Q.19 Write any four applications of Zener diode.

Q.20 Convert the following -

a) $(154)_8 = (\_\_\_\_\_)_2$

b) $(111100100101)_2 = (\_\_\_\_\_)_{16}$

Q.21 Write any four difference between analogue and digital signal.

Q.22 Draw the half wave rectifier circuit and also calculate the ripple factor.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Draw and explain the working principle of full wave rectifier. Also draw the output waveform for the give sinusoidal input. Write any two applications of full wave rectifier.

Q.24 Draw the circuit diagram of S-R flip-flop. Write the truth table of S-R flip-flop. Write any two differences between S-R and J-K flip-flop.

Q.25 a) Write any four differences between BJT and FET transistors.

b) Write the decimal number 426 in binary, octal and hexadecimal form respectively.

Roll No. .....

2nd Sem / Instrumentation & Control Engg.
Medical Electronics

Subject : Analogue and Digital Electronics

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 In a normal P-N junction diode, the doping concentration of impure atom is

a) $1:10^6$ b) $1:10^7$

c) $1:10^8$ d) $1:10^{10}$

Q.2 The rectification efficiency of a full wave rectifier is approx.

a) 40.6% b) 75%

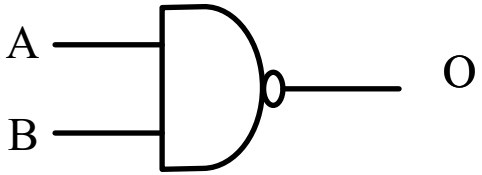
c) 81% d) 85%

Q.3 The octal equivalent of a binary number $(100110111)_2$ is

a) $(476)_8$ b) $(765)_8$

c) $(674)_8$ d) $(467)_8$

Q.4 Which of the following option is correct for the given below gate



a) If A=1 and B=1 then O=0

b) If A=0 and B=0 then O=0

c) If A=0 and B=1 then O=0

d) If A=1 and B=0 then O=0

Q.5 Which of the following configuration of BJT transistor is used as an amplifier

a) C-C Configuration b) C-E configuration

c) C-B Configuration d) both (a) and (c)

Q.6 For 8:1 multiplexer, how many select lines are required?

a) 2 b) 4

c) 6 d) 3

SECTION-B

Note: Objective type questions. All questions are compulsory. (6x1=6)

Q.7 Expand MOSFET.

Q.8 Zener diode works in reverse bias whereas normal P-N junction diode works in forward bias mode.(T/F)

Q.9 Number of half adders are required to design a full adder circuit is_____.

Q.10 The relation between a and b for a BJT transistor is $a = b + 1$ (T/F)

Q.11 Expand the term PIV of diode.

Q.12 The ratio of AC component present in the output of rectifier to the DC output of a rectifier is known as _____.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Plot and explain the V-I characteristics of P-N junction diode.

Q.14 Draw the half adder circuit and also write the truth table.

Q.15 Write any four differences between CE and CB configuration of BJT transistor.

Q.16 Define the term potential barrier and also write the values of cut-in voltage for Si and Ge diodes.

Q.17 Write the symbol and truth table of NOR gate.

Q.18 Define latch and flip-flop and also write any one difference between them.