Autonomic NS MCQs

A] Complete:

1- The brain and the spinal cord form the……. Nervous system. All nerves of the body present outside the brain and spinal cord comprise the … nervous system.

2- The long extensions off neuronal cell bodies that conduct impulses away from the cell body are called ……..

3- Sensory neurons are ..... neurons, while ...... neurons carry motor impulses, and the most common type of neuron is the ...... which communicates from one neuron to another.

4- The cell body of the neuron is known as the ..... 

5- The branch of the ANS that induces the "fight or flight" response is in the …… division.

B] Choose the one Best Answer:

6) About autonomic functions:

a. The autonomic nerves don't initiate activity in smooth muscles but rather modify it.

b. The muscarinic action of acetylcholine is produced by parasymp. Pregang nerve fibres.

c. Injection of atropine leads to slowing of the heart rate (bradycardia).

d. Epinephrine & norepinephrine blood concentrations are equal

e. Sympathetic stimulation accelerates fatigue of skeletal muscles.
7) The following reflexes are all autonomic Except:

a. Salivary secretion.

b. Micturition.

c. Flexion of the arm following a painful stimulus.

d. Acceleration of the heart.

8) What is the autonomic nervous system?

a. Part of the central nervous system independent of the will.

b. The efferent pathway to the viscera (all fibres connecting the CNS to glands, smooth muscles and heart).

d. All efferent fibres in the body except those to smooth muscle.

e. Afferent (sensory) fibres from the bone.

9) The two major division of the autonomic system are the sympathetic and parasympathetic. Where do parasympathetic fibres originate?

a. The thoraco-lumbar spinal region.

b. The cranial and sacral regions.

10) Adult spinal cord often terminates inferiorly at the vertebral level of:

a. T 12.

b. L 1-2.

c. L 2-3.

d. L3-4.

e. S1-S2
11) **Dendrites:**

a. Present in neurelgial cells.

b. May contribute to the formation of synapses.

c. Contain synaptic vesicles.

12) **Effector organs of the ANS include all of the following EXCEPT:**

a. Medulla oblongata.

b. Arteriolar smooth muscle.

c. Heart.

d. Visceral smooth muscles.

e. Glands.

13) **The system that controls smooth muscle, cardiac muscle, and gland activity is the:**

a. Somatic nervous system.

b. Autonomic nervous system.

c. Skeletal division.

d. Sensory nervous system.

14) **The peripheral nervous system includes the:**

a. Somatic nervous system.

b. Brain.

c. Spinal cord.

d. Nuclei.
15) Which of the following structures is a component of reflex arc?
   a. Afferent neuron.
   b. Efferent neuron.
   c. Sensory receptor.
   d. Effector organ.
   e. All of the above.

16) The somatic nervous system is part of the:
   a. Sympathetic nervous system.
   b. Parasympathetic nervous system.
   c. Autonomic nervous system.
   d. None of the above.

17) The autonomic ganglia:
   a. Are 5 types.
   b. Are the sites of relay of afferent neurons.
   c. Function as distributing centres.
   d. Are located inside the CNS.
   e. Are relay stations for all preganglionic fibers passing through them.

18) Preganglionic sympathetic nerve fibres:
   a. Are found in somatic nerves (e.g., median & ulnar nerves).
   b. Are present in the short ciliary nerves.
   c. Are non-myelinated.
19) A modular body which contains large numbers of neuronal cell bodies and is located within the peripheral neurons system is called a:

a. Ganglion.
b. Nerve.
c. Nucleus.
d. Tract.
e. Plexus.

20) The affecter pathway of the ANS generally contains ..... neuron(s).

a. 1
b. 2
c. 3
d. 4

21) Concerning the autonomic ganglia, all the following is true except:

a. They act as distributing centres.
b. They are 3 types.
c. Their chemical transmitter is acetylcholine.
d. Their receptors are specifically blocked by atropine.

