of the single-mode step index fiber has because of one mode is transmitted?
A	high inter-modal dispersion,
B	low outer-modal dispersion,
C	high outer-modal dispersion,
D	low inter-modal dispersion.
Answer	
Marks	2
Unit	UNIT - II

Id	**129**
Question	Why in the multimode step index fiber considerable dispersion occurs?
A	differing group velocities of different modes,
B	same group velocities of different modes,
C	same group velocities of same modes,
D	differing group velocities of same modes.
Answer	
Marks	2
Unit	UNIT - II

Id	**130**
Question	Which one has more dispersion among the multimode step index fibers and single mode step index fibers?
A	multimode step index fibers has less compared to single mode step index fibers,
B	single mode step index fibers has more compared to multimode mode step index fibers,
C	single mode step index fibers has same compared to multimode mode step index fibers,
D	multimode step index fibers has more compared to single mode step index fibers.
Answer	
Marks	2
Unit	UNIT - II

Id	**131**
Question	What is the effect on the maximum attainable bandwidth due to dispersion in multimode step index fibers compared to single-mode fibers?
A	restricts in multimode step index fibers compared to single-mode step index fibers,
B	allows in multimode step index fibers compared to single-mode step index fibers,
C	restricts in single-mode step index fibers compared to multimode step index fibers,
D	allows in single-mode step index fibers as well as to multimode step index fibers.
Answer	
Marks	2
Unit	UNIT - II

Id	**132**
Question	Which optical sources are efficiently coupled to single-mode fibers?
A	spatially out of phase optical sources,
B	spatially incoherent optical sources (e.g. most LEDs),
C	spatially coherent optical sources (e.g. laser diodes),
D	all of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**133**
Question	Which optical sources are not efficiently coupled to single-mode fibers?
A	spatially coherent optical sources (e.g. laser diodes),
B	spatially in-phase optical sources,
C	spatially incoherent optical sources (e.g. most LEDs),
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**134**
Question	Which optical sources are efficiently coupled to multi-mode fibers?
A	spatially coherent optical sources (e.g. laser diodes),
B	spatially incoherent optical sources (e.g. most LEDs),
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**135**
Question	Due to which properties the easier coupling to optical sources of multimode fibers is possible?
A	larger numerical apertures,
B	larger core diameters,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	136
Question	Which one requires lower tolerance on fiber connectors among the multimode step index fibers and single mode step index fibers?
A	single mode step index fibers,
B	multimode step index fibers,
C	both A and B,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**137**
Question	What is the unit for expressing the signal attenuation within optical fibers?
A	per kilometer (Km^{-1}),
B	logarithmic unit of the decibel,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	138
Question	What is the definition of the decibel in terms of optical powers for a particular wavelength?
A	logarithmic ratio of input (transmitted) power Pi to output (received) power Po,
B	logarithmic ratio of output (received) power Po to input (transmitted) power Pi,
C	logarithmic product of input (transmitted) power Pi to output (received) power Po,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**139**
Question	What is the advantage of the logarithmic unit definition?
A	operations of powers and roots reduce to multiplication and division,
B	operations of multiplication and division reduce to addition and subtraction,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**140**
Question	What is formula for power ratio relationship?
A	logarithmic unit of the decibel,
B	per kilometer (Km^{-1}),
C	$P_i / P_o = 10^{(dB/10)}$,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**141**
Question	What is the attenuation formula for the decibels per unit length (i.e. $dB.km^{-1}$) in optical fiber communications?
A	$\alpha_{dB}.L = 10 \log_{10} (P_i / P_o)$,
B	$P_i / P_o = 10^{(dB/10)}$,
C	Number of decibels (dB) = $10.\log_{10} (P_i / P_o)$,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	142
Question	When the mean optical power launched into an 8 km length of fiber is 120 μW, the mean optical power at the fiber output is 3 μW. Determine: the overall signal attenuation or loss in decibels through the fiber assuming there are no connectors or splices.
A	20 db,
B	16.00 db,
C	20 db/km,
D	16.0 db/km
Answer	
Marks	2
Unit	UNIT - II

Id	**143**
Question	A long single-mode optical fiber has an attenuation of 0.5 dB km^{-1} when operating at a wavelength of 1.3 μm. The fiber core diameter is 6 μm and the laser source bandwidth is 600 MHz. Calculate the threshold optical powers for stimulated Brillouin scattering (SBS) within the fiber at the wavelength specified.
A	180.2 mW,
B	1.38 W,
C	28.2 W,
D	80.3 mW.
Answer	
Marks	2
Unit	UNIT - II

Id	**144**
Question	A multimode graded index fiber exhibits total pulse broadening of 0.1 μs over a distance of 15 km. Estimate: the maximum possible bandwidth on the link assuming no intersymbol interference;
A	150 MHZ,
B	5.0 MHz,
C	6.0 MHz,
D	10 MHz.
Answer	
Marks	2
Unit	UNIT - II

