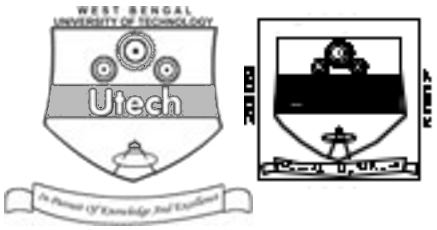
AUTOMOTIVE ELECTRICAL SYSTEM & ELECTRONICS
(SEMESTER - 6)

CS/B.Tech(AUE-New)/SEM-6/AUE-601/09



1. .....
Signature of Invigilator

2. .....
Signature of the Officer-in-Charge

Reg. No. | | | | | | | | | | | | | | |

Roll No. of the Candidate | | | | | | | | | | | | | | |

CS/B.Tech(AUE-New)/SEM-6/AUE-601/09

ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009

AUTOMOTIVE ELECTRICAL SYSTEM & ELECTRONICS (SEMESTER - 6)

Time : 3 Hours] [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.
   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

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FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

	Group – A										Group – B					Group – C			
Question Number																		***Total Marks***	***Examiner's Signature***
Marks Obtained																			

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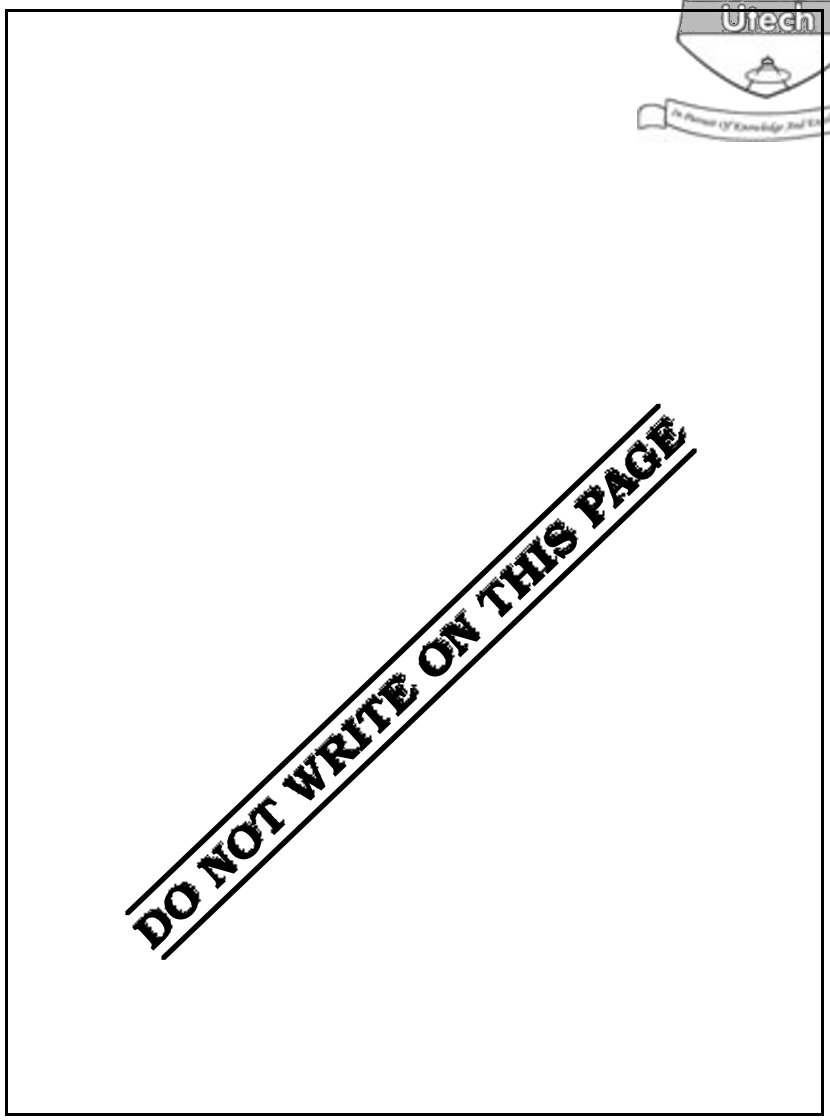
Head-Examiner/Co-Ordinator/Scrutineer

6621 (03/06)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SEMESTER - 6

Time : 3 Hours] [Full Marks : 70

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 10 × 1 = 10

i) Important part of the Head Light Reflector is

a) Principal axis b) Pole

c) Focal point d) Focal length. ☐

ii) Working principle of Electronic Ignition System based on

a) triggering of SCR b) movement of Fly Wheel

c) discharging of Capacitor d) charging Capacitor. ☐

iii) Engine overheating can be due to

a) Late ignition timing b) Early ignition timing

c) Low battery d) High voltage setting. ☐

iv) The Horn has

a) vibrating contact point b) an electromagnet

c) a vibrating diaphragm d) all of these. ☐

v) The commutator segments in d.c generator are separated from each other by

a) Paper b) Mica

c) Varnish d) None of these. ☐

vi) For the Head Light aiming the car on a level floor will take position from the screen about

a) 10 m b) 12.2 m

c) 7.6 m d) 6.7 m. ☐

vii) In case of Horn the number of vibration per second determines the

a) frequency of the sound b) pitch of the sound

c) loud warning signal d) all of these. ☐

viii) In a d.c. motor unidirectional torque is produced with the help of

a) brusher b) commutator

c) end plates d) both (a) & (b). ☐

ix) In d.c. generator armature reaction is produced actually by

a) its field current b) armature conductor

c) field pole winding d) load current in armature. ☐

x) The oxygen sensor used in automobile is

a) voltage generating sensor b) resistive sensor

c) digital sensor d) either (a) or (b). ☐

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Enumerate the various troubles of the ignition system you will face during running a vehicle.

3. Write notes on electric horn and headlight dazzle of an automobile.

4. Derive the power flow diagram in case of d.c. motor.

5. How many types of switches are used in a vehicle ? Describe them.

6. What are the open-loop and closed-loop systems ? Derive the transfer functions open-loop and closed-loop systems.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) A 220 V d.c. series motor is running at a speed of 800 r.p.m. and draws 100 A. Calculate at what speed the motor will run when developing half the torque. Total resistance of the armature and field is 0.1 ohm. Assume that the magnetic circuit is unsaturated.

   b) What is commutator ? 12 + 3

8. Write short note on any *three* of the following : 3 × 5

   a) Speedometer-Odometer

   b) Wiper system

   c) Cut-out relay

   d) Lighting relay

   e) Altitude sensor.

9. a) What is relay ? Why is it useful ?

b) Explain faults of ignition system.

c) With schematic diagram, describe the working principle of Electronic Ignition system. 2 + 3 + 10

10. a) Explain the armature reaction in case of d.c generator.

b) Show and discuss the characteristic of d.c. shunt motor. 9 + 6

11. a) Give the brief description of Three Point Starter. Why is it useful in the starting period of d.c. motor ?

b) What is slip ring ? Why is it useful ? 11 + 4

END