

20. Regarding the formation of the spinal cord, the marginal layer of the neural tube becomes the ——— of the spinal cord.
 A grey matter B white matter C spinocerebellar tracts D filum terminale
21. The hindbrain is named the rhombencephalon (from *rhombus*, meaning ———).
 A square-like B diamond shape C pointed D crooked
22. The sulcus ——— is a longitudinal groove on each side of the lumen of the neural tube.
 A calcarinis B inferior temporalis C limitans D occipitotemporalis
23. The telencephalic vesicles develop as lateral outpocketings from the forebrain during the ——— week of embryonic life.
 A third B fourteenth C fifth D second
24. In brain wall development, the amygdaloid (from *amygdale*, meaning ———) nucleus is the first part of the corpus striatum to appear.
 A egg-shaped B circle C globule D almond
25. In cerebral neocortex development, the majority of neuroblasts reaching layer IV become stellate (meaning ———) or granule cells.
 A ovoid B star-shaped C detached D pointed
26. The most significant loss of neurons and glia occurs before ——— days of age.
 A 20 B 5 C 150 D 100

UNIT FOUR: SPINAL CORD

27. The spinal cord is the caudal two-thirds of the central nervous system, approximately ——— cm in length in males.
 A 27 B 32 C 38 D 45
28. Lamina ———, also called the gray commissure, is the gray matter surrounding the central canal. It consists of small interneurons.
 A VII B III C IX D X
29. The myotatic (——) reflex is one of the simplest known, depending on just two neurons and one synapse.
 A squeeze B stretch C twisting D elongation
30. The axons of the secondary neurons terminate in the ventral posterior lateral nucleus of the:
 A thalamus B hypothalamus C hippocampus D olfactory bulb
31. Free nerve endings are now thought to be the principal receptors for both pain and temperature.
 A True B False
32. The ——— spinothalamic tract conducts impulses related to sensations of light, poorly localized (protopathic) touch.
 A posterior B anterior C left lateral D right lateral
33. Largely limited to the thoracic cord, ——— column can be seen from segments L3 to C8 of the cord.
 A Madeleine's B Gelsomina's C Clarke's D Josie's
34. The ——— tract is the major cortically derived descending pathway affecting the motor neurons.
 A corticospinal B frontopontine C solitarius D fimbria
35. Ascending fibers of the MLF (medial ——— fasciculus) arise primarily from the vestibular nuclei in the upper medulla.
 A longitudinal B limbic C lingual D lateral
36. The ——— tract begins with the superior colliculus of the midbrain, an important center for visual-following and eye-centering reflexes.
 A stria terminalis B trochlear C trigeminal D tectospinal
37. The medullary reticulospinal tract originates in the medial ——— of the medulla.
 A one-fifth B one-half C two-thirds D four-fifths

UNIT FIVE: BRAIN

38. The anterior surface of the midbrain merges with that of the:
 A diencephalon B pituitary gland C cerebral cortex D hypothalamus
39. The lowest part of the medulla is similar to the spinal cord in its external appearance.
 A True B False
40. Immediately adjacent (——) to the lateral corticospinal tracts are the rubrospinal tracts.
 A posterior B superior C inferior D anterior

41. The spinal trigeminal nucleus is often written spinal nucleus of:
 A Y B V C A D X
42. The nucleus ——— can be found somewhat lateral to the reticular formation.
 A habenular B pontine C ambiguous D interpeduncular
43. Between the nucleus of ——— and the ventricular floor run the arching fibers of the facial (VII) nerve.
 A IV B VI C V D I
44. The periaqueductal ——— is rich in small neurons and is a significant repository of the naturally occurring opioid peptide β endorphin.
 A white B gray C yellow D black
45. The ——— nucleus is a large, round cell mass in the midbrain tegmentum that has a faintly pink cast in the fresh state.
 A pink B red C magenta D rose
46. The ——— gland is an outgrowth of the roof of the diencephalon.
 A posterior pituitary B anterior pituitary C hypothalamus D pineal
47. There are at least ——— discrete raphe nuclei.
 A three B five C seven D twelve
48. Lesions of the neocerebellum affect ——— movements.
 A skilled voluntary B involuntary C mainly eye D gross motor
49. Regarding the cerebellar cortex, the granule layer consists of enormous numbers (approximately ——— billion) of packed granule cells.
 A 2 B 4 C 8 D 10
50. All fibers entering the cerebellum terminate in specified portions of the cerebellar:
 A peduncles B cortex C lateral reticular nucleus D red nucleus
51. The thalamus has a number of nuclei, over ——— by some counts.
 A 120 B 80 C 55 D 30
52. The dorsomedial nucleus sends its largest fiber projections to the ——— cortex.
 A motor B primary auditory C prefrontal D premotor
53. Significant masses of ——— - like cells are found in the internal medullary lamina of each thalamus.
 A cube B sphere C reticular D ovoid
54. The ——— makes up the base of the diencephalon.
 A lateral ventricle B hypothalamus C mammillary body D cerebrum
55. Fibers from hippocampus form the:
 A fimbria B preoptic area C mesencephalon D interthalamic adhesion
56. The stria terminalis carries fibers from the ventromedial hypothalamic nucleus to the ——— nucleus.
 A gracilis B habenular C intralaminar D amygdaloid
57. The pineal gland is a small (——) neuroendocrine organ attached by a stalk to the posterior, dorsal aspect of the diencephalon.
 A 4 mm by 4 mm B 7 mm by 5 mm C 11 mm by 15 mm D 1 mm by 2 mm
58. The ——— is the largest part of the striatum.
 A internal capsule B putamen C caudate nucleus D claustrum
59. Pathology in the basal ganglia may lead to a number of motor dysfunctions known as ——— (uncontrolled, purposeless movements).
 A dyskinesias B dystonias C MS D scene reproduction
60. The ——— nuclei constitute the anterior linchpin of the limbic system.
 A globus pallidus B inferior vestibular C septal D cochlear
61. The hippocampus (“——”), named for its fancied similarity to the sea creature, is found within the medial border of the temporal lobe.
 A hammerhead shark B jellyfish C sea horse D octopus

