

Code No: R05322403

R05**Set No. 2**

III B.Tech II Semester Examinations, December 2010
AUTOMOTIVE ELECTRICAL AND AUTOTRONICS
Automobile Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Write down the truth table of a 4-input AND gate.
 (b) Draw the logic symbols and construct the truth tables for the following gates:
 i. OR
 ii. NAND
 iii. NOR [8+8]
2. Discuss in detail the requirements of a good spark plug. Explain with the help of a sketch the construction of a spark plug, describing in particular the materials used for its different parts. [16]
3. (a) What are the various components of a 12-volt lead-acid battery? Indicate the chemical reactions taking place during
 i. charging of the battery
 ii. Discharging of the battery.
 (b) Explain in detail how would you perform high rate discharge test. [8+8]
4. Discuss the construction and principle of operation of an alternator for automobile charging system. Illustrate your answer with suitable sketches. [16]
5. Perform the following arithmetic operations with decimal numbers using signed -10s complement representation for negative numbers.
 (a) $(-638) + (+785)$
 (b) $(-638) - (+185)$ [16]
6. (a) Explain the design of low voltage automotive cables.
 (b) How many batteries are there in the six volt system? What are advantages of six volt battery system? [8+8]
7. (a) List the various components of a starter motor unit and explain their functions briefly.
 (b) For what purpose is the solenoid used in a starting circuit? Explain.
 (c) What is the function of a starter motor? [8+4+4]
8. With a neat diagram explain the working of fuel gauge. [16]

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R05**Set No. 4**

III B.Tech II Semester Examinations, December 2010
AUTOMOTIVE ELECTRICAL AND AUTOTRONICS
Automobile Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Discuss the construction and principle of operation of an alternator for automobile charging system. Illustrate your answer with suitable sketches. [16]
2. (a) Explain the design of low voltage automotive cables.
 (b) How many batteries are there in the six volt system? What are advantages of six volt battery system? [8+8]
3. (a) Write down the truth table of a 4-input AND gate.
 (b) Draw the logic symbols and construct the truth tables for the following gates:
 i. OR
 ii. NAND
 iii. NOR [8+8]
4. With a neat diagram explain the working of fuel gauge. [16]
5. Perform the following arithmetic operations with decimal numbers using signed -10s complement representation for negative numbers.
 (a) $(-638) + (+785)$
 (b) $(-638) - (+185)$ [16]
6. Discuss in detail the requirements of a good spark plug. Explain with the help of a sketch the construction of a spark plug, describing in particular the materials used for its different parts. [16]
7. (a) What are the various components of a 12-volt lead-acid battery? Indicate the chemical reactions taking place during
 i. charging of the battery
 ii. Discharging of the battery.
 (b) Explain in detail how would you perform high rate discharge test. [8+8]
8. (a) List the various components of a starter motor unit and explain their functions briefly.
 (b) For what purpose is the solenoid used in a starting circuit? Explain.
 (c) What is the function of a starter motor? [8+4+4]

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R05**Set No. 1**

III B.Tech II Semester Examinations, December 2010
AUTOMOTIVE ELECTRICAL AND AUTOTRONICS
Automobile Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Perform the following arithmetic operations with decimal numbers using signed -10s complement representation for negative numbers.
 - (a) $(-638) + (+785)$
 - (b) $(-638) - (+185)$ [16]
2. (a) What are the various components of a 12-volt lead-acid battery? Indicate the chemical reactions taking place during
 - i. charging of the battery
 - ii. Discharging of the battery.
 (b) Explain in detail how would you perform high rate discharge test. [8+8]
3. With a neat diagram explain the working of fuel gauge. [16]
4. (a) Explain the design of low voltage automotive cables.
- (b) How many batteries are there in the six volt system? What are advantages of six volt battery system? [8+8]
5. Discuss the construction and principle of operation of an alternator for automobile charging system. Illustrate your answer with suitable sketches. [16]
6. (a) List the various components of a starter motor unit and explain their functions briefly.
- (b) For what purpose is the solenoid used in a starting circuit? Explain.
- (c) What is the function of a starter motor? [8+4+4]
7. (a) Write down the truth table of a 4-input AND gate.
- (b) Draw the logic symbols and construct the truth tables for the following gates:
 - i. OR
 - ii. NAND
 - iii. NOR
 [8+8]
8. Discuss in detail the requirements of a good spark plug. Explain with the help of a sketch the construction of a spark plug, describing in particular the materials used for its different parts. [16]

Code No: R05322403

R05**Set No. 3**

III B.Tech II Semester Examinations, December 2010
AUTOMOTIVE ELECTRICAL AND AUTOTRONICS
Automobile Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) List the various components of a starter motor unit and explain their functions briefly.
 (b) For what purpose is the solenoid used in a starting circuit? Explain.
 (c) What is the function of a starter motor? [8+4+4]
2. Perform the following arithmetic operations with decimal numbers using signed -10s complement representation for negative numbers.
 (a) $(-638) + (+785)$
 (b) $(-638) - (+185)$ [16]
3. Discuss in detail the requirements of a good spark plug. Explain with the help of a sketch the construction of a spark plug, describing in particular the materials used for its different parts. [16]
4. (a) Explain the design of low voltage automotive cables.
 (b) How many batteries are there in the six volt system? What are advantages of six volt battery system? [8+8]
5. Discuss the construction and principle of operation of an alternator for automobile charging system. Illustrate your answer with suitable sketches. [16]
6. (a) Write down the truth table of a 4-input AND gate.
 (b) Draw the logic symbols and construct the truth tables for the following gates:
 i. OR
 ii. NAND
 iii. NOR [8+8]
7. (a) What are the various components of a 12-volt lead-acid battery? Indicate the chemical reactions taking place during
 i. charging of the battery
 ii. Discharging of the battery.
 (b) Explain in detail how would you perform high rate discharge test. [8+8]
8. With a neat diagram explain the working of fuel gauge. [16]
