Palmer Spinal Exam 4 Practice (Sample)

Study Guide

Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- **Practice answering questions under realistic conditions,**
- **Improve accuracy and speed,**
- **Review explanations to strengthen weak areas, and**
- **Approach the exam with greater confidence.**

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here’s how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don’t just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There’s no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

1. Swayback is a hyperlordotic condition specific to which spinal region?

A. Cervical

B. Thoracic

C. Lumbar

D. Sacral

2. The mastoid fontanelle is derived from which germ layer?

A. Endoderm

B. Lateral Plate Mesoderm

C. Neural Crest Cells

D. Paraxial Mesoderm

3. Parasympathetic innervation of the parotid gland is from which nerve?

A. Trigeminal nerve

B. Glossopharyngeal nerve

C. Facial nerve

D. Vagus nerve

4. Which branch does NOT enter the parotid gland?

A. Temporal branch

B. Zygomatic branch

C. Buccal branch

D. Posterior auricular branch

5. Which landmark marks the closure of the posterior fontanel?

A. Lambda

B. Bregma

C. Nasion

D. Pterion

6. The muscles of mastication are derived from which pharyngeal arch?

A. Second pharyngeal arch

B. First pharyngeal arch

C. Third pharyngeal arch

D. Fourth pharyngeal arch

7. The deep layer of the supraspinous ligament becomes continuous with which ligaments?

A. Interspinous ligaments

B. Intertransverse ligaments

C. Ligamentum flavum

D. Anterior longitudinal ligament

8. Which innervation to the posterior 1/3 of the annulus fibrosus?

A. Dorsal Ramus

B. Gray Ramus Communicans

C. Afferent Branches From The Sympathetic Trunk

D. Sinuvertebral Nerve

9. What is a common cause of congenital kyphosis?

A. Vertebrae do not form properly or may fuse together (hemivertebrae)

B. Vitamin D deficiency

C. Postural habit

D. Trauma unrelated to formation

10. Bell's palsy commonly results in inability to close the eye due to paralysis of which muscle?

A. Orbicularis oculi

B. Frontalis

C. Zygomaticus

D. Orbicularis oris

Answers

1. C
2. D
3. B
4. D
5. A
6. B
7. A
8. D
9. A
10. A

Explanations

1. Swayback is a hyperlordotic condition specific to which spinal region?

A. Cervical

B. Thoracic

C. Lumbar

D. Sacral

Swayback is a hyperlordotic posture localized to the lumbar region. The lumbar spine normally has an inward (lordotic) curve, and in a swayback posture this lumbar curve is exaggerated, often with an anterior pelvic tilt that shifts weight toward the back of the pelvis. The thoracic and sacral regions are not described as swayback because the thoracic spine is normally kyphotic (outward curve) and the sacral region is fused and also kyphotic. So the exaggerated curve that defines swayback occurs in the lumbar spine.

2. The mastoid fontanelle is derived from which germ layer?

A. Endoderm

B. Lateral Plate Mesoderm

C. Neural Crest Cells

D. Paraxial Mesoderm

Germ layer origin of skull components and fontanelles. Fontanelles are fibrous membranes between developing skull bones that form by intramembranous ossification as the calvaria grows. The region around the mastoid fontanelle, bordered by temporal and occipital bones, derives its mesenchyme primarily from the paraxial mesoderm (the somite-derived axial skeleton). While neural crest cells contribute to many craniofacial bones, the mastoid area specifically follows paraxial mesoderm lineage, making this the correct source. Endoderm and lateral plate mesoderm do not contribute to this cranial region in the same way, and neural crest involvement is more prominent in other parts of the skull.

3. Parasympathetic innervation of the parotid gland is from which nerve?

A. Trigeminal nerve

B. Glossopharyngeal nerve

C. Facial nerve

D. Vagus nerve

Parasympathetic control of the parotid gland comes from the glossopharyngeal nerve. The preganglionic fibers originate in the inferior salivatory nucleus and travel with the tympanic nerve into the tympanic plexus, then through the lesser petrosal nerve to the otic ganglion, where they synapse. Postganglionic fibers hitch a ride on the auriculotemporal nerve (a branch of V3) to reach the parotid gland and stimulate saliva. The other nerves listed do not provide this parasympathetic supply to the parotid: the trigeminal nerve is not a parasympathetic source, the facial nerve handles other glands via different routes, and the vagus nerve innervates thoracic and abdominal viscera.

4. Which branch does NOT enter the parotid gland?

A. Temporal branch

B. Zygomatic branch

C. Buccal branch

D. Posterior auricular branch

The key idea is how the facial nerve branches relate to the parotid gland. The facial nerve exits the skull and, as it traverses the parotid gland, gives rise to its five terminal branches that distribute to the face: temporal, zygomatic, buccal, marginal mandibular, and cervical. These branches enter or travel within the parotid to reach their muscle targets. The posterior auricular branch does not enter the parotid gland. It branches off the facial nerve proximal to the gland and travels posteriorly to supply the occipitalis and auricular muscles. Therefore, it's the branch that does not enter the parotid gland.

