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SEAT No. :

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P427

BE/Insem/APR-94

B.E. (Chemical)

PROCESS MODELING & SIMULATION

(2012 Pattern) (Semester - II)

Time : 1 Hour]

[Max. Marks : 30

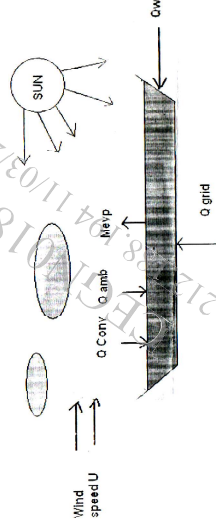
Instructions to the candidates:

- 1) Answer any 3 questions.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Assume suitable data, if necessary.
- 4) Use of logarithmic tables, slide rule, mollier charts, electronic pocket calculator and steam tables is permitted.

Q1) Explain with example, "All models are wrong, but some are useful." [10]

OR

Q2) The following diagram shows the scenario of an evaporating pool of a volatile liquid.



This is typical of an accident spill from storage facility. In this case the liquid is unsymmetric dimethyl hydrazine, a component of rocket fuel. Develop the problem description if we are interested in the dynamics of pool evaporation under the influence of different environmental conditions. You should consider the key issues of: [10]

- a) The modeling definition.
- b) The key assumptions.
- c) The principle balance volume of the system.
- d) The convective flows in the system.
- e) The key data that might be needed.

P.T.O.

Q3) Discuss the Flow of Film on the outside of Circular Tube with equations. [10]

OR

Q4) Develop a model for Flow through Packed Bed Column. [10]

Q5) Derive a model for cooling tower. List all the assumption involved in it. [10]

OR

Q6) Develop mathematical model of single effect evaporator: [10]

Use notations as usual, Write assumptions. Draw neat figure .