22) The sympathetic preganglionic nerve fibres:

a. Arise from the cervical segments of the spinal cord.
b. Originate at the autonomic ganglia.
c. Are myelinated nerve fibres belonging to the B group of the nerve Fibres.

d. Show minimal divergence (branching) in the autonomic ganglia.

e. Those supply the abdominal viscera relay in the sympathetic chain

23) **In the autonomic N.S., all the following is correct Except:**

a. In sympathetic ganglia, the ratio of preganglionic fibres to postganglionic fibres is 1:32.

b. In parasympathetic ganglia, the ratio of preganglionic fibres to Postganglionic fibers is 1:32.

c. The splanchnic nerves contain sympathetic preganglionic fibres.

d. Stimulation of Oculomotor nerve produces accommodation.

e. The vagus nerve contains parasymp. Preganglionic fibres.

24) **The sympathetic supply is not responsible for:**

a. Constriction of the pupil.

b. Erection of hair.

c. Secretion of eccrine sweat glands.

d. Dilatation of skeletal muscle blood vessels.

e. Spleen contraction.

25) **Dropping of the eyelid ( ptosis ) is caused by damage to :**

a. The third cranial nerve.

b. The parasympathetic supply to the eye.

c. The sympathetic supply to the eye.

d. Lesion in lumbar 2,3.
26) **Sympathetic stimulation of the iris causes:**

a. Astigmatism.

b. Pupillary constriction.

c. Pupillary dilation.

d. Vitreous secretion.

27) **A lesion in the cervical symp. Chain (Horner's syndrome) causes:**

a. Increased sweating.

b. Drooping of the upper eyelid (= ptosis).

c. V.C. of the skin blood vessels (leading to pallor).

d. Mydriasis (= dilatation of the pupil).

e. Inhibition of salivary glands secretion.

28) **Regarding the pelvic nerve, the following is true Except:**

a. It is the nerve of erection (= nerves erigents).

b. It is motor to the urinary bladder & distal half of the large intestine.

c. It is inhibitory to both the internal anal & urethral sphincters.

d. It has both preganglionic & postganglionic nerve fibres.

e. Its functions are normally under continuous inhibition.

29) **Stimulation of the greater splanchnic nerve produces:**

a. Increased motility of the stomach & upper half of the small intestine.

b. Inhibition of micturition.

c. Increased blood levels of both glucose & catecholamines.
d. V.C. of the blood vessels in the erectile tissue of both males & females.

e. Increased secretion by both the stomach & pancreas.

30) *The following about sympathetic nervous system is true except:*

a. All its preganglionic fibres are cholinergic.

b. It is involved in stress & emergency conditions.

c. It has a V.D. effect on skeletal muscle blood vessels during rest.

d. Its stimulation increases the cardiac properties.

e. Its stimulation causes urine retention.

31) *The sympathetic nervous system has all of the following characters except:*

a. It is mostly noradrenergic.

b. It is involved more frequently in generalized actions.

c. It is of little importance in visual accommodation.

d. It antagonizes mostly parasympathetic functions.

e. It is anabolic.

32) *The parasympathetic nerves:*

a. Are important in emergency conditions e.g. fight & flight reactions.

b. Play important functions in skin and skeletal muscles.

c. Tend to have longer postganglionic fibers than preganglionic fibers.

d. Are catabolic in their actions.

e. Mostly exert effects opposite to those done by the symp. Nerves.
33) *Stimulation of the pelvic nerve causes:*

a. Contraction of the bronchial muscle.

b. Contraction of the internal urethral & rectal (anal) sphincters.

c. V.D. of the blood vessels in the external genitalia.

d. Stoppage of prostatic secretions.

e. Urine retention.

34) *Stimulation of the sympathetic N.S. causes:*

a. Contraction of the ciliary muscle for near vision.

b. Mostly generalized actions affecting many systems.

c. Bronchoconstriction.

d. Decreased glycogenolysis & lipolysis.

e. Increased gastric HCl & pepsin secretion.