Id	**145**
Question	What are the types of material absorption loss mechanisms in optical fiber making materials?
A	extrinsic absorption due to water (as the hydroxyl or OH ion),
B	extrinsic absorption from transition metal element impurities,
C	intrinsic absorption due to basic material structure ,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**146**
Question	What is scattering of light in optical fibers?
A	cause disproportionate attenuation,
B	transfer of optical power from one mode to different mode,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**147**
Question	What are the types of the scattering in the optical fibers?
A	linear scattering,
B	non-linear scattering,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**148**
Question	What is the effect of scatting on the optical fiber transmission?
A	attenuation,
B	fast conduction,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**149**
Question	What are the types of the linear scattering in the optical fibers?
A	Mie scattering,
B	Rayleigh scattering,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**150**
Question	What is a cause of linear scattering in optical fibers?
A	ideal physical properties of fiber,
B	non-ideal physical properties of fiber,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**151**
Question	What is the cause of Rayleigh scattering in optical fibers?
A	in-homogeneities of a random nature present with a small size than wavelength,
B	homogeneities of a constant nature present with a equal size than wavelength,
C	homogeneities of a constant nature present with a small size than wavelength,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**152**
Question	What are the reasons of the in-homogeneities that cause Rayleigh scattering in optical fibers?
A	refractive index fluctuations,
B	density and compositional variations,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**153**
Question	What is the Rayleigh scattering coefficient formula
A	$\gamma_R = (8.\pi^3.n^8.p^2.\beta_c.K.T_F) / (3. \lambda^4)$,
B	$\gamma_R = (3.\pi^8.n^8.p^2.\beta_c.K.T_F) / (3. \lambda^4)$,
C	$\gamma_R = (8.\pi^3.n^8.p^2.\beta_c.K.T_F) / (4. \lambda^3)$,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**154**
Question	What is the Rayleigh scattering coefficient and the transmission loss factor (transmissivity) $£_{km}$ of the fiber relation and attenuation?
A	$£_{km} = \exp(-\gamma_R.L)$ and Attenuation = $10 \log_{10}(1/£_{km})$,
B	$£_{km} = 10 \log_{10}(-\gamma_R.L)$ and Attenuation = $10 \log_{10}(1/£_{km})$,
C	$£_{km} = \exp(-\gamma_R.L)$ and Attenuation = $\exp(1/£_{km})$,
D	$£_{km} = 10 \log_{10}(-\gamma_R.L)$ and Attenuation = $\exp(1/£_{km})$.
Answer	
Marks	2
Unit	UNIT - II

Id	**155**
Question	How the Rayleigh scattering is strongly reduced in the optical fibers?
A	operating at the longest possible wavelength,
B	operating at the shortest possible wavelength,
C	operating at the moderate possible wavelength,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**156**
Question	What is the cause of Mie scattering in optical fibers?
A	in-homogeneities of a random nature present with a small size than wavelength,
B	in-homogeneities of a random nature present with a comparable in size with wavelength,
C	homogeneities of a constant nature present with a small size than wavelength,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**157**
Question	What are the reasons of the in-homogeneities that cause Mie scattering in optical fibers?
A	nonperfect cylindrical structure of waveguide and diameter fluctuations,
B	core-cladding refractive index differences along fiber length, strains and bubbles in fiber material,
C	fiber imperfections like irregularities in the core-cladding interface,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	158
Question	In which direction forward, backward or both direction is the Mie scattering observed due to in-homogeneity in optical fibers?
A	forward directions,
B	backward directions,
C	both forward and backward directions,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**159**
Question	How the in-homogeneity are reduced to reduce the Mie scattering?
A	carefully controlled extrusion and coating of the fiber,
B	Increasing the fiber guidance by increasing the relative refractive index difference,
C	removing imperfections due to the glass manufacturing process,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**160**
Question	Which are the types of the non-linear scattering in the optical fibers?
A	stimulated Brillouin scattering (SBS),
B	stimulated Raman scattering (SRS),
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**161**
Question	What is the effect of non-linear scattering in optical fibers?
A	disproportionate attenuation at high optical power levels,
B	proportionate attenuation at high optical power levels,
C	disproportionate attenuation at very low optical power levels,
D	proportionate attenuation at very low optical power levels.
Answer	
Marks	2
Unit	UNIT - II

