Computer simulation & Modeling

[set-1,2,3]

① What does a system represent? component of a system? Explain with example? - 3

② Why is it necessary to decide on the boundary between a system & its environment? - 1.25

③ What types of simulation are implemented in the application 'Augmented reality' and 'virtual reality'? Justify answer with example? - 3

④ Is it possible to simulate a system without modeling any entity from outside the boundary of the system? explain with example? - 3

⑤ Compare live, virtual and constructive simulation with example - 3

(6) Note down the steps of simulation with appropriate to flowchart? 4

(7) Discuss the situations when simulation is not an appropriate tool? - 1.75

(8) Define system and model? Note the different type of model? - 2

(9) Define attributes, entity and activities of a system with real word example? - 3

(10) How do simulation improves our lives - 1

(11) Explain discrete and continuous simulation - 3

(12) What are properties of random number? Mention some uses of random number - 2.75

(13) Discuss similarities and dissimilarity between random number and pseudo random number? - 3

(14) Explain which point should be considered while desiging a pseudo ~~num~~ random number generator? Explain why - 3

(15) Define pseudo random number? why it is called pseudo? - 2

(16) What are the problem may occur when generating pseudo number. 1.75

(17) Discuss about LCM as a pseudo random number generator? what are its strength and weakness?. 3

(18) Why should we perform different types of tests on pseudo random numbers? Name some of such tests? - 1.25

(19) Difference between Runs up down and Runs above below test? 1.5

(20) Explain discrete random variables and continuous random variables? - 2

(21) Explain chi-square test for randomness?

(22) Why pseudorandom numbers are suitable for simulation on computer? - 1

(23) Discuss some applications of continuous system simulation? - 2

(24) Why random number need to be tested? "There should be no favored number". Which test for Random number ensures this property? 1.75

(25) Related math.

set-4

যদি কেউ পড়তে চাও তাহলে 2017, [redacted], 20

এর 4নম্বর সেট টা দেখতে পারো।

Part-B

set-5,6

① What is modeling? What are difference of physical modeling and mathematical modeling? - 3

② Discuss in detail the principles used in modeling? with diagram - 3

③ Is there a unique model of every system? Discuss about the task of deriving a model? - 2.75

④ What are advantage of CAD? - 2

⑤ Difference between 2D and 3D ~~object~~ model with example? - 2.25

⑥ Explain the concept of a corporate model - with diagram - 3.5

⑦ What do u know about Blobby object? - 2.25

(9) What are the properties of bezier curve? 3

(3) What do u mean by 'Hermit interpolation'? - 1

(10) Derive the expression for the hermit blending function to generate a spline curve? 5

(11) What is B-spline? Right down the properties of B-spline? - 4

(12) What Bezier patch? - 2

(13) Difference between interpreting spline and Bezier spline?

(14) Define Interpulation and Approximation splines? - 2

(15) Explain cardinal spline interpulation method - 5

set-7,8 (2set continm)

① Define self similar, statisetically self similar and self affine fractal with example? - 3

② Explain the random midpoint displacement method for constructing fractal object? - 3

③ What is fractal object? 2

④ How the dimension of a fractal object may be defined? explain - 3

⑤ Discuss different types of fractal object? 3.75

⑥ Describe the geometric construction of deterministic self similar fractal - 5

⑦

(7) The similarity of a self similar fractal is described by its dimension, show that $D = \frac{\ln(n)}{\ln(1/s)}$, where D is the fractal dimension, n is the number of sub parts and s is scaling factor. - 2.75

(8) 2017 - 8 no.

(9) 2016 - 8 no.

(10) 2015 - 8 no.