35) *The functions of parasymp. Innervation to the salivary glands is:*

a. V.D. & secretion.

b. V.D. & secretion

c. V.D. & inhibition of secretion.

d. Secretion of scanty viscous saliva.

36) *Which of the following may be produced by parasymp. Stimulation:*

a. Acceleration of the heart.

b. Contraction of the urinary bladder wall.

c. V.D. of skeletal muscle blood vessels.

d. Dilatation of the pupil.
e. Relaxation of the GIT wall.

37) **The efferent impulses that stimulate salivary secretion proceed along all the following nerves except the:**

a. Chorda tympani.

b. Sympathetic nerves.

c. Occulomotor nerve.

d. Glossopharyngeal nerve.

38) **The parasympathetic nervous system affects all of these organs **EXCEPT:**

a. Heart.

b. Pupillary smooth muscles.

c. Salivary glands.

d. Adrenal glands.

39) **Which of the following structures is an example where double innervation does not apply?**

a. The heart.

b. The bladder.

c. The stomach.

d. The intestines.

e. Splenic capsule.

40) **Parasympathetic nerves:**

a. Have opposite effects to those of sympathetic nerves when both supply the same organ.
b. Play an important part in the vasodilatation in skeletal muscle during prolonged exercise.

c. Liberated acetylcholine at both preganglionic and postganglionic nerve endings.

d. Tend to have longer postganglionic then preganglionic fibres.

41) The vagus nerve:

a. When stimulated has little direct effect on the strength of ventricular contraction.

b. Contains afferent nerve fibres only.

c. Exerts at rest a tonic effect on the heart which becomes more marked

d. with regular long distance running.

e. Contains parasympathetic postganglionic fibers.

42) Generalized sympathetic activity is characterized by the following except:

a. Contraction of the radial muscle in the iris.

b. A raised blood level of catcholamines.

c. Constriction of blood vessels in the skin.

d. A fall in the blood glucose level.

43) All the following statements are true except:

a. Accommodation to near vision is mediated by increased acetylcholine secreted in the ciliary muscle of the eye.

b. Vagotomy may cause the heart rate to increase significantly.

c. Arteriolar V.C. present at rest may be due to a basal secretion of catecholamines from the adrenal medulla.

d. Noradrenaline is not secreted by the adrenal medulla.
44) **Stimulation of the pelvic nerve (sacral autonomic) produces:**

a. Relaxation of the wall of rectum & contraction of the internal anal Sphincter.

b. V.C. of the blood vessels in the external genitalia causing erection of penis.

c. Contraction of smooth muscles in the male sexual passages causing ejaculation.

d. Relaxation of the internal urethral and anal sphincters.

45) **An injury to the first 4 sacral segments of the spinal cord produces:**

a. Hyperglycaemia.

b. V.D. in the Cutaneous blood vessels.

c. Disturbance of sweat secretion.

d. Lack of erection of the penis in males & clitoris in females.

e. Relaxation of the internal anal & urethral sphincters.

46) **About the vagus nerve, all the following is true except:**

a. It originates mainly from medulla oblongata.


c. It has no direct effect on ventricular contraction.

d. It causes increased peristaltic movements of the intestinal wall.

e. It produces micturition.

47) **Concerning the adrenal medulla, all the following is true except:**

a. Its secretion is increased in emergency conditions.

b. It secretes epinephrine 80% & norepinephrine 20%.
c. It augments and prolongs the effects of sympathetic stimulation.

d. It is a modified sympathetic ganglion.

e. It receives preganglionic nerve supply from the anterior horn cells of the lower 6 thoracic segments of spinal cord.

48) **Parasympathetic tone is mostly responsible for:**

a. Decreasing the blood flow to the gut (GIT or alimentary canal).

b. Maintenance of the systemic arterial blood pressure constant.

c. Keeping the fasting blood glucose level constant.

d. Maintaining resting heart rate within normal.

e. Causing bronchodilatation.