Id	**162**
Question	In which direction forward, backward or both direction is the nonlinear scattering observed due to in-homogeneity in optical fibers?
A	forward directions,
B	backward directions,
C	both forward and backward directions,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**163**
Question	When the non-linear scattering becomes significant in optical fibers?
A	appearing of optical power below threshold,
B	zero optical power,
C	appearing of optical power above threshold,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**164**
Question	What is reason for Stimulated Brillouin scattering (SBS) in the optical fiber?
A	modulation of light through thermal molecular vibrations in optical fiber,
B	amplification of light through thermal molecular vibrations in optical fiber,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**165**
Question	What is the outcome from the incident photon after scattering in optical fibers in stimulated Brillouin scattering (SBS)?
A	a scattered photon,
B	a phonon of acoustic frequency,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**166**
Question	Whether the stimulated Brillouin scattering (SBS) in the optical fiber is forward, backward or both direction process?
A	mainly forward direction process,
B	mainly backward direction process,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	167
Question	What is formula for the threshold optical power P_B in stimulated Brillouin scattering (SBS) in optical fibers?
A	$P_B = 5.9 \times 10^{-2}.d^2.\lambda.\alpha_{dB}$ (watts),
B	$P_B = 4.4 \times 10^{-3}.d^2.\lambda^2.\alpha_{dB}.\nu$ (watts),
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**168**
Question	What is the outcome from the incident photon after scattering in optical fibers in stimulated Raman scattering (SRS)?
A	a high-frequency optical phonon,
B	a scattered photon,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**169**
Question	Whether the stimulated Raman scattering (SRS) in the optical fiber is forward, backward or both direction process?
A	forward direction process,
B	backward direction process,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**170**
Question	What is formula for the threshold optical power P_R in stimulated Raman scattering (SRS) in optical fibers?
A	$P_R = 5.9 \times 10^{-2}.d^2.\lambda.\alpha_{dB}$ (watts),
B	$P_R = 4.4 \times 10^{-3}.d^2.\lambda^2.\alpha_{dB}.\nu$ (watts),
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**171**
Question	How the losses introduced by nonlinear scattering in the optical fibers are avoided?
A	use of a suitable optical signal level,
B	working below the threshold optical powers,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**172**
Question	Why bend loss occurs in the optical fibers?
A	perpendicular wavefront to propagation direction is not maintained,
B	parallel wavefront to propagation direction is not maintained,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**173**
Question	How the potential macro-bending losses are reduced in the optical fibers?
A	designing fibers with large relative refractive index differences,
B	operating at shortest possible wavelength,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**174**
Question	What is dispersion in the optical fiber transmission?
A	compression of transmitted light pulses in travel of optical channel,
B	broadening of transmitted light pulses in travel of optical channel,
C	narrowing of transmitted light pulses in travel of optical channel,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**175**
Question	What effect takes place on the light signal pulses in the optical fibers after dispersion?
A	flattens in amplitude,
B	overlaps with its neighbors becoming indistinguishable at receiver input,
C	broadens in time,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**176**
Question	What is the effect called as, in which the light pulses overlaps with its neighbors, eventually becoming indistinguishable at the receiver input?
A	inter-symbol interference (ISI),
B	amplitude modulation process,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**177**
Question	What factor get limited due to the signal dispersion in the optical fiber?
A	minimum possible bandwidth,
B	maximum possible bandwidth,
C	moderate possible bandwidth,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	178
Question	What should be the digital bit rate B_T for no overlapping of light pulses on an optical fiber link?
A	digital bit rate B_T must be less than reciprocal of broadened pulse duration (2.τ),
B	digital bit rate B_T must be more than reciprocal of broadened pulse duration (2.τ),
C	digital bit rate B_T must be less than broadened pulse duration (2.τ),
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	179
Question	What is the maximum bit rate for an optical channel with dispersion as output light pulses being Gaussian shape?
A	$B_T(max) \approx 0.2 / \sigma$ $bit.s^{-1}$,
B	$B_T(max) \approx 0.25 / \sigma$ $bit.s^{-1}$,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**180**
Question	What is the conversion of bit rate (B_T) to bandwidth in hertz (B) for non-return-to-zero code?
A	maximum bandwidth B is one-half the maximum data rate or $B_T(max) = 2B$,
B	maximum bandwidth B is equal the maximum data rate or $B_T(max) = B$,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**181**
Question	What is the conversion of bit rate (B_T) to bandwidth in hertz (B) for return-to-zero code?
A	maximum bandwidth B is equal to the maximum data rate or $B_T(max) = B$,
B	maximum bandwidth B is one-half the maximum data rate or $B_T(max) = 2B$,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**182**
Question	What is the information-carrying capacity of an optical fiber is known as?
A	bandwidth-length product (i.e. Bopt × L) in Hz.Km,
B	dispersion,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**183**
Question	What is the typical bandwidth-length product for the multimode step index fiber?
A	20 MHz.km,
B	1 GHz.km,
C	100 GHz.km,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**184**
Question	What is the typical bandwidth-length product for the multimode graded index fiber?
A	20 MHz.km,
B	1 GHz.km,
C	100 GHz.km,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**185**
Question	What is the typical bandwidth-length product for the single-mode step index fiber?
A	20 MHz.km,
B	1 GHz.km,
C	100 GHz.km,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - II

