# University of Mumbai

## Examination 2020 under cluster 4 (PCE)

Program: BE Electronics and Telecommunication Engineering
Curriculum Scheme: **Rev2016**
Examination: Final Year Semester VII
Course Code: **ECC703** and Course Name: **Optical Communication**
Time: 1 hour Max. Marks: 50
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Note to the students:- All the Questions are compulsory and carry equal marks .

| | |
|---|---|
| Q1. | Data is transmitted using light through |
| Option A: | Twisted pair |
| Option B: | Optical fiber |
| Option C: | Coaxial |
| Option D: | microwave |
| | |
| Q2. | More than one path for light rays to take down the fiber |
| Option A: | Multimode |
| Option B: | Step-index |
| Option C: | Single mode |
| Option D: | Graded index |
| | |
| Q3. | The modes are calculated from which parameter |
| Option A: | Frequency |
| Option B: | Wavelength |
| Option C: | Phase constant |
| Option D: | V Number |
| | |
| Q4. | A ray of light will undergo total internal reflection if it |
| Option A: | Goes from rarer medium to denser medium |
| Option B: | Incident at an angle less than the critical angle |
| Option C: | Strikes the interface normally |
| Option D: | Incident at an angle greater than the critical angle |
| | |
| Q5. | The minimum angle of incidence at which the light ray may strike the interface of two media and result in an angle of refraction of 90 degrees or greater. |
| Option A: | Optimum angle |
| Option B: | Angle of refraction |
| Option C: | Refracted angle |
| Option D: | Critical angle |
| | |
| Q6. | The critical angle is defined as the angle of -------at which the total internal reflection starts to occur |
| Option A: | incidence |
| Option B: | absorption |
| Option C: | diffraction |
| Option D: | deterioration |
| | |
| Q7. | OTDR meter is used for detecting |
| Option A: | Break in fiber |

| | |
|---|---|
| Option B: | Dispersion in Fiber |
| Option C: | Attenuation in Fiber |
| Option D: | Power loss in Fiber |
| | |
| Q8. | Refractive Index of Glass is |
| Option A: | Nearly 0.5 |
| Option B: | Nearly 1.5 |
| Option C: | Around 5 to 6 |
| Option D: | Above 10 |
| | |
| Q9. | For cheapest local area network which optical fiber is used? |
| Option A: | Single Mode Long distance fiber |
| Option B: | Plastic Fiber |
| Option C: | Mono mode glass fiber |
| Option D: | Teflon Fiber |
| | |
| Q10. | Which of the following is a type of linear scattering? |
| Option A: | Rayleigh scattering |
| Option B: | Stimulated Raman scattering |
| Option C: | Stimulated Brillouin scattering |
| Option D: | Microbending loss |
| | |
| Q11. | A major difference between LED and laser diode is that the optical output from and LED is…… and whereas that of laser diode is….. |
| Option A: | coherent , incoherent |
| Option B: | incoherent , coherent |
| Option C: | coherent, coherent |
| Option D: | incoherent, incoherent |
| | |
| Q12. | Quantum wells structures can be grown in semiconductors by…… |
| Option A: | vapor phase deposition |
| Option B: | chemical vapor deposition |
| Option C: | simple epitaxy layer formation |
| Option D: | modified vapor phase deposition |
| | |
| Q13. | Quantum well concept use in…… |
| Option A: | LASER |
| Option B: | LED |
| Option C: | PIN |
| Option D: | APD |
| | |
| Q14. | Surface emitting laser is……. |
| Option A: | Tunable laser |
| Option B: | VCSEL |
| Option C: | LED |
| Option D: | Semiconductor laser |
| | |
| Q15. | The electrical output per optical input in photo detector is |

| | |
|---|---|
| Option A: | Responsivity |
| Option B: | Quantum Efficiency |
| Option C: | Absorption coefficient |
| Option D: | Reliability |
| | |
| Q16. | In APD the impact ionization leads to |
| Option A: | Dark Current |
| Option B: | Avalanche breakdown |
| Option C: | Saturation |
| Option D: | Auger recombination |
| | |
| Q17. | Compared to p-i-n photodiode, which device has more sophisticated structure |
| Option A: | Avalanche photodiode |
| Option B: | p-n junction diode |
| Option C: | Zener diode |
| Option D: | Varactor diode |
| | |
| Q18. | _____ is defined as a process by which the wavelength of the transmitted signal is changed without altering the data carried by the signal. |
| Option A: | Wavelength conversion |
| Option B: | Attenuation |
| Option C: | Sigma management |
| Option D: | Wavelength dispersion |
| | |
| Q19. | At which level of temperature does the oxidation process occur in MCVD? |
| Option A: | Low |
| Option B: | Moderate |
| Option C: | High |
| Option D: | Unpredictable |
| | |
| Q20. | Consider the assertions given below. Which is the correct sequential order of process adopted in glass fiber preparation?<br><br>I. Drawing of fiber<br>II. Production of pure glass<br>III. Pulling of fiber<br>IV. Conversion of pure glass into preform |
| Option A: | II, IV, I, III |
| Option B: | I, II, III, IV |
| Option C: | III, I , IV , II |
| Option D: | IV, II , I , III |
| | |
| Q21. | For linear as well as in nonlinear mode _____ are most important network elements. |
| Option A: | Optical amplifier |
| Option B: | Optical detector |
| Option C: | A/D converter |

| | |
|---|---|
| Option D: | D/A converters |
| | |
| Q22. | What is the meaning of single mode and multimode from following? |
| Option A: | the number of fibers placed into a fiber-optic cable |
| Option B: | the number of voice channels each fiber can support |
| Option C: | the number of wavelengths each fiber can support |
| Option D: | the index number |
| | |
| Q23. | What is reflective Index number? |
| Option A: | a number which compares the transparency of a material with that of air |
| Option B: | a number assigned by the manufacturer to the fiber in question |
| Option C: | a number which determines the core diameter |
| Option D: | a term for describing core elasticity |
| | |
| Q24. | Which kind of calculations are possible with Link Budget? |
| Option A: | Useful signal power |
| Option B: | Interfering noise power |
| Option C: | Useful signal & Interfering noise power |
| Option D: | Time and Phase |
| | |
| Q25. | What Kind of Prediction is possible with Link Budget? |
| Option A: | Equipment weight and size |
| Option B: | Technical risk |
| Option C: | Prime power requirements |
| Option D: | Equipment weight and size, Technical risk and Prime power requirements |

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| Question | Correct Option (Enter either 'A' or 'B' or 'C' or 'D') |
|---|---|
| Q1. | B |
| Q2. | A |
| Q3. | D |
| Q4 | D |
| Q5 | D |
| Q6 | A |
| Q7 | A |
| Q8. | B |
| Q9. | B |
| Q10. | A |
| Q11. | B |
| Q12. | C |
| Q13. | A |
| Q14. | B |
| Q15. | A |
| Q16. | B |
| Q17. | A |
| Q18. | A |
| Q19. | C |
| Q20. | A |
| Q21. | A |
| Q22. | C |
| Q23. | A |
| Q24. | C |
| Q25. | D |