Roll No. _____ [Total No. of Pages : 2

PGIIS-1050 A-16
M.Sc. IInd Semester (CBCS) Degree Examination
Applied Electronics
(Fiber Optic Communication)
Paper : SCT - 2.1

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

1. *Answer the Questions as per instructions*
2. *Write Question numbers clearly*

Part - A

1. Answer any **Eight** questions. **(8×2=16)**

a) Mention the applications of FOC

b) Define acceptance angle.

c) What do you understand by total internal reflection?

d) Define attenuation.

e) Mention two types of bending losses

f) What is the difference between step index and Graded index?

g) What are the desirable characteristics of LED?

h) Define Quantum efficiency of a photodetector.

i) Mention the limitations of p - n photodiode.

j) Draw the equivalent CKT of APD.

Part - B

Answer any **Four** questions. **(4×7=28)**

2. What are the advantages, applications and disadvantages of optical fiber as compared to copper cables?

3. Consider multimode silica fiber that has a core refractive index $n_1 = 1.48$ and cladding

index n_2= 1.46. Calculate critical angle, numerical aperture and acceptance angle.

4. Derive an expression for pulse broadening in graded index fiber.

5. What are the requirements of optical sources? Explain in brief any one type of source.

6. Write a note on coherent receiver

7. Explain briefly the various types of losses in optical fiber cable

Part - C

Answer any **Three** questions. **(3×12=36)**

8. With suitable diagram give the mechanism of light from an LED and its use in optical source for communication.

9. a) With a neat diagram, explain the working of an edge emitting double hetero junction LED.

   b) In a 100 - ns pulse, 6×10^6 photons at wavelength of 1300 nm fall on an InGaAs photodetector on the average 5.4×10^6 electron - hole (e-h) pairs are generated calculate the Quantum efficiency.

10. With a neat - block diagram explain the digital signal transmission through an optical data link.

11. Explain in detail about - DFB laser diode with a neat diagram.

12. Write short notes on (any **two**)

    a) Mode theory of Circular waveguides.

    b) Modulation of laser diodes

    c) Digital Receiver Performance calculation.

    d) Error Sources.

Roll No. _____ [Total No. of Pages : 2

PGIIS-1052 A-16
M.Sc. IInd Semester (CBCS) Degree Examination
Applied Electronics
(Fundamentals of Electronics)
Paper : OET - 2.1

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

1. *Answer the Question as per the instructions*
2. *Write Question numbers clearly*

Part - A

1. Answer any **Eight** of the following : **(8×2=16)**

a) Define voltage and current.

b) Define the role of resistor in an electronic circuit.

c) Define p - n junction of semiconductor diode.

d) Define Thevenin's theorem.

e) List the hybrid parameters of a transistor.

f) Mentions the two applications of transistor.

g) List the ideal characteristics of an operational amplifier.

h) Draw the circuit diagram of precision rectifier.

i) Draw the pin diagram of 78XX.

j) Define regulated power supply.

Part - B

Answer any **Four** of the following : **(4×7=28)**

2. Mention the advantages of active devices over passive devices.

3. Define LED and explain its working principle, advantages and disadvantages.

4. Explain the use of Norton's theorem to simply a network.

5. Draw the circuit diagram of self biased transistor amplifier and explain its working.

6. Draw the circuit diagram of AC and DC operational amplifier and explain their working.

7. Design a DC power supply capable of outputting 15 volts/1A at full load suing 3 - pin regulator IC.

Part - C

Answer any **Three** of the following : **(3×12=36)**

8. Explain the working of a voltage divider circuit and mention its application.

9. With a neat diagram explain the working of FET amplifier.

10. With a neat diagram explain the working of an op. amp. Integrator and derive the equation of output parameter and draw the output waveform under sine and square wave input.

11. Explain the working of A to D converter and mention its applications.

12. Write short notes on any **two** of the following : **(2×6=12)**

    a) Network laws.

    b) Advantages of FET over transistor.

    c) High pass filter.

    d) 555 time.

Roll No. _____ [Total No. of Pages : 2

PGIIS 1048 A - 16
M.Sc. IInd Semester Degree Examination
Applied Electronics
(Computer Fundamentals and C Programming)
Paper : HCT-2.1

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates :

i) Answer the questions as per instructions

ii) Write the question numbers clearly.

PART - A

1. Answer any EIGHT of the following : **(8×2=16)**

a) What is a computer program?

b) Differentiate between a magnetic memory and a CD-ROM.

c) What is an operating system?

d) Distinguish between a keyword and an identifier.

e) What are pointers?

f) Name any two branching statements.

g) Give an example of array initialization in C

h) What is the use of return statement in C?

i) Define the terms : Inheritance and Polymorphism

j) What is meant by encapsulation?

PART - B

Answer any FOUR of the following **(4×7=28)**

2. Discuss the historical development of computers.

3. Explain the basic organization of a computer.

4. Discuss the constants and variables in C

5. Write a program in C to compute the simple interest for three different values of principal amount. Also draw the flow chart.

6. With suitable example, explain the use of functions in C.

7. Explain the operators in C++

PART - C

Answer any THREE of the following. **(3×12=36)**

8. Explain the construction and working of a magnetic hard disk.

9. Explain the working of loop control statements in C with suitable examples.

10. Explain declaration and initialization of pointer variables with examples.

11. Explain in detail, the basic concepts of OOP

12. Write short notes on any TWO.

i) Laser printer

ii) I/O devices

iii) Arrays in C

iv) Structure of C++ program

Roll No. _____ [Total No. of Pages : 2

PGIIS 1049 A - 16
M.Sc. IInd Semester Degree Examination
Applied Electronics
(8086 Microprocessor and Interfacing)
Paper : HCT-2.2

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates :

i) Write the question number clearly

ii) Draw a neat labelled diagram wherever necessary.

PART - A

1. Answer any **EIGHT** of the following : (8×2=16)

a) Sketch a labelled 8086 CPU

b) What is a queue?

c) Distinguish between minimum and maximum modes of 8086 μ P.

d) What do you mean by program segments?

e) Why macros are called open subroutine?

f) Define simplex, half duplex and full duplex data transmission.

g) Differentiate between DB and DW directive.

h) Mention the significance of WAN.

i) Define subroutine.

j) What do you mean by assembly language and high level language?

PART - B

Answer any **FOUR** of the following (4×7=28)

2. With a neat diagram, explain the memory organization in 8086 μ P.

3. With suitable examples, explain the interrupts

4. Discuss the arithmetic and logical instructions.

5. Explain the data control directives.

6. Describe the asynchronous serial data communication.

7. Mention the salient features of math co - processor.

PART - C

Answer any **THREE** of the following. **(3×12=36)**

8. Explain the addressing modes of execution of 8086 μp

9. Discuss the program development tools.

10. Describe the branch displacement directives

11. With a neat diagram, explain the architecture of Pentium processor.

12. Write short notes on any **TWO.** **(6×2=12)**

    i) ROM-BIOS services

    ii) Program development process

    iii) Macro definition directives

    iv) Serial data communication.