

Total No. of printed pages = 5

Et-603/OFC/6th Sem/2018/M

OPTICAL FIBER COMMUNICATION

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks
for the questions.

PART – A

Marks – 25

All questions are compulsory.

1. Select the correct answer : $1 \times 10 = 10$
- (a) In step index fiber, the core has a refractive index (lower / higher) than cladding material.
 - (b) Multimode indicates that light can travel in (one / many) ways through the fiber.
 - (c) Graded index multimode fibers have (bigger / smaller) core compared to step index multimode fibers.

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- (d) In LEDs, the recombination energy is released as (heat / light).
- (e) FDM places two or more signals at different (phase / frequency).
- (f) Photodiodes used in fiber optics are (reverse / forward) biased.
- (g) Couplers connect (more than two / two) devices.
- (h) Tree couplers have (one / more than one) input.
- (i) Dividing an optical signal among output ports (reduces / retains the same) strength.
- (j) NRZ is a (coding / decoding) technique.

2. Answer true of false :

1×5=5

- (a) Optical fibers must have a cladding to keep light from leaking out.
- (b) Refractive index is a crucial property of optical materials.
- (c) Couplers make permanent connections between fibers.

- (d) A T or Y coupler has five ports.
- (e) Fibers are used in applications where wires will not meet speed and distance requirements.

3. Fill in the blanks : 1×10=10

- (a) In optical fiber communication, signals are transmitted as _____.
- (b) Optical fibers are immune to _____.
- (c) Velocity of light $c = vx$ _____.
- (d) Refractive index is the ratio of speed of light in _____ to speed of light in the medium.
- (e) If light passes from air to glass, it is _____.
- (f) A mode is a _____ propagation state in an optical fiber.
- (g) In LED, output power varies _____ with the input power.
- (h) LESER produces _____ beam.
- (i) Light can be detected by a _____.
- (j) Connectors are used for _____ connections.