Mansoura Univ.
Faculty of Eng. BME Prog.
Total marks:20
Midt.Exam.

1-4-2019
Time: 1H.
Course title:
Optoelectronics

ANSWER ALL QUESTIONS

Question ONE: (8 Marks)

a- What is the meaning of graded - index fiber ? What are its advantages? What is the theory of its operation? What is the suitable index profile in optical communications?
b-Compare between single mode and multimode optical fiber.

Question Two: (7 Marks)

a-Define the attenuation and dispersion in optical fiber. What is the suitable transmission wavelength for each one?
b- A mean optical power lunched into optical fiber link is 2 mW and fiber has an attenuation of 0.5dB/Km . Determine the maximum possible link length when the minimum mean optical power level required at the detector is 3μW.

Question Three: (5 Marks)

A graded index fiber has a core with a parabolic refractive index profile which has a diameter of 70 μm and N_A of 0.25 , calculate number of guided modes if λ =0.6μm.

Good luck **Prof. Ahmed samra**