

# GMITE17-DSExam

Start date: -

## INSTRUCTIONS:

1. This is an **open book, open notes, open Internet** exam.
2. The duration is **1 hour**.
3. Calculators are allowed.

### Q1a

The pivot table below depicts the **plan subscriptions** in 297 customers of a telecom company who have churned (meaning, have switched to another Telecom company).

Churn?	Yes		
Count of Customer	Voice Mail Plan -->		
International Plan	no	yes	Grand Total
no	191	26	217
yes	61	19	80
Grand Total	252	45	297

Given that a churned customer did **NOT** have an International plan, what is the probability that they had a Voice Mail plan?

- ☐ 26 / 45
- ☐ 19 / 80
- ☐ 26 / 217
- ☐ 61 / 80

### Q12

The pivot table below depicts the **plan subscriptions** in 297 customers of a telecom company who have churned (meaning, have switched to another Telecom company).

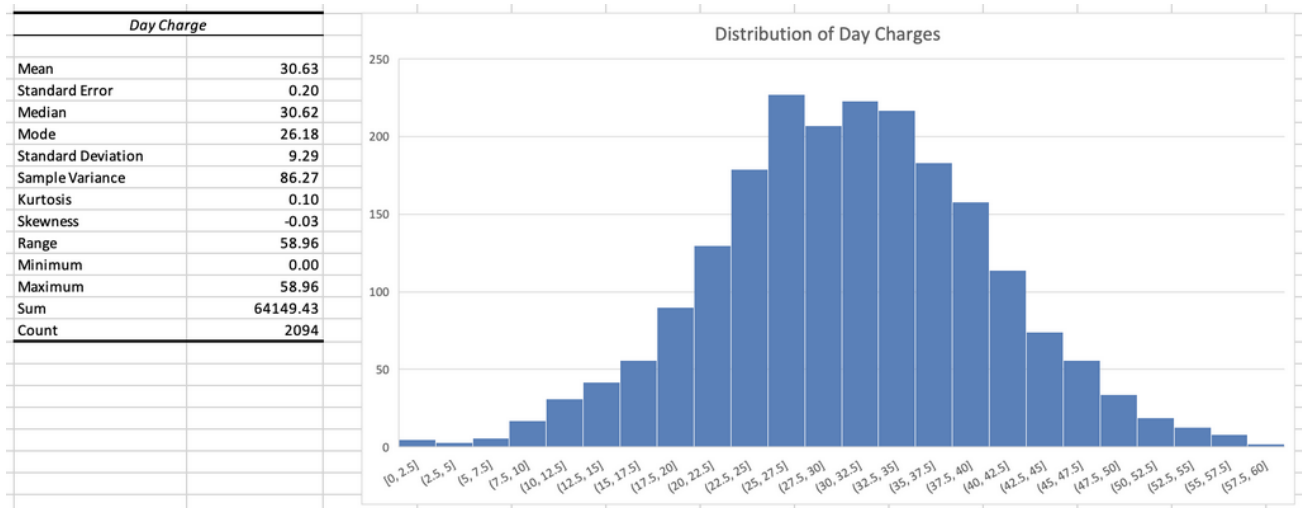
Churn?	Yes		
Count of Customer	Voice Mail Plan -->		
International Plan	no	yes	Grand Total
no	191	26	217
yes	61	19	80
Grand Total	252	45	297

Given that a churned customer did **NOT** have an Voice Mail plan, what is the probability that they had an International Plan?

- ☐ 191 / 252
- ☐ 191 / 297
- ☐ 191 / 252
- ☐ 61 / 252

## Q23

The distribution of Day Charges for customers of a telecom company is described below:



Assume that the charges are **normally** distributed with the parameters as shown in the table.

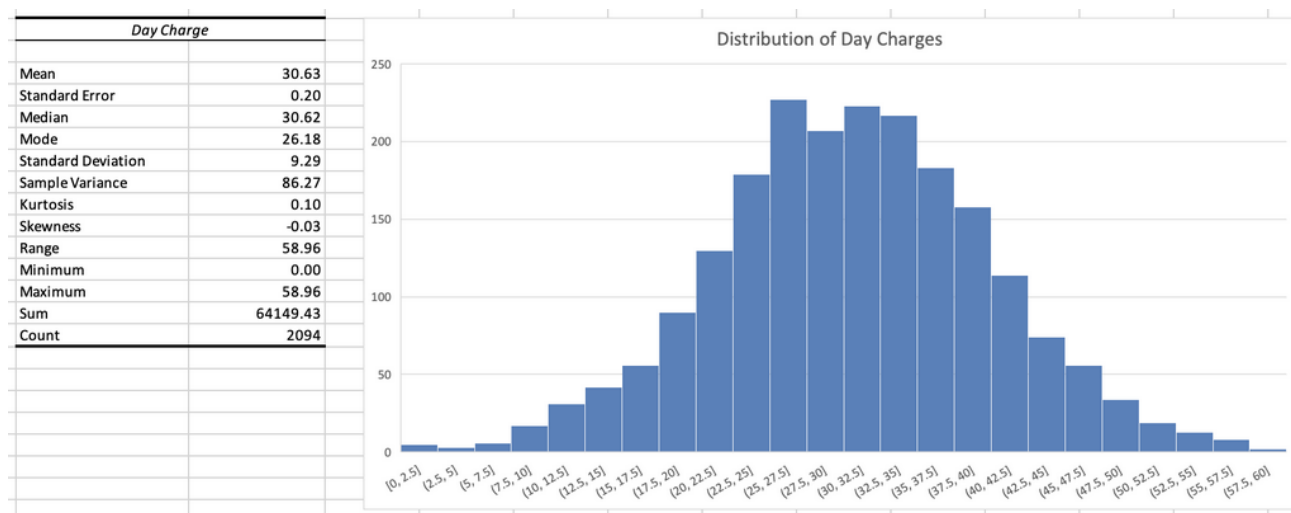
What is the approximate interval where the **middle 95% of values** are distributed?

