PAPER ID-420216

Subject Code: KOE086

Roll No: | | | | | | | | | | | | | |

BTECH

(SEM VIII) THEORY EXAMINATION 2021-22

INDUSTRIAL OPTIMIZATION TECHNIQUES

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	Why is optimization required?
b.	What do you mean by mathematical formulation of a problem?
c.	Explain CPM.
d.	Define dynamic programming.
e.	Define queueing modal.
f.	What do you mean by simulation? Explain.
g.	Explain the term network logic.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a.	What do you understand by the formulation of design problems as a mathematical programming problem? Elaborate with suitable example.
b.	Define sequencing. What is the relevance in engineering? Discuss the concept of 2 jobs through m machines sequencing.
c.	What is Principle of dominance? Discuss in detail with suitable example.
d.	Discuss Monte Carlo simulation and its application in engineering.
e.	Write a note on the individual and group replacement policies and their application to engineering.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Discuss the following methods and their application in engineering with suitable example: (i) Simplex method. (ii) Duplex Method.
(b)	Write a note on the historical development of optimization.

4. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Discuss in detail the mathematical formulation and the optimal solution of the transportation modal.
(b)	What is travelling salesman problem? Explain. Also discuss its application in engineering with a proper example.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a)	What do you understand by the forward and backward computation in PERT? Elaborate it using a proper example.
(b)	Discuss the single server model and explain its application to engineering with an example.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Write note on the following: (i) Capital budgeting problem, (ii) Cargo-loading problem.
(b)	Describe the various types of simulation with suitable examples.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Discuss the deterministic and probabilistic inventory models and their applications in engineering with suitable examples.
(b)	Write a note on the equipment renewal problem.