Id	**186**
Question	What is the fundamental function of optical source in optical communication system?
A	efficiently convert electrical energy in form of a current into optical energy (light),
B	light output to be effectively launched or coupled into the optical fiber,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**187**
Question	What are the three main types of optical sources available in general?
A	monochromatic incoherent sources (light-emitting diodes, LEDs),
B	wide-band ‘continuous spectra’ sources (incandescent lamps),
C	monochromatic coherent sources (lasers),
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**188**
Question	What demands highly directional light requirement from injection laser and LED sources for optical fiber?
A	configuration compatibility with launching light source into an optical fiber,
B	a size compatibility with launching light source into an optical fiber,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**189**
Question	What is achieved with linearity requirement from injection laser and LED sources for optical fiber?
A	to minimize noise,
B	accurate tracking of electrical input signal,
C	to minimize distortion,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**190**
Question	What is achieved with particular wavelength emission requirement from injection laser and LED sources for optical fiber?
A	low dispersion,
B	efficiency of detectors,
C	low losses,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**191**
Question	What is achieved with simple signal modulation over a wide bandwidth requirement from injection laser and LED sources for optical fiber?
A	modulation from audio frequencies to beyond the gigahertz range,
B	small size sources,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**192**
Question	What are requirements for which the sufficient optical power coupling from sources is ensured in optical fibers?
A	overcome attenuation in the fiber,
B	overcome attenuation in connector losses,
C	provide adequate power to drive the detector,
D	all A, B and C
Answer	
Marks	2
Unit	UNIT - III

Id	**193**
Question	Why the very narrow spectral bandwidth (linewidth) of sources is required for optical communication?
A	reduce the radiation loss of light,
B	minimize dispersion in the fiber,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**194**
Question	What is the requirement with respect to which the stable optical source output largely remain unaffected?
A	changes in ambient conditions (e.g. temperature),
B	changes in electric conditions (e.g. current),
C	changes in electric conditions (e.g. voltage),
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	195
Question	What are the quality requirements from optical communication source in order to compete with conventional transmission techniques?
A	comparatively cheap and highly reliable,
B	reduce the radiation loss of light,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**196**
Question	What is the acronym LASER for?
A	light amplification by stimulated emission of radiation,
B	optical source in optical communication,
C	coherent and monochromatic source of light,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**197**
Question	What is practical realization of laser?
A	practical realization of the laser is as an optical amplifier,
B	practical realization of the laser is as an optical oscillator,
C	practical realization of the laser is as an optical equalizer,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**198**
Question	What are the processes with which the operation of the laser device is described?
A	formation of an electromagnetic standing wave within a cavity,
B	providing an output of monochromatic and highly coherent radiation,
C	formation of an electromagnetic standing wave within optical resonator,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**199**
Question	What are the processes with which the operation of the LED device is described?
A	optical emission without an inherent gain mechanism,
B	providing incoherent light output,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**200**
Question	What is the optical energy form or amount with which the its interaction with matter takes place?
A	discrete packets of energy,
B	discrete quanta of energy,
C	photons,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**201**
Question	How are the energy states of the atom as per quantum theory?
A	continuous energy states,
B	discrete energy states,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**202**
Question	What are the processes which causes the atoms to make a transition from one energy state to another?
A	emission of light,
B	absorption of light,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**203**
Question	What is the amount of absorbed or emitted light energy radiation in terms of frequency f as well as energy states of matter?
A	difference in energy E between higher E_2 and lower E_1 energy states as $E = E_2 - E_1$,
B	$E = h.f$, where $h = 6.626 \times 10^{-34}$ J.s is Planck's constant,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**204**
Question	What are the different processes and name of light energy amount for a single electron transition between two energy levels providing a change in energy within the atom?
A	radiation or emission of energy amount named as a photon,
B	absorption or emission of energy amount named as a photon,
C	absorption or emission of energy amount named as a electron,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**205**
Question	What is absorption process of photon in the atom?
A	atom goes from lower E_1 to higher E_2 energy state when a photon of E_2 - E_1 energy is incident upon,
B	atom goes from higher E_2 to lower E_1 energy state when a photon of E_2 - E_1 energy is incident upon,
C	atom goes from lower E_1 to higher E_2 energy state when a photon of E_2 - E_1 energy is radiated from,
D	atom goes from higher E_2 to lower E_1 energy state when a photon of E_2 - E_1 energy is radiated from.
Answer	
Marks	2
Unit	UNIT - III

Id	**206**
Question	What is emission process of the light photon in the atom?
A	atom goes from lower E_1 to higher E_2 energy state when a photon of E_2 - E_1 energy is incident upon,
B	atom goes from higher E_2 to lower E_1 energy state when a photon of E_2 - E_1 energy is incident upon,
C	atom goes from lower E_1 to higher E_2 energy state when a photon of E_2 - E_1 energy is radiated from,
D	atom goes from higher E_2 to lower E_1 energy state when a photon of E_2 - E_1 energy is radiated from.
Answer	
Marks	2
Unit	UNIT - III

