



TAMIL NADU OPEN UNIVERSITY
Chennai-15.

Post Graduate Diploma in Applied Mathematics

SPOT ASSIGNMENT

COURSE	COURSE CODE	ADMISSION YEAR
Operations Research	PGDAM – 11	CY 2020

Time: 1 Hour

Answer all questions.

1. Find the optimum integer solution to the following all I.P.P.:
Maximize $Z = x_1 + 2x_2$
Subject to the constraints
 $x_1 + x_2 \leq 7, 2x_1 \leq 11, 2x_2 \leq 7,$
 $x_1, x_2 \geq 0$ and are integers.
2. Use dual simplex method to solve the L.P.P.
Maximize
 $Z = x_1 + 2x_2 + 3x_3$
subject to the constraints:
 $x_1 + x_2 + x_3 \geq 4$
 $x_1 + x_2 + 2x_3 \leq 8$
 $x_2 \leq x_3 \geq 2$
 $x_1, x_2, x_3 \geq 0$
3. Write a note on Specialized Poisson queues-M/A/1 queue.



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COURSE	COURSE CODE	ADMISSION YEAR
Graph Theory and Algorithms	PGDAM – 12	CY 2020

Time: 1 Hour

Answer all questions.

1. State and prove Tutte's Theorem.
2. State and prove Five colour Theorem.
3. State and prove Havel-Hakimi Theorem.



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COURSE	COURSE CODE	ADMISSION YEAR
Mathematical Statistics	PGDAM – 13	CY 2020

Time: 1 Hour

Answer all questions:

- Let $X_1, X_2, X_3, \dots, X_n$ denote a random sample of size $n \geq 2$ from a distribution that is $n(\mu, \sigma^2)$. Let \bar{X} and S^2 be the mean and variance of this random sample. Then
 - $\bar{X} \sim n\left(\mu, \frac{\sigma^2}{n}\right)$
 - $n \frac{S^2}{\sigma^2} \sim \chi^2$ ($n - 1$) and
 - \bar{X} and S^2 are stochastically independent.
- Write a note on Binomial Distribution .
- Write a note on Stochastic convergence.