[Total No. of Questions: 09]　　　　　　　　　　　[Total No. of Pages: 02] MORNING

Uni. Roll No. ....

　　　　　　　　　　Program: B.Tech. CE (Batch 2018 onward)　　　0 6 JUL 2022

　　　　　　　　　　Semester: 3

　　　　　　　Name of Subject: Basic Electronics and Applications in Civil Engineering

　　　　　　　　　　Subject Code: ESCE-101

　　　　　　　　　　Paper ID: 16024

Time Allowed: 03 Hours　　　　　　　　　　　　　　Max. Marks: 60

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A　　　　　　　　　　　　　　[Marks: 02 each]

Q1.

　　a)　Elaborate the role of resistive transducer.

　　b)　Draw the symbol and truth table of Nand gate.

　　c)　List any four advantages of ICs.

　　d)　Cite the role of operating point in transistors.

　　e)　Differentiate between CE and CC configurations of BJT.

　　f)　Design the diode equivalent circuit.

Part – B　　　　　　　　　　　　　　[Marks: 04 each]

Q2.　Describe the working principle of Zener diode.

Q3.　Explain the role of electronics in intelligent signalling.

Q4.　Illustrate the functioning of Field Effect Transistors

Q5.　Design a code in C to solve any civil engineering problem.

Q6.　Differentiate between octal and hexadecimal numbers by taking relevant examples.

Q7.　Sensors play a vital role in measurement of thickness and temperature. Justify.

Part – C   [Marks: 12 each]

Q8.   Show that transistor can be used as an amplifier in CE configuration.

OR

Illustrate the contribution of electronics in instrumentation of bridges and buildings.

Q9.   Demonstrate the use of C++ and python in solving any civil engineering problem by writing relevant programs.

OR

Compare and contrast ultrasonic, optical and infrared sensors.

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