Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2016

Examination: Final Year Semester VII

Course Code: ECC703

Course Name: Optical communication

Time: 1 hour Max. Marks: 50

**SAMPLE PAPER**

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| Q1. | In an optical fiber, the concept of Numerical aperture is applicable in describing the ability of \_\_\_\_\_\_\_\_\_\_  |
| Option A: | Light Collection |
| Option B: | Light Scattering |
| Option C: | Light Dispersion |
| Option D: | Light Polarization |
|  |  |
| Q2. | What is refractive index of air |
| Option A: | 1.00 |
| Option B: | 1.33 |
| Option C: | 1.45 |
| Option D: | 2.42 |
|  |  |
| Q3. | Which law gives the relationship between refractive index of the dielectric? |
| Option A: | Law of reflection |
| Option B: | Law of refraction (Snell’s Law) |
| Option C: | Millman’s Law |
| Option D: | Huygen’s Law |
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| Q4. | The core of an optical fiber has a |
| Option A: | Lower refracted index than air |
| Option B: | Lower refractive index than the cladding |
| Option C: | Higher refractive index than the cladding |
| Option D: | Similar refractive index with the cladding |
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| Q5. | Is the different angle of entry of light into an optical fiber when the diameter of the core is many times the wavelength of the light transmitted? |
| Option A: | Acceptance angle |
| Option B: | Modes |
| Option C: | Sensors |
| Option D: | Aperture |
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| Q6. | The fibers which relax the spectral requirements for optical sources and allow flexible wavelength division multiplying are known as \_\_\_\_\_\_\_\_\_\_ |
| Option A: | Dispersion-flattened single mode fiber |
| Option B: | Dispersion-enhanced single mode fiber |
| Option C: | Dispersion-compressed single mode fiber |
| Option D: | Dispersion-standardized single mode fiber |
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| Q7. | Linear scattering effects are \_\_\_\_\_\_\_ in nature. |
| Option A: | Elastic |
| Option B: | Non-Elastic |
| Option C: | Mechanical |
| Option D: | Electrical |
|  |  |
| Q8. | The beating between light at different frequencies or wavelengths in multichannel fiber transmission causes \_\_\_\_\_\_\_\_ |
| Option A: | Attenuation |
| Option B: | Amplitude modulation of channels |
| Option C: | Phase modulation of channels |
| Option D: | Loss in transmission |
|  |  |
| Q9. | Nonlinear effects which are defined by the intensity – dependent refractive index of the fiber are called as \_\_\_\_\_\_\_\_ |
| Option A: | Scattering effects |
| Option B: | Kerr effects |
| Option C: | Raman effects |
| Option D: | Tomlinson effects |
|  |  |
| Q10. | Absorption losses due to atomic defects mainly include \_\_\_\_\_\_\_\_\_\_\_ |
| Option A: | Radiation |
| Option B: | Missing molecules, oxygen defects in glass |
| Option C: | Impurities in fiber material |
| Option D: | Interaction with other components of core |
|  |  |
| Q11. | \_\_\_\_\_\_\_\_\_\_\_\_ uses Er3+-doped erbium glass. |
| Option A: | An erbium-based micro fiber amplifier |
| Option B: | Rare-earth-doped fiber amplifiers |
| Option C: | Raman fiber systems |
| Option D: | Brillouin fiber amplifier |
|  |  |
| Q12. | The \_\_\_\_\_\_\_\_\_\_\_ incorporates a line receiver in order to convert the optical signal into the electrical regime. |
| Option A: | Attenuator |
| Option B: | Transmitter |
| Option C: | Repeater |
| Option D: | Designator |
|  |  |
| Q13. | Which of the following is not an optical fiber component? |
| Option A: | core |
| Option B: | Fiber |
| Option C: | Connector |
| Option D: | Circulator |
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| Q14. | \_\_\_\_\_\_\_\_\_\_ limits the maximum distance between the optical fiber transmitter and receiver. |
| Option A: | Attenuation |
| Option B: | Transmission |
| Option C: | Equipment |
| Option D: | Fiber length |
|  |  |
| Q15. | \_\_\_\_\_\_\_\_\_\_ can act as AND, OR, NOT gate. |
| Option A: | Wavelength converters |
| Option B: | Wavelength amplifiers |
| Option C: | Detectors |
| Option D: | Bistable optical devices |
|  |  |
| Q16. | Multimode step index fiber has \_\_\_\_\_\_\_\_\_\_\_ |
| Option A: |  Large core diameter & large numerical aperture |
| Option B: | Large core diameter and small numerical aperture |
| Option C: | Small core diameter and large numerical aperture |
| Option D: |  Small core diameter & small numerical aperture |
|  |  |
| Q17. | Multimode graded index fibers are manufactured from materials with \_\_\_\_\_\_\_\_\_\_\_ |
| Option A: |  Lower purity |
| Option B: |  Higher purity than multimode step index fibers. |
| Option C: |  No impurity |
| Option D: |  Impurity as same as multimode step index fibers. |
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| Q18. | In waveguide dispersion, refractive index is independent of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Option A: |  Bit rate |
| Option B: |  Index difference |
| Option C: |  Velocity of medium |
| Option D: |  Wavelength |
|  |  |
| Q19. | The optical source used for detection of optical signal is \_\_\_\_\_\_\_\_\_\_\_\_ |
| Option A: |  IR sensors |
| Option B: |  Photodiodes |
| Option C: |  Zener diodes |
| Option D: |  Transistors |
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| Q20. | The detection mechanism in \_\_\_\_\_\_\_\_\_\_\_\_ relies on photo excitation of electrons from confined states in conduction band quantum wells. |
| Option A: |  p-i-n detector |
| Option B: |  Quantum-dot photo detector |
| Option C: |  p-n photodiode |
| Option D: |  Avalanche photodiodes |
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| Q21. | . \_\_\_\_\_\_\_\_\_\_ is less than or unity for photo detectors. |
| Option A: |  Absorption coefficient |
| Option B: |  Band gap energy |
| Option C: |  Responsivity |
| Option D: |  Quantum efficiency |
|  |  |
| Q22. | There must be improvement in \_\_\_\_\_\_\_\_\_\_ of an optical fiber communication system. |
| Option A: |  Detector |
| Option B: |  Responsivity |
| Option C: |  Absorption Coefficient |
| Option D: |  Band gap energy |
|  |  |
| Q23. | The more advantages optical amplifier is \_\_\_\_\_\_\_\_\_\_\_\_ |
| Option A: |  Fiber amplifier |
| Option B: |  Semiconductor amplifier |
| Option C: |  Repeaters |
| Option D: |  Mode hooping amplifier |
|  |  |
| Q24. | 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 |
|  |  |
| Q25. | Mostly \_\_\_\_\_\_\_\_\_\_\_\_ are used in nonlinear applications |
| Option A: |  Semiconductor optical amplifier |
| Option B: |  Erbium-doped fiber amplifier |
| Option C: |  Raman fiber amplifier |
| Option D: |  FPAs |