

25.	<p><u>The neurotransmitter always used at the neuromuscular junction:</u></p> <p>a) Is noradrenaline. b) Is dopamine. c) Is acetylcholine. d) Depends upon the type of muscle being innervated. e) Depends upon the frequency of action potential.</p>	C
26.	<p><u>The space between the axon terminal & the muscle cell membrane is?</u></p> <p>a) Motor end-plate. b) Myelin sheath. c) Synaptic cleft. d) Motor neuron. e) Terminal knob.</p>	C
27.	<p><u>Synaptic vesicles which help in neuromuscular transmission is filled with?</u></p> <p>a) 100,000 adrenaline molecules. b) 300,00 noradrenaline molecules. c) 10,000 acetylcholine molecules. d) 20,000 dopamine molecules. e) 100 catecholamines molecules.</p>	C
28.	<p><u>Which step of neuromuscular transmission appear after Na permeability increase?</u></p> <p>a) Action potential spread on the membrane. b) End plate potential develops. c) Release of acetylcholine. d) Muscle contraction. e) Muscle relaxation.</p>	B
29.	<p><u>During neuromuscular transmission, the arrival of nerve action potential at the synaptic knob leads to which of the following?</u></p> <p>a) Opening of Na channels. b) Opening of K channels. c) Opening of Ca^{2+} channels. d) Opening of Cl^{-} channels. e) Closure of all channels.</p>	C
30.	<p><u>At the muscle end plate, acetylcholine (ACh) causes the opening of:</u></p> <p>a) Na^{+} channels only. b) K^{+} channels only. c) Ca^{2+} channels only. d) Na^{+} and K^{+} channels and depolarization to a value halfway between the Na^{+} and K^{+} equilibrium potentials. e) Na^{+} and K^{+} channels and hyperpolarization to a value halfway between the Na^{+} and K^{+} equilibrium potentials.</p>	D

31.	<p><u>Which of the following is thought to be an autoimmune disease of acetylcholine receptors?</u></p> <p>a) Myasthenia gravis. b) Muscular dystrophy. c) Myotonic dystrophy. d) Fibromyalgia. e) Multiple sclerosis.</p>	A
32.	<p><u>Arrange the following in the proper order in which they occur at the presynaptic side of a neuromuscular junction.</u></p> <p>1) Calcium ions influx 2) Action potential arrives at the presynaptic terminal 3) Neurotransmitter is released</p> <p>a) 1, 2, 3 b) 2, 1, 3 c) 2, 3, 1 d) 3, 2, 1 e) 3, 1, 2</p>	B
33.	<p><u>In the neuromuscular junction, acetylcholine:</u></p> <p>a) Binds to acetylcholine receptors on the postsynaptic muscle fiber. b) Is actively transported across the synaptic cleft and binds to voltage gated acetylcholine receptors on the postsynaptic muscle fiber. c) Diffuses across the synaptic cleft and causes calcium ions to diffuse into the postsynaptic muscle fiber. d) Diffuses across the synaptic cleft and causes sodium ions to diffuse out of the postsynaptic muscle fiber. e) Is actively transported across the synaptic cleft and causes chloride ions to diffuse into the postsynaptic muscle fiber.</p>	A
34.	<p><u>An action potential arriving at the presynaptic terminal causes:</u></p> <p>a) Sodium ions to diffuse into the cell. b) Sodium ions to diffuse out of the cell. c) Calcium ions to diffuse into the cell. d) Acetylcholine to diffuse into the cell. e) Ligand-gated sodium channels to open.</p>	C
35.	<p><u>During neuromuscular transmission, the arrival of nerve action potential at the synaptic knob leads to which of the following?</u></p> <p>a) Opening of Na channels. b) Opening of K channels. c) Opening of voltage gated- Ca²⁺ channels. d) Opening of Cl channels. e) Closure of all channels.</p>	C

36.	<p>As regard neuro-muscular transmission all are true except:</p> <ul style="list-style-type: none"> a) it shows fatigue due to depletion of acetyl choline vesicles. b) occurs from nerve to muscle i.e. one way conduction. c) it is stimulated by succinyl choline. d) it is blocked by botulinum toxins. 	C
37.	<p>The correct temporal sequence for events at the neuromuscular junction is:</p> <ul style="list-style-type: none"> a) Action potential in the motor nerve; depolarization of the muscle end plate; uptake of Ca^{++} into the presynaptic nerve terminal. b) Uptake of Ca^{++} into the presynaptic terminal; release of acetylcholine (ACh); depolarization of the muscle end plate. c) Release of ACh; action potential in the motor nerve; action potential in the muscle. d) Uptake of Ca^{++} into the motor end plate; action potential in the motor end plate; action potential in the muscle. e) Release of ACh; action potential in the muscle end plate; action potential in the muscle. 	B
38.	<p>As regard neuro-muscular transmission, one of the following is incorrect:</p> <ul style="list-style-type: none"> a) It shows fatigue due to depletion of acetyl choline vesicles. b) Occurs from nerve to muscle i.e. one way conduction. c) It is stimulated by succinyl choline. d) It is blocked by botulinum toxins. e) There is a delay in conduction. 	C
39.	<p>Neuromuscular transmission:</p> <ul style="list-style-type: none"> a) Is caused by release of acetylcholine from the muscle side of the M.E.P. b) Can be facilitated by curare. c) Is blocked by curare because it competes with Na^{+} influx at the M.E.P. d) Is accelerated by hexamethonium and botulinum toxin. e) Shows a permeability change to Na^{+} and K^{+} at die receptor side of the neuromuscular junction. 	E
40.	<p>The release of acetylcholine from the nerve terminals at the motor end plate:</p> <ul style="list-style-type: none"> a) Is increased by lowering the Ca^{++} concentration in the ECF. b) Is increased by prostigmine. c) Is more than normal in myasthenia gravis. d) Occurs spontaneously at rest causing the miniature EPP. e) Cannot be affected by Mg^{++}. 	D
41.	<p>The motor end plate potential is produced by:</p> <ul style="list-style-type: none"> a) Opening of Na^{+} channels. b) Opening of Na^{+} channels then opening of K^{+} channels. c) Opening of Na^{+} and K^{+} channels at the same time. d) Opening of Ca^{++} channels. e) Opening of k channels. 	C

42.	<p><u>The motor unit consists of:</u></p> <ul style="list-style-type: none">a) Single muscle fibersb) All motor nerve fibers supplying a skeletal musclec) Single nerve fiber and ms fibers supplied by itd) All skeletal ms fiberse) All motor neurons arising from AHCs supplying several muscles	C
43.	<p><u>Which of the followings increase NMT:</u></p> <ul style="list-style-type: none">a) Hypocalcemiab) Curarec) Mg⁺² ionsd) Botulinum toxinse) Hypoxia	A
44.	<p><u>When Ach binds to its receptors In MEP, it leads to:</u></p> <ul style="list-style-type: none">a) Na effluxb) end plate potentialc) Action potentiald) K influxe) Muscle contraction	B