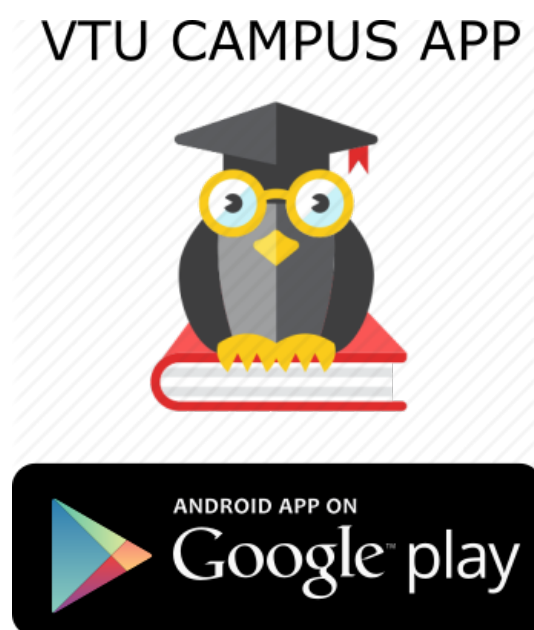


Autotronics VTU CBCS Question Paper Set 2018



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10AU82

Eighth Semester B.E. Degree Examination, June/July 2017
Autotronics

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 a. Define mechatronics. Briefly explain the evolution of mechatronics. (10 Marks)
b. Explain open loop and closed loop control system with suitable examples. (10 Marks)
- 2 a. Briefly explain the classification of transducers. (06 Marks)
b. What is hall effect? Explain the principle of hall effect with neat sketch. (08 Marks)
c. Explain capacitive type proximity sensor. (06 Marks)
- 3 a. Write a symbolic representation of thyristor and explain its characteristics. (10 Marks)
b. With a neat sketch. Explain the principle of working of permanent magnet DC motor. (10 Marks)
- 4 a. Define signal conditioning. What are the necessity for signal conditioning? (04 Marks)
b. Explain balance mode of wheat-stone bridge and hence deduce the expression for change in output voltage. (10 Marks)
c. With block diagram, explain data acquisition system. (06 Marks)

PART – B

- 5 a. With the help of symbol and truth table. Explain AND, OR, NOR and NAND gates. (10 Marks)
b. Compute the following :
i) $(654)_{10} = ()_8$
ii) $(1101.11)_2 = ()_{10}$
iii) $(F9BD)_{16} = ()_{10}$
iv) Add 10011 and 100
v) Sub 0011 from 1101. (10 Marks)
- 6 a. Explain with a block diagram, the architecture of Intel 8085A processor. (14 Marks)
b. Write a note on machine language and assembly language. (06 Marks)
- 7 a. What are buses? Explain the main features and functions of a data bus, address bus and control bus. (10 Marks)
b. What is system clock and what are its functions? (10 Marks)
- 8 a. Explain temperature monitoring system with a block diagram. (10 Marks)
b. Explain with a suitable sketch any one general applications of mechatronics in automobile. (10 Marks)

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10AU82

Eighth Semester B.E. Degree Examination, June/July 2016

Autotronics

Time: 3 hrs.

Max. Marks: 100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART - A

- 1 a. Explain the meaning of the term mechatronics. With respect to multi disciplinary scenario. Briefly discuss the origin and evolution of mechatronics. (10 Marks)
- b. Explain with the block diagram how a microprocessor control system is used to control the focusing and exposure in an automatic camera. (10 Marks)
- 2 a. Explain how sensing is achieved by an incremental optical encoder. (08 Marks)
- b. Briefly explain the working principle of the following:
 - i) Light sensor
 - ii) Hall effect sensor
 (12 Marks)
- 3 a. Explain the principles of brushless D.C. permanent magnet motor with a neat sketch. (10 Marks)
- b. Differentiate between a diode, thyristor and transistor. (06 Marks)
- c. With a neat sketch, explain the solenoid. (04 Marks)
- 4 a. With a block diagram, explain the working principle of data acquisition system. (10 Marks)
- b. Explain the principle of ADC of signals. (10 Marks)

PART - B

- 5 a. Explain the evolution of microprocessors. (06 Marks)
- b. What are logic gates? Discuss AND and OR gates with their truth tables for two inputs. (08 Marks)
- c. Convert the following:
 - i) $(10.7)_{10} = (\quad)_2$
 - ii) $(1A5D)_{16} = (\quad)_{10}$
 - iii) $(436)_8 = (\quad)_2$
 (06 Marks)
- 6 a. Explain with a neat sketch, pin configuration of Intel 8085 microprocessor. (10 Marks)
- b. What are microcontrollers? Explain the general form of a microcontroller. (10 Marks)
- 7 a. With a neat flow chart, discuss the programming process. (10 Marks)
- b. Write a program to find the largest of a byte in the array of numbers. (10 Marks)
- 8 a. Distinguish between instruction cycle, machine cycle and T-state. (10 Marks)
- b. Draw and explain the timing diagram memory operation. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.