Id	**207**
Question	What are the two types of photon emissions from the material?
A	spontaneous emission and random emission,
B	random emission and self activated emission,
C	spontaneous emission and stimulated emission,
D	laser emission and stimulated emission.
Answer	
Marks	2
Unit	UNIT - III

Id	**208**
Question	How spontaneous emission of photon takes place from material?
A	atom returns from higher E_2 to lower E_1 energy state randomly,
B	atom returns from lower E_1 to higher E_2 energy state randomly,
C	atom returns from higher E_2 to lower E_1 energy state by external photon interaction,
D	atom returns from lower E_1 to higher E_2 energy state by external photon interaction.
Answer	
Marks	2
Unit	UNIT - III

Id	**209**
Question	How stimulated emission of photon takes place from material?
A	atom returns from higher E_2 to lower E_1 energy state randomly,
B	atom returns from higher E_2 to lower E_1 energy state by external photon interaction,
C	atom returns from lower E_1 to higher E_2 energy state randomly,
D	atom returns from lower E_1 to higher E_2 energy state by external photon interaction.
Answer	
Marks	2
Unit	UNIT - III

Id	**210**
Question	What is the nature of the spontaneous emission process of light?
A	random and coherent radiation,
B	regular and incoherent radiation,
C	regular and coherent radiation,
D	random and incoherent radiation.
Answer	
Marks	2
Unit	UNIT - III

Id	**211**
Question	Which devices as a source works on a spontaneous and stimulated emission processes in semiconductors by providing the basic mechanism for light generation?
A	light emitting diode (LED) on stimulated and laser devices on spontaneous emission processes,
B	light emitting diode (LED) on spontaneous and laser devices on stimulated emission processes,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**212**
Question	What are the special features of laser?
A	stimulating and stimulated photons are of same energy and same frequency,
B	stimulating and stimulated photons are in phase, same polarization hence coherent,
C	stimulating and stimulated photons add constructively to give amplification,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**213**
Question	What is atom density at energy levels in thermal equilibrium by Boltzmann distribution?
A	lower energy level E_1 contains more atoms than upper energy level E_2,
B	lower energy level E_1 contains less atoms than upper energy level E_2,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**214**
Question	What is necessary in order to achieve population inversion?
A	excite atoms into lower energy level E_1 and obtain a nonequilibrium distribution,
B	excite atoms into lower energy level E_1 and obtain an equilibrium distribution,
C	excite atoms into upper energy level E_2 and obtain a nonequilibrium distribution,
D	excite atoms into upper energy level E_2 and obtain an equilibrium distribution.
Answer	
Marks	2
Unit	UNIT - III

Id	**215**
Question	What is the process of achieving the population inversion called as and with what is it achieved?
A	process is ‘amplification’ and it is achieved using an external energy source,
B	process is ‘pumping’ and it is achieved using an external energy source,
C	process is ‘amplification’ and it is achieved using an internal energy source,
D	process is ‘pumping’ and it is achieved using an internal energy source.
Answer	
Marks	2
Unit	UNIT - III

Id	**216**
Question	What are the common methods for pumping to achieve population inversion?
A	application of intense radiation (e.g. high-frequency radio field),
B	application of intense radiation (e.g. from an optical flash tube),
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**217**
Question	What are the major factors those cause losses in the laser structure?
A	nonuseful transmission through the mirrors,
B	absorption and scattering in the amplifying medium,
C	absorption, scattering and diffraction at the mirrors,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**218**
Question	Whether practically the laser device is perfect monochromatic light source? Why?
A	no, it emits over a narrow spectral band because small frequency oscillations occur,
B	yes, it emits over a narrow spectral band because wide frequency oscillations occur,
C	no, it emits over a wide spectral band because small frequency oscillations occur,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**219**
Question	What are modes in laser? What is frequency interval for separation in modes of laser?
A	continuous optical frequencies are longitudinal or axial modes and frequency interval $\delta f = (c) / (2.n.L)$,
B	discrete optical frequencies are longitudinal or axial modes and frequency interval $\delta f = (\lambda^2 / 2.n.L)$,
C	discrete optical frequencies are longitudinal or axial modes and frequency interval $\delta f = (c) / (2.n.L)$,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**220**
Question	What are modes in laser? What is wavelength interval for separation in modes of laser?
A	discrete optical frequencies are longitudinal or axial modes and wavelength interval $\delta f = (c) / (2.n.L)$,
B	continuous optical frequencies are longitudinal or axial modes and wavelength interval $\delta\lambda = (\lambda^2 / 2.n.L)$,
C	discrete optical frequencies are longitudinal or axial modes and wavelength interval $\delta\lambda = (\lambda^2 / 2.n.L)$,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**221**
Question	What leads to the recombination of carriers across the bandgap in the forward-biased p-n diode?
A	increased concentration of minority carriers in the opposite type region,
B	increased concentration of majority carriers in the opposite type region,
C	increased concentration of minority carriers in the same type region,
D	increased concentration of majority carriers in the same type region.
Answer	
Marks	2
Unit	UNIT - III

