

CUET Mathematics Test

Chapter: Unit VI: Inferential Statistics (Intermediate Level)

SOLUTIONS

www.udgamwelfarefoundation.com

**For Best Mathematics E-Books, Visit:
www.mathstudy.in**

www.udgamwelfarefoundation.com

MASTER MATH FASTER & SMARTER!
 Your Ultimate Digital Math Companion for Every Exam & Every Dream
 ✓ CBSE • ICSE • ISC • JEE • SAT • CAT • CTET • CUET & More!
Why Choose MathStudy.in?
 Latest Pattern E-Books | Complete Chapter PDFs | Instant Access, Anytime
 Competitive Edge Gunkes | Case Study Based Learning | Unbelievably Affordable!
For Students:

Special Features

- ◆ ****Board-Specific**** – CBSE, ICSE, ISC, State Boards
- ◆ ****Exam-Focused**** – JEE, SAT, CAT, CTET, CUET, NTSE
- ◆ ****Grade-Wise**** – Class 6 to 12
- ◆ ****Bilingual Options**** – English & Hindi Medium Support
- ◆ ****Printable & Shareable**** – Use offline, anytime

How to Order:

Visit : <https://www.mathstudy.in>

Browse by Exam, Class, or Topic

Add to Cart & Checkout

Contact & Support:

✉ Email: admin@mathstudy.in

💬 WhatsApp Support Available : +91-+91 92118 65759



💡 Why Wait? Empower your learning journey, save time, and achieve your dreams!

🌐 Explore & Start Learning Today:

<https://www.mathstudy.in> – Premium eBooks for success

<https://www.udgamwelfarefoundation.com> – Free PDFs, practice tests, & guidance

MathStudy.in – Empowering Learners, Enabling Educators, Encouraging Excellence.
 Digital Learning | Affordable Excellence | Trusted by Thousands

Solutions

1. **Solution:** Standard Error is σ/\sqrt{n} , so the variance of the sampling distribution is the square of SE, which is σ^2/n . **Correct Option: (C)**
2. **Solution:** Type I error (rejecting a true null hypothesis) is represented by α (significance level). **Correct Option: (A)**
3. **Solution:** The variance of the t-distribution is $k/(k-2)$ for $df > 2$. Note that it is always greater than 1, reflecting heavier tails than Z . **Correct Option: (B)**
4. **Solution:** If you reject at 5%, the p-value is < 0.05 . It might be 0.03 (not rejected at 1%) or 0.005 (rejected at 1%). Thus, it may or may not be rejected at 1%. **Correct Option: (B)**
5. **Solution:** $df = n_1 + n_2 - 2 = 8 + 8 - 2 = 14$. **Correct Option: (C)**
6. **Solution:** The t-test is specifically used when $n < 30$. Small sample size is an application requirement, not a restriction that it "must" be large. **Correct Option: (C)**
7. **Solution:** Power is $1 - \beta$, which is the probability of correctly rejecting a false null hypothesis. **Correct Option: (C)**
8. **Solution:** $SE = \sigma/\sqrt{n} \implies 2 = \sigma/\sqrt{16} \implies 2 = \sigma/4 \implies \sigma = 8$. **Correct Option: (A)**
9. **Solution:** If $p\text{-value} \leq \alpha$, we reject H_0 . Since $0.03 < 0.05$, we reject the null hypothesis. **Correct Option: (B)**
10. **Solution:** CLT is a powerful theorem that applies to almost any population distribution, provided it has a finite mean and variance. **Correct Option: (D)**
11. **Solution:** $t = (\bar{x} - \mu)/SE = (25 - 20)/2 = 5/2 = 2.5$. **Correct Option: (A)**
12. **Solution:** The t-distribution is more spread out (shorter peak, thicker tails) to account for the uncertainty of estimating σ with s . **Correct Option: (A)**
13. **Solution:** $s_p^2 = \frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}$. The weights are the degrees of freedom of each sample. **Correct Option: (B)**
14. **Solution:** Width $\propto 1/\sqrt{n}$. As n increases, SE decreases, making the interval narrower (more precise). **Correct Option: (B)**
15. **Solution:** Paired t-tests are for "Before and After" studies or matched pairs where the samples are dependent. **Correct Option: (B)**