(18|A-8) SEAT No._____ No. of Printed Pages : 02

SARDAR PATEL UNIVERSITY

B.Sc. (6th Semester) Examination

Thursday, 4th April 2019

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 maximum.
   (a) Red (b) Green (c) Blue
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. In _____ fiber the refractive index of the core is more than that of the cladding.
   (a) Step index (b) Mono mode (c) Multi mode
6. Which of the following is not associated in optical communication?
   (a) Dispersion (b) Numerical Aperture (c) Antenna
7. A LED is a 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. _____ is required in optical fiber to repair a broken connection or to extend an optical link.
   (a) Welding (b) Soldering (c) Splicing
10. The optical source used in fiber optic communication system is _____.
    (a) LED (b) Photo diode (c) Photo transistor

Q.2 Answer any **TEN** questions in brief. [20]

1. State the principle of subtractive mixing.
2. What is the principle of Trinitron colour picture tube?
3. Explain how effect of the phase error can be reduced in PAL system.
4. What does an optical fiber consists of ?

[P.T.O]

5. What is the result of losses and dispersion in the fiber ?
6. Briefly explain why cross talk is less in fiber than the metallic cables.
7. Why LED is called cold lamp?
8. What is population inversion?
9. Differentiate between spontaneous and stimulated emission of radiation.
10. What is the need of repeater in the fiber optical communication?
11. Explain the fusion of glass fiber briefly.
12. What is the need of optical source in fiber optics communication?

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

OR

Q.3 Explain the construction and working of shadow mask color picture tube. [10]

Q.4 (a) Write a note on fiber construction give their characteristics and compared them. [06]

(b) What is the principle of fiber optics? [04]

OR

Q.4 Discuss in detail the advantages of optical fibers over conventional cables. [10]

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

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

OR

Q.5 Discuss in detail the principle of operation of P- I -N photodiode. [10]

Q.6 Discuss in detail the fiber optics communication system. [10]

OR

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

---------- X ----------