49) **It is true to say that nicotine in small dose has an excitatory influence on the:**

a. Receptors located in the neurons present in the sympathetic ganglia.

b. Beta adrenergic receptors.

c. Alpha adrenergic receptors.

d. Receptors those are normally responsive to postganglionic Parasympathetic fibres.

50) **Sympathetic tone serves the following autonomic functions:**

a. Maintenance of basal cardiac rhythm.

b. Maintenance of basal gastrointestinal motility.

c. Maintenance of normal arterial blood pressure.

d. Maintenance of basal sleep rhythm.
51) *Nicotine in small doses stimulates the:*  
   a. Alpha adrenergic receptors.  
   b. Receptors at the parasymp posting. nerve fibres.  
   c. Receptors in the neurons present in the sympathetic chain  
   d. Beta adrenergic receptors.

52) *The parasympathetic effects can be stimulated by:*  
   a. Atropine which exerts similar effects as muscarine.  
   b. Ephedrine which stimulates the synthesis of acetylcholine.  
   c. Large doses of nicotine which have a effects similar to acetylcholine.  
   d. Alpha methyldopa (aldomet) which increases the release of acetylcholine.  
   e. Physostigmine which inhibits the acetylcholinesterase enzyme.

53) *About the chemical transmission in the symp. N.S:*  
   a. Noradrenaline is released by both the pregang. & postgang. Symp. nerve fibres.  
   b. Noradrenaline acts mainly on the beta adrenergic receptors.  
   c. Noradrenaline contributes to 80% of the secretion of the suprarenal medullae  
   d. The alpha adrenergic stimulators cause contraction of the plain muscles in the seminal vesicles & vas deferens.  
   e. The adrenal medulla secretes mainly at rest and during sleep.

54) *Curare is often given before surgical operation to:*
a. Prevent bronchial secretion.

b. Maintain the arterial blood pressure.

c. Induce bronchodilatation.

d. Relax the skeletal muscles.

55) All preganglionic autonomic neurons secrete:

a. Epinephrine.

b. Acetylcholine.

c. Nicotine.

d. Dopamine.

56) About acetylcholine, all the following is true except:

a. It is synthesized & released by some symp. Postgang. Nerve fibres.

b. It is the chemical transmitter released by all pregang. nerve fibers.

c. It is broken down enzymatically by the choline esterase enzyme

d. It is liberated by all parasymp. nerve fibres.

e. It makes reading difficult because of relaxation of the ciliary muscle.

57) An injection of atropine causes all the following effects except:

a. An increase in the heart rate.

b. Pupillo-dilatation.

c. Difficult micturition.

d. Constriction of the bronchi.

e. Diminished intestinal motility.
58) About acetylcholine, all the following is true except:

a. Its synthesis is catalyzed by the choline acetyltransferase enzyme.

b. Its muscarinic actions can be blocked by atropine.

c. Its nicotinic actions can be large doses of nicotine.

d. It is not secreted by any symp. Postgang. Nerve fibres.

59) The actions of atropine can be antagonized by giving:

a. Norepinephrine.

b. Curare.

c. Nicotine in large dose.

d. Eserine.

e. Reserpine.

60) All the following about acetylcholine is correct except:

a. It causes slowing of the heart rate.

b. It is released by the parasymp. Nerve endings in the sweat glands.

c. It is the neurotransmitter in the suprarenal medullae.

d. It is not affected by the enzyme COMT.

e. Its synthesis requires the enzyme choline acetylase.

61) The acetylcholine is secreted by the following neurons except:

a. All preganglionic nerve endings.

b. The symp. Postgang. Supply to the blood vessels in skeletal muscles.

c. The parasymp. Postgang. Supply to the heart.
d. The symp. Postgang. Supply to the heart

e. The symp. Postgang supply to the GIT.

62) **Integration of the autonomic functions involves the following higher centres except:**

a. Cerebral cortex.

b. Cerebellum.

c. Hypothalamus.

d. Limbic system.

e. Brain stem.