82. Emerging from the ——— foramen, the facial nerve turns anteriorly to enter the parotid gland.
 A supraorbital B stylomastoid C apical D obturator
83. One bundle of preganglionic fibers is directed anteriorly as the greater petrosal (meaning ‘———’) nerve.
 A smooth B long C short D rocky
84. Each taste bud, likened to the petals of a flowering bud, consists of about ——— neuroepithelial cells intertwined with supporting cells.
 A 5 to 7 B 2 to 3 C 40 to 50 D 100 to 150
85. The cochlea consists of ——— elongated tubes coiled around the central, bony pillar.
 A one B three C two D four
86. The cochlear nerve (part of the VIII cranial nerve) conducts impulses generated in the organ of ——— to the cochlear nuclei.
 A Zuckerkandl B Corti C Jamison D Smyth
87. The inner lining of the ducts and ampullae, utricle, and saccule is composed of a ——— layer of flat (squamous) or cuboidal cells.
 A 2-part B 3-part C 4-part D single
88. The vestibular nerve enters the brain stem at the cerebellopontine angle and proceeds posteromedially through the upper:
 A medulla B pons C midbrain D diencephalon
89. Inferior vestibular axons both ascend and descend in the MLF (medial ——— fasciculus).
 A lateral B longitudinal C lobular D lingual
90. The nucleus solitaries is ——— - shaped and located in the posterolateral medulla.
 A cone B shoe-box C cigar D star
91. The ——— is the largest of the salivary glands.
 A sublingual B accessory parotid C parotid D submandibular
92. The sensory component of the vagus (———) nerve consists of three parts.
 A IX B X C VI D IV
93. Unilateral paralysis of the laryngeal muscles partially obstructs the airway, and speech becomes tiring (———).
 A dysphonia B apraxia C articulation disorder D cluttering
94. The accessory (———) nerve consists of a small cranial root or division (internal branch) and a larger spinal root (external branch).
 A VIII B IV C V D XI
95. The hypoglossal (———) nerve is a motor nerve innervating the intrinsic and extrinsic muscles of the tongue.
 A II B XII C X D VI

UNIT SEVEN: SURVEY OF SPINAL NERVES

96. The axons of motor and sensory neurons outside the brain and spinal cord are enveloped by ——— cells.
 A Schwann B contractile C Gland of Moll D mucous
97. Myelinated fibers exhibit conduction velocities of 3 to ——— meters per second.
 A 25 B 70 C 120 D 1,200
98. The anterior rami of spinal nerves ——— through T12 constitute the intercostals (peripheral) nerves.
 A T2 B T4 C T6 D T8
99. The phrenic nerve innervates the thoracic diaphragm, which is responsible for about ——— percent of the respiratory effort.
 A 25 B 40 C 60 D 75
100. Degeneration changes in the cell body (of a neuron) are referred to as chromatolysis (chroma, “color”; lysis, “———”).
 A dehydration B dissolution C aging D malfunction
101. There may be as many as ——— growth cones from a single axon.
 A 15 B 50 C 250 D 120

UNIT EIGHT: SURVEY OF THE VISCERAL NERVOUS SYSTEM

102. The outflow of the VNS (——— nervous system) is divided into two divisions, sympathetic and parasympathetic.
 A visceral B villus C vitreous D vestibular

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