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[25/A-11]

SARDAR PATEL UNIVERSITY
B.Sc. (6th Semester) Examination

Friday, 6th April 2018

10:00 am to 01:00 pm

Electronics

US06CELE06- Analog Communication and Fiber Optics

Total Marks : 70

Q.1 Multiple choice questions.

[10]

1. The colour of an object corresponds to the wavelength of the _____ light.
(a) Incident (b) Scattered (c) Reflected
2. The mirror coated with _____ material makes any mirror reflect a specific colour and permit other colours to pass through.
(a) Diachroic (b) Unsaturated (c) Saturated
3. Among the following colours for which the response of human eye is minimum.
(a) Green (b) Red (c) Violet
4. Optical fiber communication is the transmission of information by conversion of an electrical signal into an _____ signal.
(a) Sound (b) Photoelectric (c) Optical
5. The refractive index of the core is always _____ that of cladding.
(a) Equal to (b) Less than (c) More than
6. In which type of fiber the modal dispersion is found minimum ?
(a) Mono mode step index fiber (b) Multi mode graded index fiber
(c) Multi mode step index fiber
7. A LED is solid state p-n junction device which emits light when it is _____ biased.
(a) Not (b) Reverse (c) Forward
8. The total internal reflection takes place when photons are incident to the surface at angles greater than the _____ angle.
(a) Refraction (b) Reflection (c) Critical
9. In optical fiber losses occur due to _____.
(a) Dispersion (b) Reflection (c) Refraction
10. _____ is required in optical fiber to repair a broken connection or to extend an optical link.
(a) Welding (b) Soldering (c) Splicing

Q.2 Answer any TEN questions in brief.

[20]

1. What is the principle of Trinitron colour picture tube ?
2. State the principle of PAL system.
3. State the principle of additive mixing.

4. What is the result of losses and dispersion in the fiber ?
5. Which wavelength is more preferred in optical communication ? Why ?
6. What is the principle of fiber optics ?
7. Explain Avalanche multiplication process.
8. Why laser light can travel many miles without spreading ?
9. What is population Inversion ?
10. What is the need of repeater in the fiber optical communication ?
11. List the factors that determine the distance between two repeaters.
12. Explain the fusion of glass fiber briefly.

Q.3 Draw the block diagram of PAL encoder and explain it. [10]

OR

Q.3 Draw the block schematic of colour television camera and explain it in detail. [10]

Q.4 Discuss the advantages of Fibers over conventional cables. [10]

OR

Q.4 (a) Discuss in detail the classification of Fibers. [06]

(b) Write a note on fiber construction. [04]

Q.5 Discuss in detail the construction and working of P- I -N photodiode. [10]

OR

Q.5 (a) What is LED ? Discuss the principle of LED. [06]

(b) Discuss the various losses that occur in a LED. [04]

Q.6 Discuss in detail the splicing of Fibers. [10]

OR

Q.6 Draw the block diagram of the fiber optics communication system and explain it in detail. [10]

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