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EXHAUSTIVE SOLVED EXERCISES - TECHNICAL ENGLISH

References: Murphy, McCarthy & O'Dell, Rozakis, Oxford

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Exercise Set 1: Grammar (Murphy - Present Tenses)

1. Choose the correct tense:

- a) I usually (write / am writing) code in Python.

Answer: write

- b) She (debugs / is debugging) the program at the moment.

Answer: is debugging

- c) Water (boils / is boiling) at 100 degrees Celsius.

Answer: boils

- d) They (develop / are developing) a new algorithm this month.

Answer: are developing

2. Complete with Present Simple or Present Continuous:

- a) Scientists often publish their findings in journals.

- b) Look! The robot is moving on its own.

- c) The professor teaches us about AI every Monday.

- d) I am not understanding this equation right now.
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Exercise Set 2: Technical Vocabulary (McCarthy & O'Dell)

3. Match the computing term with its meaning:

- | | |
|------------------|---------------------------------------|
| a) Firewall | 1. A network of remote servers |
| b) Cloud Storage | 2. Security system for networks |
| c) API | 3. Interface for software interaction |
| d) Kernel | 4. Core of an operating system |

Answers: a-2, b-1, c-3, d-4

4. Fill in with the correct term:

a) The process of turning code into executable form is called compilation.

b) Cybersecurity is the practice of protecting systems from digital attacks.

c) A protocol is a set of rules for data exchange between devices.

d) Software refers to programs designed to perform specific tasks.

Exercise Set 3: Writing Skills (Technical Summaries)

5. Write a short paragraph (4-5 sentences) about "Binary Search".

Sample Answer: Binary search is an efficient algorithm for finding an item in a sorted list. It works by repeatedly dividing the search interval in half. If the target value is less than the middle element, the search continues in the lower half. This process continues until the target is found or the interval is empty. Binary search has a time complexity of $O(\log n)$.

6. Write a professional email to a colleague about a meeting:

Sample Answer:

Subject: Meeting to Discuss Algorithm Optimization

Dear [Colleague's Name],

I hope this email finds you well. I would like to schedule a brief meeting this Thursday to discuss optimizing the sorting algorithm we are currently using. Please let me know if 2 PM works for you.

Best regards,

[Your Name]

Exercise Set 4: Listening & Pronunciation (Oxford)

7. Underline the stressed syllable in these technical terms:

- a) algorithm -> AL-go-rithm
- b) variable -> VA-ri-a-ble
- c) encryption -> en-CRYP-tion
- d) hexadecimal -> hex-a-DEC-i-mal

8. Write the phonetic transcription for:

- a) data -> /'deɪtə/
- b) cache -> /kæʃ/
- c) query -> /'kwɪəri/
- d) integer -> /'ɪntɪdʒər/

Exercise Set 5: Speaking & Role-Play (Communication Skills)

9. Prepare a 30-second explanation of "What is a VPN?"

Sample Answer: "A VPN, or Virtual Private Network, is a service that encrypts your internet connection and routes it through a server in another location. This helps protect your online privacy, hide your IP address, and access content securely, especially on public Wi-Fi."

10. Role-play: You are explaining a technical issue to a non-technical person.

Scenario: "My computer is slow."

Sample Answer: "It could be due to too many programs running at once. Let's try closing some applications and restarting the computer. If the issue continues, we might need to check for malware or upgrade the RAM."

Exercise Set 6: Reading Comprehension (Scientific Text)

Read the following passage and answer the questions:

"Machine learning is a subset of artificial intelligence that enables systems to learn from data without being explicitly programmed. It uses algorithms to identify patterns and make decisions. Common applications include recommendation systems, speech recognition, and autonomous vehicles."

11. What is machine learning a subset of?

Answer: Artificial intelligence

12. How do machine learning systems learn?

Answer: From data, without explicit programming

13. Name two applications mentioned.

Answer: Recommendation systems and speech recognition

Exercise Set 7: Translation & Paraphrasing

14. Translate to French:

"The database stores user information securely."

Answer: "La base de données stocke les informations des utilisateurs en toute sécurité."

15. Paraphrase in English:

"The function returns the sum of two numbers."

Answer: "This function calculates and outputs the total of two given numbers."

Exercise Set 8: Grammar (Rozakis - Articles)

16. Fill in: a, an, the, or Ø (no article)

a) She is an expert in cyber security.

- b) We need to download the software from the internet.
- c) He wrote an algorithm for sorting arrays.
- d) Ø Python is a popular programming language.

Exercise Set 9: Mathematics Vocabulary

17. Match the math term with its definition:

- | | |
|---------------|-----------------------------------|
| a) Derivative | 1. Rate of change of a function |
| b) Integral | 2. Area under a curve |
| c) Matrix | 3. Rectangular array of numbers |
| d) Polynomial | 4. Expression with multiple terms |

Answers: a-1, b-2, c-3, d-4

18. Write a sentence using "probability" and "outcome".

Sample Answer: "In probability theory, the likelihood of a specific outcome is calculated based on possible events."