Id	**222**
Question	What is correct for the emission of light by recombination of charges in semiconductors?
A	empty electron states in conduction band of p-type material recombine across bandgap,
B	empty hole states in valence band of n-type material recombine across bandgap,
C	empty electron states in conduction band of p-type material and empty hole states in valence band of n-type material are populated by injected carriers across bandgap,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**223**
Question	What is the amount of energy released by the electron-hole recombination in optical source material?
A	approximately equal to the conduction band energy E_c,
B	approximately equal to the valence band energy E_v,
C	approximately equal to the bandgap energy E_g,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**224**
Question	What are the types of charge carrier recombination in the semiconductor materials of optical sources?
A	radiative recombination,
B	nonradiative recombination,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**225**
Question	Which charge carrier recombination is able to emit the light in the source material?
A	radiative recombination,
B	nonradiative recombination,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**226**
Question	What is the outcome of nonradiative carrier recombination in the source material?
A	energy released is dissipated in the form of lattice vibrations,
B	energy released is dissipated in the form of heat,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**227**
Question	What is heterojunction in semiconductors of optical source?
A	interface between two adjoining single crystal semiconductors,
B	interface between two adjoining semiconductors with different bandgap energies,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**228**
Question	What is heterostructure in semiconductors of optical source?
A	devices fabricated with homojunctions are said to have heterostructure,
B	devices fabricated with heterojunctions are said to have heterostructure,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**229**
Question	What are the types of heterojunctions in semiconductors of optical devces?
A	isotype (n-n or p-p) and an anisotype (p-n),
B	isotype (p-n) and an anisotype (n-n or p-p),
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**230**
Question	What are the rolls of isotype heterojunction in semiconductors of optical devices?
A	provides a potential barrier within the structure,
B	useful for the confinement of minority carriers called carrier confinement to a small active region,
C	effectively reduces carrier diffusion length and volume in structure to reduce radiative recombination,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**231**
Question	What are the uses of isotype heterojunctions in optical source materials?
A	fabrication of injection lasers,
B	provide a transparent layer close to active region in LEDs to reduces reabsorption of light,
C	fabrication of high-radiance LEDs,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**232**
Question	What are the uses of anisotype heterojunctions in optical source materials?
A	improve the injection efficiency of either electrons or holes,
B	provide an active region,
C	fabrication of n-n or p-p semiconductor region,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**233**
Question	What is use of a dielectric step due to the different refractive indices at either side of the junction in heterojunction semiconductors in optical sources?
A	provide radiation confinement to active region,
B	provide walls of an optical waveguide,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**234**
Question	By how much factor the threshold currents necessary for lasing are reduced when a double-heterojunction (DH) structure is implemented with carrier and optical confinement? What are the typical values of threshold currents for stimulated emission and lasing?
A	threshold currents reduction is by a factor of 100 and typical values are 50 to 200 mA,
B	threshold currents reduction is by a factor of 100 and typical values are 250 to 500 mA,
C	threshold currents reduction is by a factor of 10 and typical values are 15 to 20 mA,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**235**
Question	What is electrical condition with which and how the laser oscillation commences?
A	voltage required for bandgap energy of active layer is applied and large number of electrons (or holes) injected into the active layer,
B	voltage required for valence energy of active layer is applied and less number of electrons (or holes) injected into the active layer,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**236**
Question	What is formed and confined by a refractive index step at the heterojunctions active layer in optical sources?
A	forms center of a dielectric waveguide and strongly confines electroluminescence,
B	forms center of an electric waveguide and strongly confines electric field,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**237**
Question	What is strip geometry in the laser diode structure?
A	active region does not extend to the edges of the device,
B	active region extends to the edges of the device,
C	passive region does not extend to the edges of the device,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**238**
Question	What are the problems get eliminated by development of strip geometry laser structures?
A	difficult heat sinking,
B	lasing by multiple filaments in wide active area and unsuitable light output geometry for coupling,
C	reducing required threshold current,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**239**
Question	What modifications are achieved with the help of strip geometry in the laser structures?
A	the major current flow through the device and hence the active region is within the strip,
B	to provide optical containment in the horizontal plane,
C	strip region acts as a guiding mechanism for both electric current and light,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**240**
Question	How the strip is formed in the laser structures?
A	creation of high-resistance areas on either side by techniques such as oxide isolation,
B	creation of high-resistance areas on either side by techniques such as proton bombardment,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**241**
Question	How much is the output beam divergence perpendicular to the plane of the junction and parallel to it in strip geometry laser structures?
A	45° perpendicular to plane of junction and 120° parallel,
B	65° perpendicular to plane of junction and 9° parallel,
C	65° perpendicular to plane of junction and 120° parallel,
D	45° perpendicular to plane of junction and 9° parallel.
Answer	
Marks	2
Unit	UNIT - III

