

# GBCS SCHEME

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18MT81

## Eighth Semester B.E. Degree Examination, July/August 2022 Automotive Electronics and Hybrid Vehicles

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, choosing ONE full question from each module.**

### Module-1

- 1 a. Briefly explain components of IC engine. (10 Marks)  
b. With a neat sketch, explain working of a four stroke spark ignition engine. (10 Marks)

**OR**

- 2 a. Briefly explain the layout the fuel injection system. (10 Marks)  
b. Write short notes on the following : i) Air Fuel system ii) Starting system  
iii) Steering system iv) Ignition Timing. (10 Marks)

### Module-2

- 3 a. Define sensor. With a neat diagram explain the working of an oxygen sensor. (10 Marks)  
b. What is hall effect? Explain the working of position sensors using Hall effect. (10 Marks)

**OR**

- 4 a. Define actuator. With a neat sketch explain working of ignition actuator. (10 Marks)  
b. With a neat sketch explain EGR system. (10 Marks)

### Module-3

- 5 a. Explain the measurement of Speed, Fuel, Pressure and its signal conversion. (10 Marks)  
b. With a control segment configuration, explain the GPS structure. (10 Marks)

**OR**

- 6 a. Explain the block diagram of remote keyless entry systems. (10 Marks)  
b. Define sampling. Explain multirate sampling. (10 Marks)

### Module-4

- 7 a. Explain automotive cruise control system with neat sketch. (10 Marks)  
b. Write a short note on : i) Timing light ii) Engine analyzer. (10 Marks)

**OR**

- 8 a. With a neat sketch explain Anti-lock braking system. (10 Marks)  
b. Briefly explain radar warning system. (10 Marks)

### Module-5

- 9 a. Define electric vehicles. Explain its types. (10 Marks)  
b. Explain various components of electric hybrid vehicles. (10 Marks)

**OR**

- 10 a. Explain characteristic and advantages of plug in HEV with neat sketch. (10 Marks)  
b. Explain the concept of vehicle simulations using standard driving cycles. (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.