63) **A drugs which blocks beta adrenoceptors is likely to cause:**

a. Relaxation of sphincters in the alimentary tract.

b. Dilatation of the bronchi.

c. A decrease in the force of myocardial contraction in someone with heart failure.

d. A decreased dilatation by the blood vessels of skeletal muscles in response to circulating adrenaline.

64) **Acetylcholine is secreted at all the following sites except:**


d. Myoneural junctions.


65) **All the following statements are correct except:**
a. Stimulation of the greater splanchnic nerve causes adrenomedullary secretion.

b. Acetylcholine is normally present at low concentrations in the blood.

c. Intravenous injection of acetylcholine does not cause exactly the same effects as parasympathetic stimulation.

d. The dilator pupillae muscle contains alpha receptors while the cardiac muscle contains beta receptors.

e. Stimulation of the Postgang. Nerve fibres arising from the collateral ganglia cause secretion from the adrenal (suprarenal) medulla.

66) Which of the following drugs would not increase sympathetic activity?

a. Norepinephrine.

b. Phenylephrine.

c. Amphetamine.

d. Pilocarpine.

e. Epinephrine

67) Injection of atropine is liable to cause:

a. Constipation.

b. Diarrhoea.

c. Bronchial constriction.

d. Bradycardia.

e. No effect on either reading or micturition.
About the drugs that affect the autonomic N.S., all following is true except:

a. Acetylcholine injection causes catecholamine secretion from the adrenal medulla.

b. Atropine injection causes relaxation of the skeletal muscles.

c. Epinephrine injection helps in the treatment of bronchial asthma.

d. Acetylcholine injection stimulates the autonomic ganglia.

e. In the body, epinephrine is formed only in the adrenal medulla & C.N.S.

A drug that blocks the alpha adrenergic receptors is likely to cause:

a. A reduction in sweat production.

b. A fall in the arterial B.P. due to slowing of the heart.

c. Failure of mydriasis in emotions.

d. Constriction of the bronchi.

e. Absence of secretion of the penis.

A drug which blocks the beta adrenergic receptors causes:

a. Dilatation of the bronchial muscle.

b. Relaxation of the sphincters in the alimentary canal.

c. Inhibition of cardiac properties.

d. Dilatation of the visceral blood vessels.

e. Reduction of the blood glucose due to stimulation of insulin release.

The alpha adrenergic receptors:

a. Are not stimulated by epinephrine.
b. When stimulated, they reduce the gastrointestinal (GI) motility.

c. Are blocked by propranolol.

d. When stimulated, they accelerate the heart.

e. When stimulated, they decrease the tone of the GI sphincters.

**72) Epinephrine produces all the following effects except :**

a. Bronchoconstriction.

b. Coronary V.D.

c. Glycogenolysis.

d. Increased cardiac properties.

e. Mydriasis.

**73) A drug that blocks the beta adrenergic receptors is likely to cause:**

a. Relaxation of the sphincters of the GIT.

b. An increase in the cardiac properties.

c. Increased glycogenolysis & lipolysis in response to epinephrine.

d. Bronchoconstriction.

e. Excessive V.D. in skeletal muscles in response to epinephrine.

**74) The synthesis of norepinephrine is prevented by :**

a. Alpha – methylldopa.

b. Ephedrine.

c. Pilocarpine.

d. Reserprine.

e. Hexamethonium.
f. None of the above.

75) **Stimulation of the alpha adrenergic receptors produces:**

a. Increase gastrointestinal motility.

b. Bronchodilatation.

c. Enhanced glycogenolysis & lipolysis.

d. Relaxation of the sphincters in the alimentary canal.

e. Contraction of the spleen capsule.

76) **The characters of adrenaline include:**

a. It is the chemical transmitter at the adrenergic postgang. Symp. Nerve endings.

b. It has a greater vasoconstrictor effect than noradrenaline.

c. It is hydrolyzed by the phosphodiesterase enzyme.

d. It has a greater effect upon cardiac muscle than noradrenaline.

