

CUET (UG) – MATHEMATICS

Chapter Test - Section B2: Applied Mathematics - Unit V: Index Numbers and Time Based Data

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



Competitive Edge Gunkes



Case Study Based Learning

**Instant Access,
Anytime**

**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, & guida

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

Solutions

1. **Correct Option: (B).** By definition, a time series is a sequence of observations taken at successive equal intervals of time.
2. **Correct Option: (C).** Variations that occur within a year due to weather or social customs are seasonal variations.
3. **Correct Option: (B).** The additive model is $Y = T + S + C + I$.
4. **Correct Option: (B).** Secular trend represents the long-term direction of data over many years.
5. **Correct Option: (D).** Random, unpredictable events like natural disasters cause irregular variations.
6. **Correct Option: (A).** $x = 2025 - 2020 = 5$. $y = 20 + 3(5) = 20 + 15 = 35$.
7. **Correct Option: (B).** Moving averages smooth fluctuations to reveal the secular trend.
8. **Correct Option: (B).** Variations representing business cycles (recession, recovery) are cyclical.
9. **Correct Option: (B).** First average = $(10 + 12 + 14)/3 = 12$.
10. **Correct Option: (A).** If $\sum x = 0$, the normal equations simplify to $b = \sum xy / \sum x^2$.
11. **Correct Option: (A).** Seasonal variations repeat within a period of 12 months.
12. **Correct Option: (B).** The multiplicative model is used when components are relative/proportional to the trend.
13. **Correct Option: (C).** Average 1 (45) < Average 2 (55) indicates an upward/increasing trend.
14. **Correct Option: (B).** $x = 2016 - 2018 = -2$. $y = 100 + 5(-2) = 90$.
15. **Correct Option: (D).** Irregular variations are purely random and lack any set pattern.
16. **Correct Option: (A).** Even-period averages fall between years, requiring a second average to "center" them on a specific year.
17. **Correct Option: (B).** The least squares principle minimizes the sum of squared vertical deviations (residuals).
18. **Correct Option: (B).** A first-degree equation $y = a + bx$ represents a linear trend.
19. **Correct Option: (B).** $a = \sum y/n = 500/5 = 100$.
20. **Correct Option: (D).** Least squares is a mathematical approach that provides the unique "line of best fit."