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 |
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| Q2. | What is refractive index of air |
| Option A: | 1.00 |
| Option B: | 1.33 |
| Option C: | 1.45 |
| Option D: | 2.42 |
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| 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 |
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| 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 |
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| 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 |
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| 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 |
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| 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 |
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| 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 |
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| Q15. | \_\_\_\_\_\_\_\_\_\_ can act as AND, OR, NOT gate. |
| Option A: | Wavelength converters |
| Option B: | Wavelength amplifiers |
| Option C: | Detectors |
| Option D: | Bistable optical devices |
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| 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 |
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| 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 |
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| 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 |
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| 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 |
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| 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 |