77) **Noradrenaline (norepinephrine):**

a. Is liberated by the symp. Pergang. Fibers that supply the adrenal medulla.

b. Is released by the symp. Postgang. Neurons that supply the adrenal medulla.

c. Acts only on the alpha adrenergic receptors.

d. Is secreted with adrenaline from the adrenal medulla at an equal rate.

e. Is blocked by the choline esterase enzyme.

78) **The alpha adrenergic receptors mediate all the following effects except:**

a. Vasoconstriction.
b. Pupil dilatation.

c. Spleen contraction.

d. Relaxation of the intestinal wall.

e. Increased cardiac activity.

79) All the following statements are true except:

a. The nicotine receptors of acetylcholine can be blocked by large doses of nicotine.

b. The release of noradrenaline from the sympathetic endings is prevented by guanethidine.

c. The muscarinic receptors of acetylcholine are blocked atropine.

d. The beta adrenergic receptors are blocked by guanethidine.

80) An increased secretion of epinephrine causes:

a. Increased myocardial contraction & V.D.

b. decreased myocardial contraction & V.D.

c. decreased myocardial contraction & V.D.

d. Increased myocardial contraction & decreased heart rate.

81) A physiological action of epinephrine produced by contact with the beta adrenergic receptors is;

a. V.C. in skeletal muscles.

b. Dilatation of the pupil.

c. Intestinal contraction.

d. Contraction of the erector pilli muscles.

e. Increased strength of myocardial contraction.
82) Blockade of alpha adrenoreceptor is likely to cause:

a. A reduction in sweat production.
b. Constriction of the bronchi.
c. A reduction in gastrointestinal motility.
d. A reduction in the arterial blood pressure due to arterial V.D.
e. Slowing of the heart.

83) Alpha adrenoceptors:

a. Are present in the myofilaments of skeletal muscle cells.
b. Can be distinguished from beta receptor using the electron microscope.
c. Are stimulated by both adrenaline and noradrenaline.
d. Mediate acceleration of the heart noradrenaline.

84) The autonomic nervous system is involved in the following functions Except:

a. initiation of smooth muscle contraction
b. initiation of sweat secretion
c. initiation of heart beats
d. inhibition of gastrointestinal motility

85) The sympathetic nervous system is:

a. activated by exposure to cold weather
b. inhibited by exposure to hot weather
c. concerned with initiation of Micturition
d. involved in erection of external genital organs

86) **Mass discharge of the sympathetic nervous system is:**

a. Regulated by the centre in the thoracic and lumbar segments of spinal cord

b. Initiated and coordinated by higher centres in the hypothalamus

c. Associated with increased activity of the gastrointestinal tract

d. Harmful and may cause failure of the cardiovascular and respiratory system

87) **Sympathetic postganglionic neurons supplying intra-abdominal viscera originate from:**

a. The lower 6 thoracic ganglia of the sympathetic chain

b. The lower 6 thoracic segments of the spinal cord

c. The prevertebral ganglia

d. Terminal ganglia in the walls of the viscera

88) **All of the following about adrenal medulla is true except:**

a. It is sympathetic ganglion

b. Secretes more noradrenaline than adrenaline

c. It releases epinephrine into circulating blood

d. It's innervated by sympathetic cholinergic fibres

89) **Parasympathetic postganglionic cholinergic fibres innervate all the following except:**

a. Salivary glands

b. Lacrimal glands

c. Sweat glands
d. Exocrine cells of pancreas

90) **Parasympathetic preganglionic neurons:**

a. Are much shorter than the postganglionic neurons

b. Are more numerous than the postganglionic neurons

c. Secrete the same transmitter as the postganglionic neurons

d. Originate from all the sacral segments of the spinal cord

91) **Parasympathetic neurons are inhibitory to smooth muscles in:**

a. The ciliary muscle

b. Dilator pupillae muscle

c. The bronchial tree

d. Mucosal blood vessels

92) **Parasympathetic innervation is antagonistic to sympathetic innervation on:**