5. Which landmark marks the closure of the posterior fontanel?

A. Lambda

B. Bregma

C. Nasion

D. Pterion

The posterior fontanel sits at the junction of the sagittal and lambdoid sutures. When it closes, the external landmark that marks that point is the lambda, located at the back of the skull where those sutures meet. This makes lambda the reference for the posterior fontanel's closure. By contrast, the bregma marks the anterior fontanel (sagittal meeting the coronal sutures), nasion is where the frontal bone meets the nasal bones, and pterion is the thin area where several bones meet on the side of the skull. So lambda is the landmark associated with the posterior fontanel's closure.

6. The muscles of mastication are derived from which pharyngeal arch?

A. Second pharyngeal arch

B. First pharyngeal arch

C. Third pharyngeal arch

D. Fourth pharyngeal arch

The muscles of mastication come from the first pharyngeal (mandibular) arch. Embryologically, this arch forms the jaw muscles—the masseter, temporalis, and the medial and lateral pterygoids—derived from mesoderm of that arch. They are innervated by the mandibular division of the trigeminal nerve (V3), which aligns with their arch origin. The other arches contribute to different muscle groups: the second arch forms the muscles of facial expression, the third arch gives the stylopharyngeus, and the fourth/sixth arches contribute to other pharyngeal and laryngeal muscles. So the chewing muscles are specifically from the first arch.

7. The deep layer of the supraspinous ligament becomes continuous with which ligaments?

A. Interspinous ligaments

B. Intertransverse ligaments

C. Ligamentum flavum

D. Anterior longitudinal ligament

The deep fibers of the supraspinous ligament blend with the interspinous ligaments between adjacent spinous processes, forming a continuous posterior ligamentous chain along the spine. This continuity groups the supraspinous and interspinous ligaments together, reinforcing stability in the posterior aspect of the vertebral column and helping limit flexion. The other ligaments mentioned run in different locations—the ligamentum flavum between laminae, the anterior longitudinal along the front of the vertebral bodies, and the intertransverse between transverse processes—so they don't merge with the deep layer of the supraspinous.

8. Which innervation to the posterior 1/3 of the annulus fibrosus?

A. Dorsal Ramus

B. Gray Ramus Communicans

C. Afferent Branches From The Sympathetic Trunk

D. Sinuvertebral Nerve

The posterior portion of the annulus fibrosus is supplied by the sinuvertebral nerve. This nerve, also known as the recurrent meningeal nerve, re-enters the spinal canal through the intervertebral foramen and distributes to the outer annulus fibrosus, the PLL, and the adjacent dura. It carries the somatic afferent pain fibers that explain discogenic pain when the posterior annulus is involved, making it the primary source of sensory innervation for this region. Dorsal rami mainly supply the back muscles, skin, and facets, not the inner/posterior annulus. Gray rami communicantes carry postganglionic sympathetic fibers to spinal nerves, and afferent fibers from the sympathetic trunk are not the typical route for innervation of the posterior annulus. Therefore, the sinuvertebral nerve best explains innervation of the posterior third of the annulus fibrosus.

9. What is a common cause of congenital kyphosis?

A. Vertebrae do not form properly or may fuse together (hemivertebrae)

B. Vitamin D deficiency

C. Postural habit

D. Trauma unrelated to formation

Congenital kyphosis comes from vertebral abnormalities that are present at birth, due to problems with formation or segmentation of the spine. The most common scenario is a vertebral formation failure or incomplete segmentation, such as a hemivertebra, where part of a vertebra is missing and a wedge forms on one side. This structural, fixed deformity appears early and tends to progress as the child grows. Vitamin D deficiency causes rickets, a metabolic bone disease that develops after birth and leads to deformities secondary to soft bones—not a congenital spinal malformation. Postural habits produce a flexible, non-fixed curvature that changes with position and generally does not represent a true congenital deformity. Trauma to the spine can cause kyphosis, but that results in an acquired deformity, not one present from birth.

10. Bell's palsy commonly results in inability to close the eye due to paralysis of which muscle?

A. Orbicularis oculi

B. Frontalis

C. Zygomaticus

D. Orbicularis oris

The eyelids are closed mainly by the orbicularis oculi, the circular muscle around the eye that contracts to shut the lids. In Bell's palsy, the facial nerve is affected and this muscle on the affected side loses function, so blinking and voluntary eyelid closure are impaired. This produces the inability to close the eye, also known as lagophthalmos. The other muscles listed don't close the eyelids: frontalis lifts the eyebrows, zygomaticus elevates the mouth corner, and orbicularis oris closes the lips, so they don't explain the eye closure deficit.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://palmerspinalexam4.examzify.com

We wish you the very best on your exam journey. You've got this!