

Name: _____

Date: _____

Score: _____

ExpressVPN Speed Test

Evaluating ExpressVPN's speed test performance, download and upload throughput retention, connection latency and ping times, low-latency gaming optimization, and WireGuard efficiency.

EXPRESSVPN SPEED TEST LEARNING OVERVIEW

LEARNER

STUDENT STATUS

Network Defender Track

SECURE

CONNECTION STATUS

Shielding data packets

100%

LEAK DEFENSE

DNS & IPv6 leak protection

Welcome! This activity packet guides you through ExpressVPN's speed test performance. You will explore download/upload throughput drop, latency ping metrics, and gaming optimization.

WORKSHEET CHECKPOINTS

- ☐ **Part 1-4:** Master VPN and network security configurations.
- ☐ **Part 5-7:** Solve crossword & word search puzzles.
- ☐ **Part 8-9:** Solve case studies & cipher challenge.
- ☐ **Part 10:** Review basic & advanced FAQ pages.
- ☐ **Part 11:** Explore 10 interesting real-world facts.

Open the VPN.com Best VPNs Guide

URL: <https://www.vpn.com/vpn/expressvpn-speed-test/>

Your ExpressVPN Speed Performance Roadmap

- Analyze the technical architecture and configuration rules of ExpressVPN Speed Test.
- Configure client settings to prevent IP, DNS, and WebRTC traffic leaks.
- Compare custom pricing, trial, and performance features against standard models.

EXPRESSVPN SPEED TEST GUIDE INSTRUCTIONS

Answer the multiple choice and true/false questions, complete the fill-in-the-blank sentences using the word bank, match definitions, and solve the crossword and word search puzzles. Apply your knowledge to throughput optimization and network latency.

MEASURING NETWORK THROUGHPUT & NODE CONNECTION LATENCY (INTRODUCTION)

Speed benchmarks demonstrate ExpressVPN's capability to deliver high-throughput, low-latency tunnels using the custom Lightway protocol. This makes it ideal for real-time applications such as competitive gaming and UHD streaming.

READ EACH CHECKPOINT CAREFULLY AND SELECT OR WRITE THE CORRECT RESPONSE.

Checkpoint 1: Multiple Choice Challenge

1 Which protocol typically yields the fastest speeds?

- ☐ A) Lightway
- ☐ B) OpenVPN
- ☐ C) IKEv2
- ☐ D) PPTP

2 What metrics are measured during a VPN speed test?

- ☐ A) Throughput and latency
- ☐ B) Port and IP
- ☐ C) Cipher and key
- ☐ D) Hop and TTL

3 How does distance affect the speed test results?

- ☐ A) Increases latency
- ☐ B) Decreases latency
- ☐ C) No effect
- ☐ D) Changes IP

4 What is a normal speed reduction when using a fast VPN?

- ☐ A) 10% to 20%
- ☐ B) 50% to 60%
- ☐ C) 80% to 90%
- ☐ D) 0%

5 Which protocol is recommended for older devices?

- ☐ A) IKEv2
- ☐ B) Lightway
- ☐ C) OpenVPN
- ☐ D) L2TP

Checkpoint 2: True or False Challenge

6 Question 6

Lightway TCP is faster than Lightway UDP.

☐

True

☐

False

7 Question 7

A speed test measures both download and upload throughput.

☐

True

☐

False

8 Question 8

VPN encryption never introduces any speed overhead.

☐

True

☐

False

9 Question 9

Connecting to a local server reduces latency.

☐

True

☐

False

10 Question 10

ExpressVPN has a built-in speed test tool in its desktop app.

☐

True

☐

False

Checkpoint 3: Key Term Insertion

Read each sentence below and fill in the blank with the correct term from the Word Bank.

1. Speed tests evaluate download and upload _____available.
2. The connection ping, which affects responsiveness, is called _____.
3. The fastest connection protocol in ExpressVPN is _____.
4. Physical server _____is the primary factor increasing network ping.
5. Strong encryption and routing processes add some speed _____.
6. Low ping is essential to support fast real-time _____sessions.