Id	**242**
Question	What is typical stripe widths of strip geometry in the laser structures?
A	ranging from 20 to 165 μm,
B	ranging from 2 to 65 μm,
C	ranging from 20 to 65 μm,
D	ranging from 2 to 165 μm.
Answer	
Marks	2
Unit	UNIT - III

Id	**243**
Question	What is the mechanism of light emission is encouraged in light emitting diode (LED)?
A	stimulated emission,
B	spontaneous emission,
C	monochromatic emission,
D	incoherent emission.
Answer	
Marks	2
Unit	UNIT - III

Id	**244**
Question	What are advantages of light emitting diode (LED) over injection laser?
A	simple fabrication and reduced cost,
B	no catastrophic degradation and less sensitive to gradual degradation,
C	immune to self-pulsation and modal noise problems,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**245**
Question	What are advantages of light emitting diode (LED) over injection laser?
A	immune to self-pulsation and modal noise problems,
B	linear light output useful in analog modulation,
C	reliable, low cost and simple fabrication,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**246**
Question	What are advantages of light emitting diode (LED) over injection laser?
A	lower drive currents and no temperature compensation circuits,
B	less temperature dependence and not a threshold device,
C	simpler drive circuitry,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**247**
Question	What are disadvantages of light emitting diode (LED) with respect to injection laser?
A	photons energy is roughly equal to bandgap energy so gives a wider spectral linewidth,
B	lower optical power coupling, lower modulation bandwidth and presence of harmonic distortion,
C	emitted photons have random phases and device is incoherent,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**248**
Question	What about the modes supported by light emitting diode (LED) as an optical source?
A	supports many optical modes within its structure,
B	used as a multimode source,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**249**
Question	What is internal quantum efficiency η_{int} of light emitting diode (LED) ?
A	ratio of the radiative recombination rate to the total recombination rate,
B	ratio of photons generated to the injected electrons,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**250**
Question	What is formula for the optical power generated internally by the light emitting diode (LED)?
A	$P_{int} = (\eta_{int}.i.h.f) / e$ (W),
B	$P_{int} = (\eta_{int}.i.h.c) / (e.\lambda)$ (W),
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**251**
Question	What is external power efficiency of light emitting diode (LED) η_{ep}?
A	$\eta_{ep} \approx (P_e / P) \times 100\%$,
B	$\eta_{ep} \approx (P_e / P_{int}) \times 100\%$,
C	$\eta_{ep} \approx (P / P_e) \times 100\%$,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	252
Question	What is the optical power emitted P_e from light emitting diode (LED) into a medium?
A	$P_e = (p_{int}.F.n_x^2) / (4.n^2)$,
B	$P_e = (p_{int}.F.n^2) / (4.n_x^2)$,
C	$P_e = (p_{int}.F.n_x^2) / (8.n^2)$,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**253**
Question	What is coupling efficiency η_c of light emitting diode (LED) into a fiber?
A	estimate for optical power coupled into fiber to optical power emitted,
B	$\eta_c = (NA)^2$,
C	$\eta_c = \sin^2 \theta_a$,
D	all A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**254**
Question	Why the internal absorption in surface emitter LED (SLED) device is very low?
A	larger bandgap-confining layers,
B	good forward radiance by using high reflection coefficient at the back crystal face,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**255**
Question	How are the internal and external emission from the active layer of surface emitter LED (SLED)?
A	internal emission is isotropic and external emission is Lambertian with 120° beam width,
B	internal emission is isotropic and external emission is Lambertian with 30° beam width,
C	external emission is isotropic and internal emission is Lambertian with 120° beam width,
D	external emission is isotropic and internal emission is Lambertian with 30° beam width.
Answer	
Marks	2
Unit	UNIT - III

Id	**256**
Question	What is the formula for the power coupled Pc from surface emitter LED (SLED) into a multimode step index fiber?
A	$Pc = 2.\pi.(1 - r).A.R_D.(NA)^3$,
B	$Pc = \pi.(1 - 2.r).A.R_D.(NA)^3$,
C	$Pc = \pi.(1 - r).A.R_D.(NA)^2$,
D	$Pc = (\pi/2).(1 - r).A.R_D.(NA)^2$.
Answer	
Marks	2
Unit	UNIT - III

Id	**257**
Question	What are the factors on which the power coupled from surface emitter LED (SLED) into the fiber is dependent?
A	distance and alignment between the emission area and the fiber,
B	SLED emission pattern and the medium between the emitting area and the fiber,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**258**
Question	What is the use of the addition of epoxy resin in the etched well of surface emitter LED (SLED)?
A	increase the external power efficiency,
B	reduce the refractive index mismatch,
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**259**
Question	How the reduction of photons reabsorption is achieved in the edge emitter LED (ELED)?
A	light produced in thin active layer (50 to 100 µm) spreads in transparent guiding layers,
B	light produced in transparent guiding layers spreads in thin active layer (50 to 100 µm),
C	both A and B,
D	none of A, B and C.
Answer	
Marks	2
Unit	UNIT - III

