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Roll No

MMTP-301(B)**M.E./M.Tech., III Semester**

Examination, June 2017

Engine System Modelling and Analysis**(Elective-I)****Time : Three Hours****Maximum Marks : 70**

- Note:** i) Attempt any five questions.
 ii) All questions carry equal marks.
 iii) Draw neat diagrams wherever required.

1. a) Define *System Concept* and System Environment.
 b) What is *System Modelling*? Compare continuum and discrete system.
2. a) What do you understand by "Verification of Simulation Computer Programs"? Discuss.
 b) Discuss about Monte Carlo Simulation.
3. a) State basic features of modelling. State types of models and their suitability.
 b) Discuss *Accuracy and Aggregation* in modeling and simulation.
4. a) State the probability concept in simulation. What are stochastic variables?
 b) How estimation of means variance is done? Discuss in detail.

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5. a) Explain the simulation of engine system with various processes.
 b) Write about development of Computer programme for engine simulation.
6. a) Write Basic Concepts of modeling of carburetion process on charts.
 b) Write the Strong Law of Large Numbers.
7. a) State Advantages, Disadvantages and Pitfalls of Simulation.
 b) State classification of Simulation Softwares. Also write Desirable Software Features.
8. Write short notes on following: (any two)
 - a) Use of Combustion Charts.
 - b) Measures of Probability Functions.
 - c) Simulation of Engine Trouble Shooting.

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