VOCABULARY WORD BANK

throughput
overhead

latency
upload

lightway
download

distance
gaming

Write your answers here:

- | | | | |
|----|----------------------|----|----------------------|
| 1. | <input type="text"/> | 2. | <input type="text"/> |
| 3. | <input type="text"/> | 4. | <input type="text"/> |
| 5. | <input type="text"/> | 6. | <input type="text"/> |

Checkpoint 4: VPN & Network Concept Match

DEFINITION MATCHING

Match each vocabulary term on the left with its correct definition on the right by writing the corresponding letter (A-H) in the fillable input box.

throughput

H Real-time interactive applications highly sensitive to network latency

latency

G The speed of receiving data from the internet to a local device

lightway

E Processing delay introduced by encryption and routing protocols

distance

C ExpressVPN's custom protocol optimized for speed and security

overhead

F The speed of sending data from a local device to the internet

upload

A The volume of data transmitted over a network per second

download

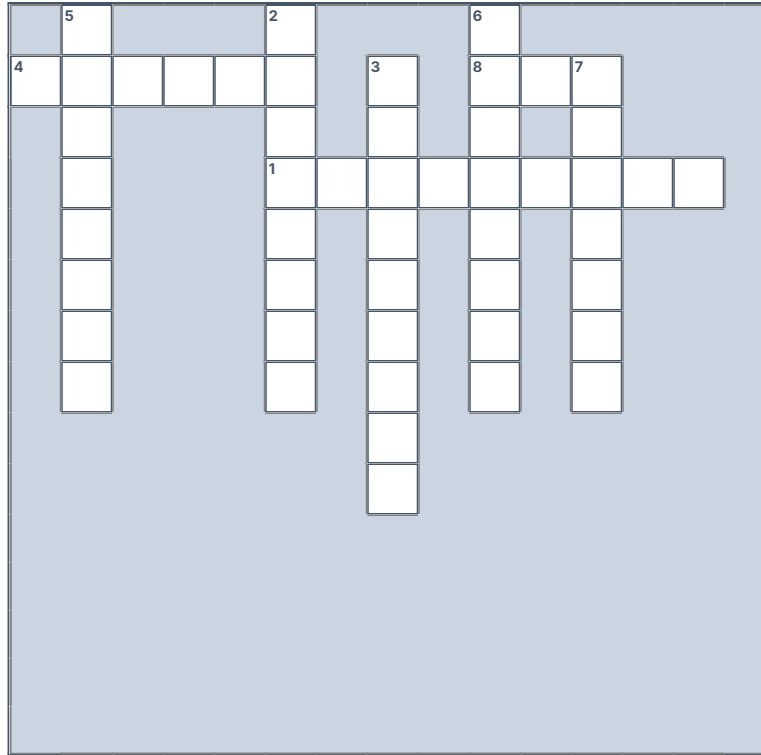
D The physical span between the user device and the VPN server

gaming

B The round-trip time of a data packet, measured in milliseconds

Checkpoint 5: Crossword Puzzle

Solve the crossword puzzle by typing letters into the active white boxes. The numbers correspond to the clues below.



ACROSS

1. Process of wrapping data packets inside other packets (9)
4. Remote server that routes traffic and hides your IP (6)
8. Internet Service Provider, logs traffic unless encrypted (3)

DOWN

2. Rules determining how data is sent and encrypted (8)
3. Rate of data transfer across a path (9)
5. Blocking site access based on location (8)
6. Security system that monitors and blocks traffic (8)
7. State of being free from tracking or surveillance (7)

Checkpoint 5 Alternative: Accessible Crossword Clues

Screen-reader and keyboard users can type the crossword answers directly in the text fields below.

