SUB.CODE: 20PPH2A2

REG.NO:

DHANALAKSHMI SRINIVASAN COLLEGE OF ARTS & SCIENCE FOR WOMEN (AUTONOMOUS)

(For Candidates admitted from 2020-2021 onwards)

PG DEGREE EXAMINATIONS APRIL - 2021

M.Sc., - PHYSICS

FIBER OPTIC COMMUNICATION

Time: 3 Hrs **Max.Marks: 75**

PART - A

CHOOSE THE CORRECT ANSWER **(10X1=10)**

1. Multimode graded index fibres are manufactured from materials with _____
   a) Lower purity b) Higher purity than multimode step index fibers
   c) No impurity d) Impurity as same as multimode step index fibers
2. Optical fibers for communication use are mostly fabricated from_____
   a) Plastic b) Silica or multicomponent glass c) Ceramics d) Copper
3. When light strikes a flat polished end of a fiber, the fiber loss produced can be reduced by
   a) Splicing b) Antireflection coating c) Insulation jacket d) All of these
4. The electron hole pairs generated in a photodiode are separated by the _____
   a) Magnetic field b) Electric field c) Static field d) Depletion region
5. The photocurrent of an optical detector should be _____
   a) Less b) More c) Linear d) Non- linear
6. A large secondary current _____in n-p-n in GaAs phototransistor is achieved.
   a) Between base and collector b) Between emitter and collector
   c) Between base and emitter d) Plasma
7. Phototransistors based on hetero-junction using _____material are known as waveguide phototransistors.
   a) InGap b) InGaAs c) InGaAsP/InAIAs d) ErGaAs
8. WDM is an analog multiplexing technique to combine
   a) Magnetic signals b) Electomagnetic signals c) Digital signals d) Optical signals
9. The data link control portion of most LAN protocols in use today is based on _____
   a) ANSI b) FDDI c) SDLC d) HDLC
10. _____is used as an optical transmitter on the Fiber Optical Communications.
    a) APD b) LED c) PIN diode d) LSA diode

PART- B

ANSWER ALL THE QUESTIONS **(5X7=35)**

11. a) Write a short note on function of the optical cable.

(OR)

b) Discuss the strength of fiber and its durability

12. a) Explain the fiber scattering loss of measurement

(OR)

b) Describe the numerical aperture measurement of optical fibers

13. a) Explain the quantum efficiency of optical detector

(OR)

b) Discuss about responsively of optical detector

14. a) Explain with a sketch the WDM

(OR)

b) Discuss the transmitter design of optical fiber communication

15. a) Explain the prospects of fiber optic communication

(OR)

b) Explain the application for industrial fiber optics

PART-C

ANSWER ANY THREE QUESTIONS **(3X10=30)**

16. Explain briefly the function of strength member in fiber cable.
17. Describe the measurement of optical fiber attenuation.
18. Explain the following in terms of i) PIN photo diode ii) Avalanche photo diode(APD)
19. Briefly explain the working principle of local area network (LAN).
20. Explain the application of photoreceptor optics.