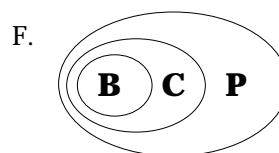
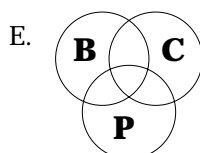
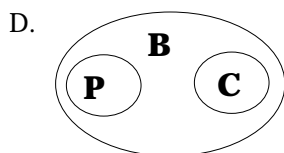
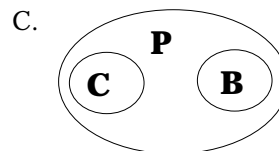
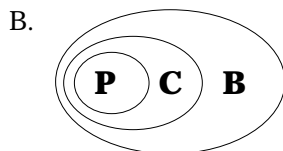
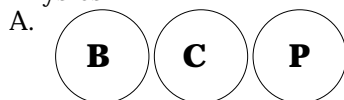


DO NOT WRITE ON THIS SHEET.

- In general, all chemical reactions can be described as
 - electron interactions
 - nuclear reactions
 - biological processes
 - a more basic description doesn't exist
- As time progresses, the amount of data (facts and observations) we have about the universe ? and the number of fundamental principles required to explain the data ?.
 - increases; also increases
 - increases; decreases
 - decreases; increases
 - decreases; also decreases

- Which of the Venn diagrams below best depicts the relationship between **B**iology, **C**hemistry, and **P**hysics



- Which of these is the lowercase letter "rho"?
 - μ
 - λ
 - θ
 - β
 - ρ
- Which of these is the uppercase letter "omega"?
 - ω
 - Φ
 - σ
 - Ω
 - γ
- A goose lays 36 golden eggs in 12 days. The meaning of the number represented by $12/36$ in this context is
 - the number of golden eggs the goose lays in each day
 - the number of days it takes for the goose to lay a golden egg
 - the rate of golden eggs per time
 - the time per golden egg
 - the goose lays 36 golden eggs every 12 days
 - The goose lays a golden egg every 3 days
- A student enrolled in keyboarding types 320 words in 10 minutes. What is the meaning of the number represented by $320/10$ in this context?
 - How long it takes for the student to type a word
 - How much a student types in a minute
 - The number of minutes required for the student to type a single word
 - the number of words the student types in a minute
 - The student types 320 words per 10 minutes
 - The student types a word every 32 minutes
- If $27/60$ is the number of points scored by a team during each minute of play, what is the meaning of 60?
 - The number of points scored by the team during each minute of play
 - The number of points scored by the team during 27 minutes of play
 - The number of minutes it took the team to score 27 points
 - The number of minutes it took the team to score 60 points
 - The rate at which the team scored points during play
 - The number of minutes it took the team to score each point

9. Which of the following is NOT an SI **base** unit?
- | | | |
|-----------|-------------|-----------|
| A. ampere | B. second | C. kelvin |
| D. meter | E. kilogram | F. watt |

Identify each of the following as either a unit (U) or physical quantity (Q)

10. joule
11. newton
12. The SI prefix "tera" denotes which power of ten?
 A. 18 B. 12 C. 6 D. -6 E. -9 F. -15
13. The abbreviation for the SI prefix used to denote 10^{-6} is
 A. m B. p C. n D. f E. μ F. a
14. The quantity 13GW can be written
 A. $13 \times 10^6 \text{W}$ B. $13 \times 10^9 \text{W}$ C. $13 \times 10^{12} \text{W}$ D. $13 \times 10^{15} \text{W}$
15. The quantity $86\mu\text{m}$ can be written
 A. $86 \times 10^{-6} \text{m}$ B. $86 \times 10^{-3} \text{m}$ C. $86 \times 10^3 \text{m}$ D. $86 \times 10^6 \text{m}$
16. The value 648×10^{27} is expressed correctly in
 A. scientific notation only B. engineering notation only
 C. both scientific and engineering notation D. neither scientific nor engineering notation
17. An particular inkjet printer is advertised as being capable of spraying ink in droplets having a volume of 4 picoliters. How much of a liter does that represent?
 A. 0.4 B. 0.004 C. 0.000 004
 D. 0.000 000 004 E. 0.000 000 000 004 F. 0.000 000 000 000 004

What is the correct order of magnitude for the following quantity(ies):

18. The height of our classroom (in meters) has an order of magnitude 10^n where n is
 A. -4 B. -2 C. 0 D. 2 E. 4 F. 6
19. The length of a new pencil (in meters) has an order of magnitude 10^n where n is
 A. -3 B. -1 C. 1 D. 3 E. 5 F. 7
20. The thickness—not the diameter—of a compact disc (CD) has an order of magnitude 10^n where n is
 A. -3 B. -1 C. 1 D. 3 E. 5 F. 7
21. What is 76.384 written in one significant figure?
 A. 80 B. 76 C. 76.4 D. 76.3 E. 76.38
22. What is 53,192.67438 written in three significant figures?
 A. 50,000 B. 53,200 C. 53,193 D. 53,192.7 E. 53,192.674
23. Which value has a greater number of significant figures: 6,500s or 0.065s?
 A. 6,500s B. 0.065s C. same for both
24. Which value has a greater number of significant figures: 120m or 0.0007m?
 A. 120m B. 0.0007m C. same for both