ACROSS CLUES

1 Across: Volume of data transmitted per second. (10 letters):

4 Across: Round-trip time of a packet in milliseconds. (7 letters):

5 Across: ExpressVPN's custom protocol optimized for speed. (8 letters):

7 Across: Processing delay from encryption and routing. (8 letters):

DOWN CLUES

2 Down: Physical span between device and server. (8 letters):

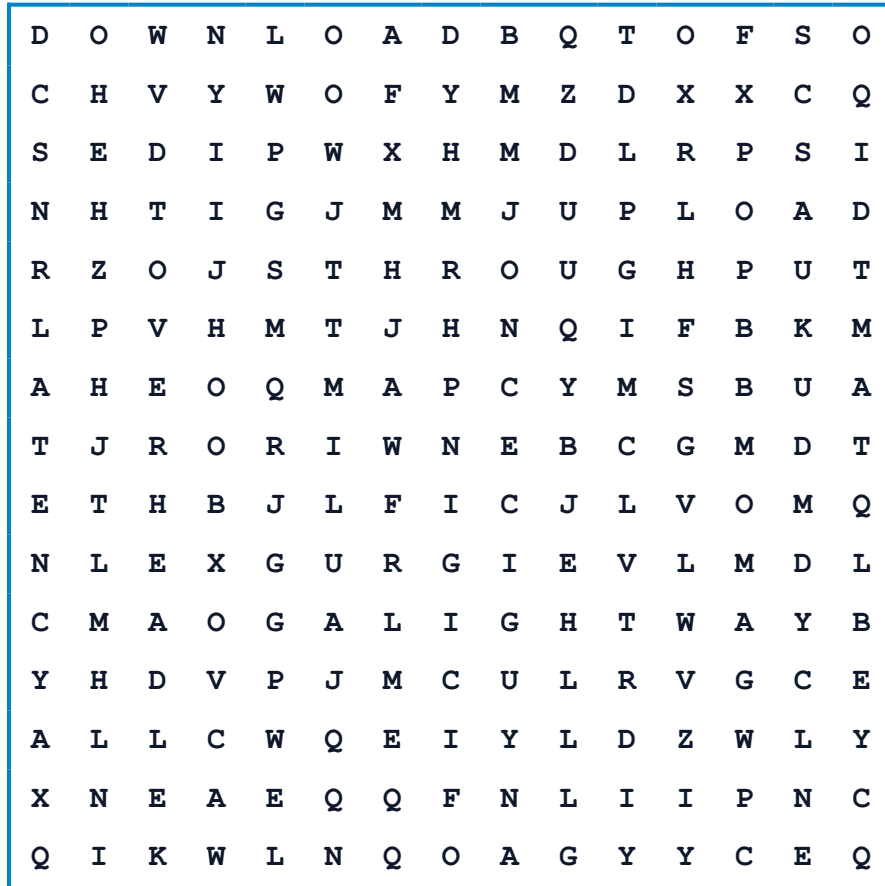
3 Down: Speed of sending data to the internet. (6 letters):

6 Down: Speed of receiving data from the internet. (8 letters):

8 Down: Interactive applications sensitive to latency. (6 letters):

Checkpoint 6: Hidden Word Search

Find the 8 key vocabulary terms hidden in the grid below. Words can be horizontal, vertical, or diagonal.



VOCABULARY WORD LIST

throughput
overhead

latency
upload

lightway
download

distance
gaming

Checkpoint 6 Alternative: Accessible Vocabulary Matching

Match each of the 8 vocabulary terms from the Word Search to its correct definition by writing the letter (A-H) in the blank space.

VOCABULARY TERMS

- A. throughput
- B. latency
- C. lightway
- D. distance
- E. overhead
- F. upload
- G. download
- H. gaming

DEFINITIONS & MATCH FIELDS

- 1. The volume of data transmitted over a network per second.
- 2. The round-trip time of a data packet, measured in milliseconds.
- 3. ExpressVPN's custom protocol optimized for speed and security.
- 4. The physical span between the user device and the VPN server.
- 5. Processing delay introduced by encryption and routing protocols.
- 6. The speed of sending data from a local device to the internet.
- 7. The speed of receiving data from the internet to a local device.
- 8. Real-time interactive applications highly sensitive to network latency.

Checkpoint 7: Scrambled Word Challenge

Unscramble the letters below to reveal key Virtual Private Network (VPN) concepts and terms. Write your answers in the input boxes provided.

1. HROUGHPUTT

5. VERHEADO

2. ATENCYL

6. PLOADU

3. IIGHTWAYL

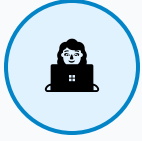
7. OWNLOADD

4. ISTANCED

8. AMINGG

Checkpoint 8: VPN & Network Case Studies

Apply the concepts you have learned to solve the real-world scenarios below.



CASE STUDY 1: OPTIMIZING 4K VIDEO STREAMING

Scenario: A user experiences buffering when streaming 4K content from a distant country server.

Discussion Question: What adjustments should they make to improve throughput?



CASE STUDY 2: REDUCING PING FOR COMPETITIVE GAMING

Scenario: An online gamer experiences high input lag (120ms ping) when connected to a VPN.