- ☐ 12.05 to 49.21
- ☐ 2.5 to 57.5
- ☐ 5.0 to 57.5

☐ 11.25 to 53.75

### Q43

The distribution of Day Charges for customers of a telecom company is described below:



Assume that the charges are **normally** distributed with the parameters as shown in the table.

What approximately is the **97.5<sup>th</sup>** percentile of the charges?

- ☐ 49.21
- ☐ 57.5
- ☐ 56.75
- ☐ 53.75

### Q81

The pivot table below depicts the **plan subscriptions** in 297 customers of a telecom company who have churned (meaning, have switched to another Telecom company).

Churn?	Yes		
Count of Customer	Voice Mail Plan -->		
International Plan	no	yes	Grand Total
no	191	26	217
yes	61	19	80
<b>Grand Total</b>	<b>252</b>	<b>45</b>	<b>297</b>

There are **2094** customers in the original dataset from which this pivot table has been constructed, by restricting the attention to only those customers who have churned.

In a random sample of **100** customers from the original dataset, approximately how many are **statistically likely** to churn?

- ☐ 14
- ☐ 33
- ☐ 7
- ☐ 19

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### Q45

The following table represents the frequency distribution of **Day Charges** (in USD) for **2094** customers of a telecom outfit.

Day Charges	Count of Day Charge
0-10	30
10-20	220
20-30	743
30-40	781
40-50	278
50-60	42
<b>Grand Total</b>	<b>2094</b>

Declare a random variable **M** as the midpoint of the charges. To illustrate, for the first slab of 0-10 USD, **M** = 5.

What is the **Expected Value** of this variable **M**?

- ☐ 30.65
- ☐ 13.05
- ☐ 32.88
- ☐ 38.23

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### Q23

The following table represents the frequency distribution of **Day Charges** (in USD) for **2094** customers of a telecom outfit.

Day Charges	Count of Day Charge
0-10	30
10-20	220
20-30	743
30-40	781
40-50	278
50-60	42
<b>Grand Total</b>	<b>2094</b>

Declare a random variable **M** as the midpoint of the charges. To illustrate, for the first slab of 0-10 USD, **M** = 5.

What is the **Standard Deviation** of this variable **M**?

- ☐ 75.86
- ☐ 92.8
- ☐ 9.63
- ☐ 8.71

### Q83

A spreadsheet contains the monthly salaries of 100 faculty members at an IIM. If you were to **increase** the salaries of all the faculty members by a generous **Rs.1,44,000**, then what would happen to the **standard deviation** of the salaries?

- ☐ Remains unchanged
- ☐ Will increase by Rs.12,000
- ☐ Will decrease by Rs.12,000
- ☐ Will increase by Rs.1,44,000

### Q47

A spreadsheet contains the monthly salaries of 100 faculty members at an IIM. You are also given the following data:

Quartile 1	131000
Quartile 2	148000
Quartile 3	168000

Then, the outliers on the "upper end" begin at what value?

- ☐ 223500

- ☐ 205000
  - ☐ Cannot be derived from the data
  - ☐ 198000
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**Q54**

The producer of the hit movie *Random Tales* wants to know how much money they would pay per plate for a limited-seat dinner with Lakshayy Khanna and Twishaa Chopra, the celebrated protagonist couple of the movie. The proceeds of the dinner shall go to fund an NGO.

The NGO decides to carry out a survey. Polling 81 moviegoers at random, the average pledge amount turns out to be Rs.5,400 per plate. The standard deviation is Rs.180.

Given that these dinners shall be held at several cities, what is the approximate 95% confidence interval for the per-plate proceeds that the NGO can expect?

- ☐ INR 5,040 to INR 5,760
  - ☐ INR 5,380 to INR 5,420
  - ☐ INR 5,360 to INR 5,440
  - ☐ INR 5,220 to INR 5,580
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