Exercise Set 10: Final Review - Mixed Skills

19. Correct the sentence:

"He are writing the code for the new feature."

Corrected: "He is writing the code for the new feature."

20. Give the opposite of:

- a) encrypt -> decrypt
- b) input -> output
- c) compile -> decompile
- d) static -> dynamic

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END OF EXHAUSTIVE EXERCISES

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RULES USED TO RESOLVE THE EXERCISES

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RULES FOR EXERCISE SET 1: PRESENT TENSES

Rule 1.1 (Present Simple):

Used for habits, routines, general truths, and permanent situations.

Example: "I write code." (habit)

Rule 1.2 (Present Continuous):

Used for actions happening now, temporary situations, and current projects.

Example: "I am writing code." (right now)

Rule 1.3 (Stative Verbs):

Verbs like "understand," "know," "believe" are usually not used in continuous forms.

Example: "I understand" (not "I am understanding").

RULES FOR EXERCISE SET 2: TECHNICAL VOCABULARY

Rule 2.1 (Term-Definition Matching):

Match terms to their standard definitions in computing and mathematics.

Rule 2.2 (Contextual Usage):

Technical terms must fit the sentence context logically and grammatically.

RULES FOR EXERCISE SET 3: WRITING SKILLS

Rule 3.1 (Paragraph Structure):

A technical paragraph should have a topic sentence, supporting sentences, and a concluding sentence if needed.

Rule 3.2 (Email Etiquette):

Professional emails include: clear subject, polite greeting, concise body, specific request, and polite closing.

RULES FOR EXERCISE SET 4: PRONUNCIATION & PHONETICS

Rule 4.1 (Word Stress):

In multi-syllable English words, one syllable is stressed

(louder, longer, higher pitch).

Rule 4.2 (Phonetic Transcription):

Use International Phonetic Alphabet (IPA) symbols to represent sounds.

RULES FOR EXERCISE SET 5: SPEAKING & COMMUNICATION

Rule 5.1 (Explanation for Non-Experts):

Use simple language, avoid jargon, give examples, and be concise.

Rule 5.2 (Role-Play Structure):

Acknowledge the problem, suggest simple solutions, offer further help.

RULES FOR EXERCISE SET 6: READING COMPREHENSION

Rule 6.1 (Direct Information):

Answers are found directly in the text. Do not infer unless instructed.

Rule 6.2 (Keyword Matching):

Identify keywords in the question and locate them in the text.

RULES FOR EXERCISE SET 7: TRANSLATION & PARAPHRASING

Rule 7.1 (Translation):

Translate meaning, not word-for-word. Maintain technical accuracy.

Rule 7.2 (Paraphrasing):

Use synonyms, change sentence structure, but keep the original meaning.

RULES FOR EXERCISE SET 8: ARTICLES (A, AN, THE)

Rule 8.1 (Indefinite Articles):

Use "a" before consonant sounds, "an" before vowel sounds.

Example: "a program," "an algorithm."

Rule 8.2 (Definite Article):

Use "the" for specific or previously mentioned things.

Example: "the software we downloaded."

Rule 8.3 (Zero Article):

No article is used with proper nouns, languages, or general plural nouns.

Example: "Python is a language."

RULES FOR EXERCISE SET 9: MATHEMATICS VOCABULARY

Rule 9.1 (Term Matching):

Match mathematical terms to their standard definitions.

Rule 9.2 (Sentence Construction):

Use terms in a grammatically correct sentence that demonstrates their meaning.

RULES FOR EXERCISE SET 10: MIXED SKILLS

Rule 10.1 (Subject-Verb Agreement):

Singular subject takes singular verb; plural subject takes plural verb.

Example: "He is" (not "He are").

Rule 10.2 (Antonyms):

Opposite meaning words. Use context to determine correct antonym.

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SUMMARY OF KEY GRAMMAR & LANGUAGE RULES

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1. Tense Usage: Choose tense based on time and aspect (simple vs. continuous).
2. Vocabulary: Use terms accurately in technical contexts.
3. Writing: Be clear, concise, and structured.
4. Pronunciation: Stress correct syllables; use IPA for sounds.
5. Communication: Adapt language to audience (expert vs. non-expert).
6. Reading: Extract information directly from the text.
7. Translation/Paraphrasing: Preserve meaning while changing form.
8. Articles: Choose based on specificity and sound.
9. Technical Terms: Use standard definitions and correct usage.
10. Grammar Basics: Apply subject-verb agreement and word opposites correctly.

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END OF RULES

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