Discussion Question: How can they reduce latency for competitive gaming?

Final Challenge: Decrypting the Cipher

A network engineer secures routing channels and client tunnels. Use the Letter-to-Number key below to decrypt the message by writing the matching letters in the blank spaces.

LETTER-TO-NUMBER ENCRYPTION KEY

A=1	B=2	C=3	D=4	E=5	F=6	G=7	H=8	I=9	J=10	K=11	L=12	M=13
N=14	O=15	P=16	Q=17	R=18	S=19	T=20	U=21	V=22	W=23	X=24	Y=25	Z=26

12	9	7	8	20	23	1	25	21	4	16	15	6	6	5	18	19
20	8	5	8	9	7	8	5	19	20	19	16	5	5	4		
20	8	18	15	21	7	8	16	21	20							

Decoded cybersecurity message:

TIP: EACH NUMBER REPRESENTS THE POSITION OF THAT LETTER IN THE ALPHABET (E.G. 1 = A, 2 = B, 26 = Z).

Checkpoint 10: Basic VPN FAQs (Part A)

Review the most common questions and answers regarding Virtual Private Networks (VPNs) and tunneling.

Q1: Why does a VPN slow down my speed?

Speed drops due to the encryption process and routing through distant servers.

Q2: What is a good ping for gaming?

A ping under 50ms is ideal, and under 100ms is acceptable for gaming.

Q3: Is Lightway faster than OpenVPN?

Yes, Lightway is significantly faster and connects much quicker than OpenVPN.

Q4: How can I test my ExpressVPN speed?

You can use the built-in speed test tool in the desktop app or Speedtest.net.

Q5: Does server load affect connection speed?

Yes, highly congested servers will result in lower speeds.

Checkpoint 10: Basic VPN FAQs (Part B)

Review the most common questions and answers regarding Virtual Private Networks (VPNs) and tunneling.

Q6: Which is faster, Lightway UDP or TCP?

Lightway UDP is faster, while TCP is more stable on unstable networks.

Q7: Does ExpressVPN throttle bandwidth?

No, ExpressVPN provides unlimited bandwidth and never throttles users.

Q8: How do I choose the fastest server?

Use the Smart Location feature to connect to the optimal server automatically.

Q9: Does encryption strength affect speed?

Yes, but modern processors handle AES-256 with negligible speed impact.

Q10: Can I get original ISP speeds with a VPN?

No, there is always a minor speed reduction due to routing and encryption.

Checkpoint 11: Advanced VPN FAQs (Part A)

Explore advanced technical aspects of VPN tunneling protocols, mobile client integrations, and enterprise deployment.

Q1: What is the difference in overhead between OpenVPN and Lightway?

OpenVPN has a much larger codebase and higher CPU overhead compared to Lightway.

Q2: How does MTU size affect VPN speeds?

An optimized MTU prevents packet fragmentation, improving throughput and reducing drops.

Q3: Why is my upload speed sometimes faster than download?

This happens due to routing differences or local ISP throttling of download traffic.

Q4: How does ExpressVPN handle network transitions?

Lightway restores the tunnel instantly when switching networks (e.g. Wi-Fi to cellular).

Q5: Does using a router VPN slow down speeds?

Yes, if the router's CPU lacks hardware-accelerated encryption capabilities.

Checkpoint 11: Advanced VPN FAQs (Part B)

Explore advanced technical aspects of VPN tunneling protocols, mobile client integrations, and enterprise deployment.

Q6: What is the role of AES-NI in VPN performance?

AES-NI provides hardware acceleration for AES ciphers, greatly increasing speed.

Q7: Why does my latency increase when using a VPN?

Latency increases because packets must travel additional distance to the VPN server.

Q8: Is WireGuard supported on ExpressVPN?

ExpressVPN does not support WireGuard, opting instead for their proprietary Lightway protocol.

Q9: How does split tunneling help with speed?

It lets you route only essential traffic through the VPN, saving bandwidth for other apps.

Q10: Does ISP throttling get bypassed by a VPN?

Yes, if your ISP throttles specific traffic types like streaming, a VPN can bypass it.

Part 11: 10 Real-World VPN Facts & Insights

Review real-world facts regarding VPN encryption speeds, protocol audits, mobile connectivity, and enterprise remote work.

