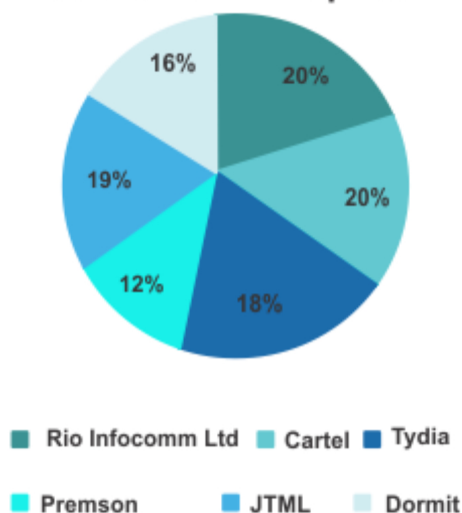
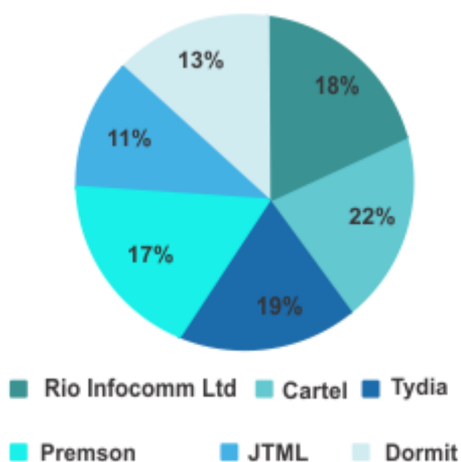


**Direction (1 – 5):** In Jammu & Kashmir, after the new government has been formed, the new telecom minister wants to bring 4G internet connectivity to his state. He invited some telecommunication companies the bidding on the spectrum. In the process of bidding 1800 MHz of frequency band has to be distributed across, Rio Infocomm Ltd., Cartel, Tydia, Premson, JTML & Dormit. Which have pre-existed customer domains throughout the state of other services except for 4G.

**Distribution of 4G spectrum**



**Customers across the state**



The active Internet users of Jammu & Kashmir state is 2 Crore and face a different type of data connectivity which depends upon the frequency distribution. The types of quality are poor, average, good & excellent which are 50-80, 81-100, 100-120 & 120+ Hz per person.

**Q:1** How many telecom companies provide excellent services in the Jammu & Kashmir state?

1. 4
2. 3
3. 2
4. 1
5. 0

**Q:2** In which category does the quality of Tydia fall?

1. Poor
2. Average
3. Good
4. Excellent
5. Cannot be determined

**Q:3** If we increase only one customer of the company it will fall below in its quality standard then what is the name of the company?

1. Rio Infocomm Ltd.
2. Dormit
3. JTML
4. Premson
5. Cartel

**Q:4** The ratio of the spectrum to the population who used Tydia is what percent of The ratio of the spectrum to the population who used Dormit?

1. 50%
2. 71%
3. 32%
4. 77%
5. 75%

**Q:5** What is the difference between the ratio of the spectrum to the population who used JTML & Cartel?

1. 94.1
2. 84.1
3. 93.2
4. 83.2
5. None of these

### Answer Key

1. (4) 2. (2) 3. (1) 4. (4) 5. (1)

### Answers and Solutions

**Q:1** The correct answer is **Option 4** i.e. 1.

First, we will use the first pie chart given to find the respective spectrum distribution among these 6 telecom giants.

Spectrum for Rio Infocomm Ltd = 20% of 1800MHz = 360MHz

Spectrum for Cartel = 20% of 1800MHz = 360MHz

Spectrum for Tydia = 18% of 1800MHz = 324MHz

Spectrum for Premson = 12% of 1800MHz = 216MHz

Spectrum for JTML = 19% of 1800MHz = 342MHz

Spectrum for Dormit = 16% of 1800MHz = 288MHz

Now, let's find the distribution of users using the network.

Users for Rio Infocomm Ltd = 18% of 2,00,00,000 = 36,00,000

Users for Cartel = 22% of 2,00,00,000 = 44,00,000

Users for Tydia = 19% of 2,00,00,000 = 38,00,000

Users for Premson = 17% of 2,00,00,000 = 34,00,000

Users for JTML = 11% of 2,00,00,000 = 22,00,000

Users for Dormit = 13% of 2,00,00,000 = 26,00,000

Name of the Company	Spectrum(in 10 <sup>5</sup> )	Population(in 10 <sup>5</sup> )	Spectrum / Population	Quality
Rio Infocomm Ltd.	3600	36	100	Average
Cartel	2700	44	61.4	Poor
Tydia	3240	38	85.3	Average
Premson	2160	34	63.5	Poor
JTML	3420	22	155.5	Excellent
Dormit	2880	26	110.8	Good

Only JTML provides excellent services.

**Q:2** The correct answer is **Option 2** i.e. **Average**.

First, we will use the first pie chart given to find the respective spectrum distribution among these 6 telecom giants.

Spectrum for Rio Infocomm Ltd = 20% of 1800MHz = 360MHz

Spectrum for Cartel = 20% of 1800MHz = 360MHz

Spectrum for Tydia = 18% of 1800MHz = 324MHz

Spectrum for Premson = 12% of 1800MHz = 216MHz

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Dormit	2880	26	110.8	Good

**Q:3** The correct answer is **Option 1** i.e. **Rio Infocomm Ltd.**

First, we will use the first pie chart given to find the respective spectrum distribution among these 6 telecom giants.

Spectrum for Rio Infocomm Ltd = 20% of 1800MHz = 360MHz

Spectrum for Cartel = 20% of 1800MHz = 360MHz

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Dormit	2880	26	110.8	Good

We can see the spectrum per population of Rio Infocomm Ltd. is at 100 so when we add 1 customer it will fall below 100.

**Q:4** The correct answer is **Option 4** i.e. **77%**.

First, we will use the first pie chart given to find the respective spectrum distribution among these 6 telecom giants.

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Spectrum for Tydia = 18% of 1800MHz = 324MHz

Spectrum for Premson = 12% of 1800MHz = 216MHz

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Dormit	2880	26	110.8	Good

From the above table :

Required percentage =  $85.3/110.8 \times 100 = 77\%$

**Q:5** The correct answer is **Option 1** i.e. **94.1**.

First, we will use the first pie chart given to find the respective spectrum distribution among these 6 telecom giants.

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Spectrum for Premson = 12% of 1800MHz = 216MHz

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Dormit	2880	26	110.8	Good

Required difference =  $155.5 - 61.4 = 94.1$