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MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

VI SEMESTER B.TECH. (AUTOMOBILE ENGINEERING)

END SEMESTER EXAMINATIONS, NOV/DEC 2018

SUBJECT: ERGONOMICS IN AUTOMOTIVE DESIGN [AAE 4026]

REVISED CREDIT SYSTEM

(01/01/2018)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Missing data may be suitable assumed.

- 1A.** List and explain different problem solving methods of ergonomics approach. **(05)**
- 1B.** With a flow diagram explain the system approach and its components. **(03)**
- 1C.** What is DAMES? **(02)**
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- 2A.** What are the biomechanical considerations adopted for the seat design? **(05)**
- 2B.** Explain the use of anthropometry in the vehicle design. **(05)**
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- 3A.** Define all the angles obtained for driver posture by HPM or HPD. **(05)**
- 3B.** List the procedure for the driver package development. **(05)**
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- 4A.** What are the characteristics of good display and control? **(04)**
- 4B.** Briefly explain the HUD, its advantages and disadvantages. **(04)**
- 4C.** Explain the following **(02)**
i) Multiple switch ii) Haptic control
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- 5A.** With a neat sketch explain the procedure to determine obstruction angle βL and βR caused by the pillar A. **(05)**
- 5B.** Discuss the different types of vehicle doors. **(03)**
- 5C.** Explain the obstructions caused by the A-pillar for the field of view. **(02)**