1. VPN INSIGHT

Lightway UDP protocol is designed to provide the fastest download speeds.

2. VPN INSIGHT

Latency is the time delay for data packet transmission, measured in ms.

3. VPN INSIGHT

Local VPN servers usually result in a minor speed drop of 5% to 15%.

4. VPN INSIGHT

The built-in speed test tool ranks servers by speed index and latency.

5. VPN INSIGHT

Lightway TCP is slower than UDP but handles network restrictions better.

6. VPN INSIGHT

Router CPUs without AES-NI hardware support slow down OpenVPN speeds.

7. VPN INSIGHT

Connecting to a distant server increases ping due to physical distance.

8. VPN INSIGHT

ExpressVPN does not impose any data caps or bandwidth limits.

9. VPN INSIGHT

Split tunneling allows routing specific apps outside the VPN tunnel.

10. VPN INSIGHT

Lightway establishes connection tunnels in less than a fraction of a second.

Technical References & Sources

The study guide and interactive puzzles are compiled from global technical standards, specifications, and regulatory frameworks.

SCHOLARLY & INDUSTRY REFERENCES

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Answer Key: Checkpoint 1 - Multiple Choice

1 Network Check 1

VPN PROTECTION

Correct Answer: A

TEACHING NOTE

Which protocol typically yields the fastest speeds?

Citation: IETF VPN RFC [Ref 3].

2 Network Check 2

VPN PROTECTION

Correct Answer: A

TEACHING NOTE

What metrics are measured during a VPN speed test?

Citation: IETF VPN RFC [Ref 3].

3 Network Check 3

VPN PROTECTION

Correct Answer: A

TEACHING NOTE

How does distance affect the speed test results?

Citation: IETF VPN RFC [Ref 3].

4 Network Check 4

VPN PROTECTION

Correct Answer: A

TEACHING NOTE

What is a normal speed reduction when using a fast VPN?

Citation: IETF VPN RFC [Ref 3].

5 Network Check 5

VPN PROTECTION

Correct Answer: A

TEACHING NOTE

Which protocol is recommended for older devices?

Citation: IETF VPN RFC [Ref 3].

Answer Key: Checkpoint 2 - True or False

6 Network Rule 1

VPN PROTECTION

Correct Answer: False

TEACHING NOTE

Lightway TCP is faster than Lightway UDP.

Citation: IETF VPN RFC [Ref 3].

7 Network Rule 2

VPN PROTECTION

Correct Answer: True

TEACHING NOTE

A speed test measures both download and upload throughput.

Citation: IETF VPN RFC [Ref 3].

8 Network Rule 3

VPN PROTECTION

Correct Answer: False

TEACHING NOTE

VPN encryption never introduces any speed overhead.

Citation: IETF VPN RFC [Ref 3].

9 Network Rule 4

VPN PROTECTION

Correct Answer: True

TEACHING NOTE

Connecting to a local server reduces latency.

Citation: IETF VPN RFC [Ref 3].

10 Network Rule 5

VPN PROTECTION

Correct Answer: True

TEACHING NOTE

ExpressVPN has a built-in speed test tool in its desktop app.

Citation: IETF VPN RFC [Ref 3].

Vocabulary Keys & Grading Rubric

Instructor Grading Rubric: Award 1 point for each correct matching (8 points total) and context term (6 points total).

CHECKPOINT 4: CONCEPT MATCH KEY

A throughput

B latency

C lightway

D distance

E overhead

F upload

G download

H gaming

CHECKPOINT 3: KEY TERM KEY

1 throughput

2 latency

3 lightway

4 distance

5 overhead

6 gaming

DISCUSSION NOTES FOR INSTRUCTORS

Valuation Accuracy:

Verify that students understand how domain length, extension (.com, .ai), and commercial search volume drive appraisal pricing.

Escrow Security:

Emphasize that funds are held in licensed third-party holding accounts prior to domain WHOIS transfer verification.

