Roll No. _____

PGIS-1050 B-17
M.Sc. I Semester (CBCS) Degree Examination
APPLIED ELECTRONICS
(Digital Electronics and 8085 Microprocessor)
Paper : SCT 1.1

Time : 3 Hours

Maximum Marks : 80

Instructions to the Candidates :

   i)   *Answer the questions as per the instructions.*

   ii)   *Write Question numbers clearly.*

PART-A

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

   a)   What is a flag?

   b)   What is meant by tri state buffer?

   c)   Why are the program counter and the stack pointer 16 bit registers?

   d)   What do you understand by virtual memory?

   e)   List out the microprocessor initiated operations.

   f)   Define asynchronous data transfer scheme.

   g)   Define DAD instruction.

   h)   List out the operating modes of timer 8253.

   i)   What is the function of HOLD & HLDA pins in 8085?

   j)   Define opcode and operand.

PART-B

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

2. Discuss the various characteristics of TTL logic family.

3. What is meant by RIM? Discuss the accumulator bit pattern for the RIM instruction.

4. Draw and explain the timing diagram for execution of 'IN' instruction.

5. Show how 8255 can be interfaced to 8085.

6. Explain the logical steps involved in calling a subroutine.

7. Explain the programming model of 8085.

PART-C

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

8. Discuss the different addressing modes in 8085 with examples.

9. Write a program to arrange 'n' numbers in ascending order.

10. Draw the memory map to interface 4 K bytes of EPROM to 8085. Use 2716 (2K) EPROM IC chips.

11. What is an interrupt? Explain the configuration of vectored interrupt with a neat fig.

12. Write short notes on (any **Two**) :

   a)   ADC with 8085

   b)   Memory Mapped I/O technique

   c)   Intel 8257 DMA controller

   d)   Co-processors

PGIS-1049 B-17
M.Sc. Ist Semester (CBCS) Degree Examination
APPLIED ELECTRONICS
(Electromagnetics and Antennas)
Paper : HCT 1.3

Time : 3 Hours   Maximum Marks : 80

Instructions to the Candidates :

  i)   Answer the questions as per the instructions.

  ii) Write question number clearly.

PART-A

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

    a) Give the comparison of TE and TM waves.

    b) Define wave impedance.

    c) What do you understand about stub?

    d) Define characteristic impedance.

    e) What are the microwave hybrid circuit?

    f) Define radiation resistance of an antenna.

    g) Define radiation intensity of an antenna.

    h) Define co-and cross polarization of an antenna.

    i) Mention the features of helical antenna.

    j) Mention different types of horn antennas.

PART-B

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

2. What is smith chart? Discuss its salient features.

3. Explain the working of a slide screw tuner.

4. With a neat diagram explain the working of a waveguide TEE.

5. Explain the design procedure of waveguide horn antenna.

6. Calculate the radiation resistance of $\tau/10$ wire dipole in free space.

7. Write a note on pattern multiplication with a typical example.

PART-C

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

8. Obtain TE mode field equations of a rectangular waveguide.

9. With a neat diagram explain the construction and working of a directional coupler and mention its S. parameters.

10. Define antenna array derive an expression for array of two isotropic source.

11. Explain the potential function for sinusoidal oscillator. w.r.t on antenna.

12. Write short notes on any two :   (2×6=12)

    a) Waveguide phase shifter

    b) S. parameters

    c) Dipole antenna

    d) Helical Antenna

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PGIS-1048 B-17
M.Sc. Ist Semester (CBCS) Degree Examination
APPLIED ELECTRONICS
(Electronic Instrumentation)
Paper : HCT 1.2

Time : 3 Hours Maximum Marks : 80

Instructions to the Candidates :

i) *Answer the questions as per the instructions.*

ii) *Write Question number clearly.*

PART-A

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

a) Write the objectives of instrumentation.

b) Mention the dynamic characteristics of an instrument.

c) What is a transducer?

d) Name the various principles used in transducer operation.

e) Define gage factor.

f) What is meant by pH of a solution?

g) Write the principle of operation of a solar cell.

h) Write the applications of an AC electrodynamometer.

i) Mention the importance of converters in instruments.

j) What is a data acquisition system?

PART-B

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

2. Discuss the various static characteristics of an instrument.

3. Discuss the classification of transducers with examples.

4. Explain the principles, construction and working of optical transducers.

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5. Explain the working of a pH meter.

6. Discuss the construction and working of lock-in-amplifier.

7. Explain the construction and working of a strip chart recorder.

PART-C

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

8. Describe the construction and working of various temperature transducers.

9. Describe the construction and working of digital frequency meter.

10. With neat block diagram, explain the working of a digital storage oscilloscope.

11. With neat block diagram, explain the working of a X-Y recorder.

12. Write a short notes on any **Two** :

    a) Errors

    b) Biomedical electrodes

    c) Sample and Hold circuit

    d) Humidity measurement

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PGIS-1047 B-17
M.Sc. Ist Semester (CBCS) Degree Examination
APPLIED ELECTRONICS
(Semiconductor and Microwave Devices)
Paper : HCT 1.1

Time : 3 Hours   Maximum Marks : 80

Instructions to the Candidates :

   i)   *Answer the questions as per instructions.*

   ii) *Write Question numbers clearly.*

PART-A

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

   a)   Give constructional features of thyristors.

   b)   Mention the types of thyristors.

   c)   Draw and state the significance of snubber circuit.

   d)   Write the applications of choppers.

   e)   In a snubber circuit, if $V_s = 200V$, having $R_s = 600\ \Omega$, and $Cs = 0.022\ \mu F$, determine dV/dt, I_{Th} and power (P).

   f)   List the limitations of conventional tubes.

   g)   List the microwave characteristics of klystron oscillator.

   h)   Define electronic admittance.

   i)   List the limitations of LSA diode.

   j)   Mention the limitations of TRAPATT diode.

PART-B

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

2. Explain the turn-ON and turn-OFF behaviour of thyristor.

3. Give salient features of fast switching and reverse conducting thyristors.

4. Discuss buck, boost and buck-boost regulators.

5. Explain the principle of operation of switched mode DC power supply.

6. Explain the construction and working of a TRAPATT diode.

7. Discuss the working of IMPATT diode.

PART-C

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

8. Discuss the operations of thyristor firing circuits in detail.

9. Describe the step-down and step-up operation of DC chopper.

10. Define TEDs. Explain the principle of operation of Gunn diode using valley model theory.

11. With a neat diagram, explain the working of high power magnetron and discuss its principle of operation. Mention its microwave characteristics.

12. Write a short note on any **TWO** of the following : (2×6=12)

   i)   Series and parallel operation of thyristors

   ii) AC power supplies

   iii) Microwave FETs

   iv) Read diode