Id	**260**
Question	How much is the divergence to a half-power width in the plane perpendicular to the junction in edge emitter LED (ELED) and why?
A	narrows the beam divergence to a half-power width of around 30°,
B	gives a Lambertian output with a half-power width of around 30°,
C	narrows the beam divergence to a half-power width of around 120°,
D	gives a Lambertian output with a half-power width of around 120°.
Answer	
Marks	2
Unit	UNIT - III

Id	**261**
Question	How much is the divergence to a half-power width in the plane of the junction in edge emitter LED (ELED) and why?
A	narrows the beam divergence to a half-power width of around 120°,
B	gives a Lambertian output with a half-power width of around 120°,
C	narrows the beam divergence to a half-power width of around 30°,
D	gives a Lambertian output with a half-power width of around 30°.
Answer	
Marks	2
Unit	UNIT - III

Id	**262**
Question	Due to one end side emission of all light in edge emitter LED (ELED) what is increased than surface emitter LED (SLED)?
A	increased effective radiance giving increased coupling efficiency into small-NA fiber,
B	decreased effective radiance giving increased coupling efficiency into large-NA fiber,
C	increased effective radiance giving decreased coupling efficiency into small-NA fiber,
D	decreased effective radiance giving decreased coupling efficiency into large-NA fiber.
Answer	
Marks	2
Unit	UNIT - III

Id	**263**
Question	Why the surface emitter LED (SLED) radiate more power than edge emitter LED (ELED) and how much times more?
A	emitted light is less affected by reabsorption and interfacial recombination, 2.5 to 3 times,
B	emitted light is more affected by reabsorption and interfacial recombination, 0.5 to 1.25 times,
C	received light is less affected by reabsorption and interfacial recombination, 0.5 to 1.25 times,
D	received light is more affected by reabsorption and interfacial recombination, 2.5 to 3 times.
Answer	
Marks	2
Unit	UNIT - III

Id	**264**
Question	What is the optical power coupling and numerical aperture relation in edge emitter LED (ELED) and surface emitter LED (SLED)?
A	coupling of ELED is more than SLED in high NA (more than 0.3) and SLED is more than ELED in low NA (less than 0.3),
B	coupling of SLED is more than ELED in low NA (more than 0.3) and ELED is more than SLED in high NA (less than 0.3),
C	coupling of ELED is more than SLED in high NA (less than 0.3) and SLED is more than ELED in low NA (more than 0.3),
D	coupling of ELED is more than SLED in low NA (less than 0.3) and SLED is more than ELED in high NA (more than 0.3).
Answer	
Marks	2
Unit	UNIT - III

Id	**265**
Question	What enables the edge emitter LED (ELED) to couple more power into fiber than the surface emitter LED (SLED) and how much more coupling in theory and practice?
A	enhanced waveguiding, theoretically 3.5 to 6 times more and in practice 7.5 times,
B	reduced waveguiding, theoretically 7.5 times more and in practice 3.5 to 6 times,
C	reduced waveguiding, theoretically 3.5 to 6 times more and in practice 7.5 times,
D	enhanced waveguiding, theoretically 7.5 times more and in practice 3.5 to 6 times.
Answer	
Marks	2
Unit	UNIT - III

Id	**266**
Question	What is the arrangement that achieves the coupling efficiencies in to low-NA fiber with light emitters?
A	use of lens arrangement,
B	use of repeater arrangement,
C	use of line amplifier arrangement,
D	use of splicing arrangement.
Answer	
Marks	2
Unit	UNIT - III

Id	**267**
Question	How is the characteristics of LED and when it is similar corresponding to the injection laser?
A	nonlinear and similar when above threshold with lasing,
B	linear and similar when above threshold with lasing,
C	nonlinear and similar when below threshold without lasing,
D	linear and similar when below threshold without lasing.
Answer	
Marks	2
Unit	UNIT - III

Id	268
Question	A ruby laser contains a crystal of length 4 cm with a refractive index of 1.78. The peak emission wavelength from the device is 0.55 μm. Determine the longitudinal modes frequency separation.
A	2.1 GHz,
B	2.1 MHz,
C	21 MHz,
D	210 MHz.
Answer	
Marks	2
Unit	UNIT - III

Id	**269**
Question	The light output from the GaAs LED is coupled into a step index fiber with a numerical aperture of 0.2 a diameter larger than the diameter of the device. Estimate: The coupling efficiency into the fiber when the LED is in close proximity to the fiber core.
A	0.02,
B	0.05,
C	0.04,
D	0.10.
Answer	
Marks	2
Unit	UNIT - III