[**Que-30] - Which of the following options are correct about Normal Distribution Curve. (a) Within a range 0.6745 of o on both sides the middle 50% of the observations occur i,e. mean £0.67450 covers 50% area 25% on each side.**

**(b) Mean +15.D. (ie. + lo) covers 68.268% area, 34.134 % area lies on either side of the mean.**

**(c) Mean #25.D. (ie. p + 20) covers 95.45% area, 47.725% area lies on either side of the mean.**

**(d) Mean +3 S.D. (ie. u +30) covers 99.73% area, 49.856% area lies on the either side of the mean.**

**(e) Only 0.27% area is outside the range u +30.**

Let's analyze each option to determine which ones are correct regarding the characteristics of the normal distribution curve:

**(a) Within a range 0.6745 of σ on both sides, the middle 50% of the observations occur i.e., mean ± 0.6745σ covers 50% area, 25% on each side.**

* This statement is correct. In a standard normal distribution (μ = 0, σ = 1), ±0.6745σ covers 50% of the area under the curve, with 25% lying on each side of the mean.

**(b) Mean + 1.5σ (i.e., μ + 1σ) covers 68.268% area, 34.134% area lies on either side of the mean.**

* This statement is incorrect. Mean + 1.5σ does not correspond to any standard area under the normal distribution curve. The correct value for covering approximately 68% of the area is ±1σ from the mean, not 1.5σ.

**(c) Mean + 2.5σ (i.e., μ + 2σ) covers 95.45% area, 47.725% area lies on either side of the mean.**

* This statement is incorrect. Mean + 2.5σ does not correspond to covering 95.45% of the area under the normal distribution curve. The correct value for covering approximately 95% of the area is ±2σ from the mean.

**(d) Mean + 3σ (i.e., μ + 3σ) covers 99.73% area, 49.865% area lies on either side of the mean.**

* This statement is almost correct, but there seems to be a slight error in the percentage stated. Mean + 3σ covers approximately 99.73% of the area under the normal distribution curve, with 49.865% on each side of the mean. The stated percentage (49.856%) appears to have a minor rounding issue.

**(e) Only 0.27% area is outside the range μ + 3σ.**

* This statement is correct. Outside the range of μ + 3σ (i.e., beyond ±3σ), only approximately 0.27% of the area under the normal distribution curve remains. This represents the extreme tails of the distribution.

**Conclusion:**

* The correct statements are **(a)** and **(e)**. These accurately describe the areas covered by specific ranges around the mean in a normal distribution.