Stealth Representation:

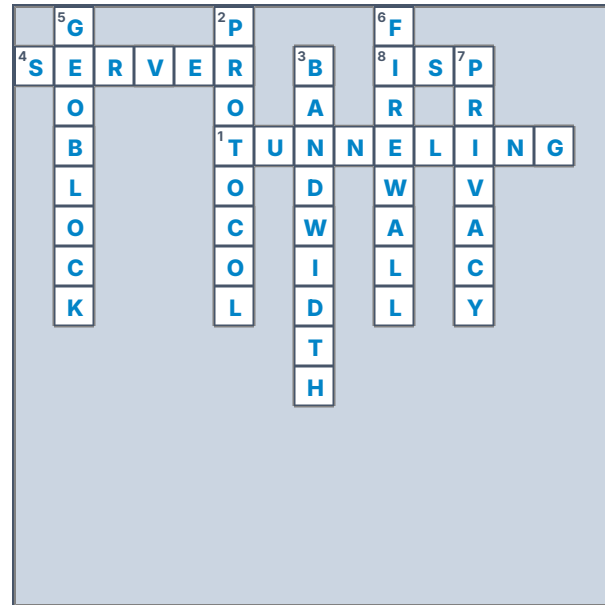
Highlight the role of NDAs and third-party representation in preventing speculative price gouging during corporate procurement.

Puzzles Keys & Instructor Notes

WORD SEARCH SOLUTION

D	O	W	N	L	O	A	D	B	Q	T	O	F	S	O
C	H	V	Y	W	O	F	Y	M	Z	D	X	X	C	Q
S	E	D	I	P	W	X	H	M	D	L	R	P	S	I
N	H	T	I	G	J	M	M	J	U	P	L	O	A	D
R	Z	O	J	S	T	H	R	O	U	G	H	P	U	T
L	P	V	H	M	T	J	H	N	Q	I	F	B	K	M
A	H	E	O	Q	M	A	P	C	Y	M	S	B	U	A
T	J	R	O	R	I	W	N	E	B	C	G	M	D	T
E	T	H	B	J	L	F	I	C	J	L	V	O	M	Q
N	L	E	X	G	U	R	G	I	E	V	L	M	D	L
C	M	A	O	G	A	L	I	G	H	T	W	A	Y	B
Y	H	D	V	P	J	M	C	U	L	R	V	G	C	E
A	L	L	C	W	Q	E	I	Y	L	D	Z	W	L	Y
X	N	E	A	E	Q	Q	F	N	L	I	I	P	N	C
Q	I	K	W	L	N	Q	O	A	G	Y	Y	C	E	Q

CROSSWORD SOLUTION



INSTRUCTOR GUIDE FOR CROSSWORD SOLUTIONS

ACROSS CLUES

- 1 Across:** TUNNELING Process of wrapping data packets. (3, 5)
- 4 Across:** SERVER Remote computer routing traffic. (1, 0)
- 8 Across:** ISP Internet Service Provider. (1, 9)

DOWN CLUES

- 2 Down:** PROTOCOL Rules determining data transmission. (0, 5)
- 3 Down:** BANDWIDTH Rate of data transfer. (1, 7)
- 5 Down:** GEOBLOCK Location website restriction. (0, 1)
- 6 Down:** FIREWALL Security monitor barrier. (0, 9)
- 7 Down:** PRIVACY State of freedom from tracking. (1, 11)

Scrambled Words & Cipher Solution Key

Grading key for the vocabulary word unscramble activity and Secret Cipher Challenge.

WORD UNSCRAMBLE KEY

1. HROUGHPUTT

THROUGHPUT

5. VERHEADO

OVERHEAD

2. ATENCYL

LATENCY

6. PLOADU

UPLOAD

3. IIGHTWAYL

LIGHTWAY

7. OWNLOADD

DOWNLOAD

4. ISTANCED

DISTANCE

8. AMINGG

GAMING

SECRET CIPHER CHALLENGE KEY

**"LIGHTWAY UDP OFFERS THE HIGHEST SPEED
THROUGHPUT"**

VPN & Network Case Studies Solution Key

A Case Study 1: Optimizing 4K Video Streamin

[Instructor Solution](#)

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** A user experiences buffering when streaming 4K content from a distant country server.
- **Recommended Strategy & Solution:** They should switch to the Lightway UDP protocol and connect to a server closer to the content source.

B Case Study 2: Reducing Ping for Competitive Gamir

[Instructor Solution](#)

GRADING GUIDELINE

Student answers should cover the following points:

- **Scenario Analysis:** An online gamer experiences high input lag (120ms ping) when connected to a VPN.
- **Recommended Strategy & Solution:** They should connect to a local server, use Lightway UDP, and verify that background downloads are paused.