a. Constrictor pupillae muscle

b. Cutaneous blood vessels

c. Salivary glands secretion

d. The act of micturition

93) **Sympathetic and parasympathetic systems have cooperative effects on:**

a. Cardiac activity

b. Gastrointestinal activity

c. Sexual activity

d. The diameter of pupil
94) **Sympathetic tone:**

a. Initiated by exposure to stress

b. Determines heart rate at rest

c. Controls the level of arterial blood pressure

d. Is increased by use of a ganglion blocking drugs

95) **Vagal tone on the heart:**

a. Increases the heart rate

b. Weakens contraction of the atrial muscle

c. Is blocked by use of a muscarinic receptor agonist

d. Decreases during rest

96) **Acetylcholine:**

a. Is released by all the autonomic nerve fibers

b. Is blocked by alpha blockers

c. Is blocked by ganglion blocker

d. Is taken back by presynaptic nerve terminals after dissociating from postsynaptic receptors

97) **Acetylcholine:**

a. Binds with nicotinic receptors in cells of autonomic effector tissues

b. Stimulates nicotinic receptors, but inhibits muscarinic receptors

c. Synthesis is catalysed by choline esterase enzyme

d. Is released in response to Ca^{++} influx into synaptic knobs
98) Chromaffin cells adrenal medulla:
   a. Have both alpha and beta adrenergic receptors
   b. Have cholinergic receptor
   c. Release more norepinephrine than epinephrine
   d. Are activated by adrenergic receptor agonist

99) Denervation supersensitivity:
   a. Occurs after cutting sympathetic nerves, but not after cutting parasympathetic nerves
   b. Occurs after cutting the preganglionic or postganglionic nerve fibres
   c. Is due to increased number of neurotransmitter receptors in effectors cells
   d. Is due to increased reuptake of the neurotransmitter by the damaged nerve terminals

100) When adrenergic receptors become activated:
   a. Alpha1 receptors are stimulatory to heart rate
   b. Beta1 receptors are stimulatory to heart rate
   c. Beta2 receptors cause coronary vasoconstriction
   d. Beta1 causes lipolysis

101) Increased release of epinephrine from adrenal medulla during muscular exercise:
   a. Stimulates glycogenolysis in the liver
   b. Stimulates glycogenesis in the liver
   c. Causes vasoconstriction of arterioles all over the body
   d. Constricts the ciliary muscle in the eye
102) **Activation of muscarinic receptors by acetylcholine:**

a. Increase Na$^+$ influx in the effector cells

b. Always inhibits the effector cells

c. Always stimulates the effector cells

d. Could either stimulate or inhibit the effector cell

103) **A sympathomimetic drug:**

a. Could act through enhancing norepinephrine release

b. Could act through blocking transmission in autonomic ganglia

c. is useful for lowering blood pressure in hypertensive patients

d. Acts by blocking alphal adrenergic receptors

104) **Sympatholytic drugs:**

a. Inhibit adrenergic receptors but not beta receptors

b. Inhibit norepinephrine reuptake by nerve terminals

c. Inhibit enzymatic degradation of norepinephrine

d. Block adrenergic receptors

105) **Inhibitors of choline esterase enzymes:**

a. Enhance the effects of parasympathetic stimulation

b. Inhibit the effect of parasympathetic stimulation

c. Inhibit acetylcholine release by cholinergic nerve terminals

d. Block the action of acetylcholine in autonomic ganglia

106) **Parasympathetic drugs:**

a. Inhibit muscarinic receptors
b. Inhibit nicotinic receptors

c. Stimulate muscarinic receptors only

d. Stimulate muscarinic or nicotinic receptors

107) **An abnormally high level of acetylcholine in tissues all over the body is due to:**

a. Exposure to stress

b. Widespread physiological activation of the parasympathetic nervous system

c. Increased activity of muscarinic receptors

d. Decreased activity of cholinesterase enzyme

108) **Administration of a muscarinic receptor antagonist leads to:**

a. Increased sweat secretion

b. Decreased sweat secretion

c. Increased gastric motility

d. Bronchoconstriction

109) **Which of the following visceral tissues receives sympathetic postganglionic neurons only?**

a. Adrenal medulla

b. Sweat glands

c. Anal sphincters

d. The iris

110) **Neurotransmitters released by the parasympathetic preganglionic and postganglionic nerve fibres are:**

a. Acetylcholine and norepinephrine
b. Acetylcholine and epinephrine

c. Norepinephrine and acetylcholine

d. Acetylcholine and acetylcholine

111) **Sympathetic activity is not enhanced by administration of:**

a. A drug that inhibit monoamine oxidase enzyme

b. A drug that inhibit nicotinic receptor

c. A drug that inhibit norepinephrine reuptake by nerve terminals

d. A drug that enhanced norepinephrine storage in presynaptics

112) **In the parasympathetic system:**

a. Axons of the postganglionic neurons are shorter than those of preganglionic neurons

b. Preganglionic neurons are more numerous than the postganglionic neurons

c. Choline acetylase is the transmitter between the preganglionic and postganglionic neurons

d. Axons of preganglionic neurons from the spinal sacral segments pass through the ventral roots of the spinal sacral nerves

113) **Administration of a drug which inhibits norepinephrine synthesis is expected to:**

a. Cause bronchodilatation

b. Inhibit intestinal motility

c. Decrease insulin secretion by pancreas

d. Decrease the heart rate
114) **Block of beta2 adrenergic receptors causes:**

a. Decreased heart rate  
b. Bronchodilatation  
c. Increased insulin secretion from the pancreas  
d. Inhibition of renin secretion from the kidney

115) **Dual innervation of viscera means:**

a. Visceral organs receive both preganglionic and postganglionic autonomic nerve fibres  
b. Visceral organ receive both autonomic and somatic nerve fibres  
c. The sympathetic and parasympathetic nerves to viscera produce the same effect  
d. Several visceral organs are innervated from both divisions of the autonomic nervous system

116) **Autonomic tone:**

a. Exists because some autonomic nerves are active during rest  
b. Exists when the autonomic centres in brainstem and spinal cord are stimulated by higher centres  
c. Exists to prepare the body for increased energy expenditure during stress  
d. is more prominent in the parasympathetic system during rest, whereas, it's more prominent in the sympathetic system during exercise

117) **The sympathetic preganglionic neurons release..... at their terminals, and the effect is always .......:**

a. norepinephrine ; inhibitory  
b. norepinephrine ; excitatory
c. acetylcholine; excitatory

d. acetylcholine; inhibitory

118) The effect of neurotransmitters on the effectors cells depends on:

a. The nature of the receptor

b. The nature of the neurotransmitter

c. The number of the receptors

d. None of the above

119) Most of the parasympathetic outflow is provided by:

a. The pelvic nerves

b. The vagus nerve

c. The collateral ganglia

d. The glossopharyngeal nerve

120) Increased release of norepinephrine from the sympathetic nerves in the heart would:

a. Increase heart rate

b. Decrease heart rate

c. Directly dilate coronary vessels

d. Decrease the force of cardiac contraction

121) Activation of alpha adrenergic receptors would:

a. Increase rennin secretion from the kidney

b. Constrict pulmonary arterioles

c. Constrict bronchioles
d. Dilate cerebral arterioles

**TRUE or FALSE Q**

**Mark the following statements True (T) or False (F)**

122) *The autonomic nervous system:*

   a. Contains preganglionic neurons.

   b. Has a sympathetic subdivision.

   c. Innervates skeletal muscles.

   d. Has a parasympathetic subdivision.

   e. Contains postganglionic neurons.

123) *Neurons may be classified functionally as:*

   a. Sensory neurons .

   b. Bipolar neurons .

   c. Motor neurons .

   d. Multipolar neurons .

124) *A reflex action:*

   a. Is initiated by sensory stimulation.

   b. May be carried out by smooth muscle and by glands.

   c. Requires activity in at least two central nervous synapses in series.

   d. Is not influenced by higher centers in the brain.

125) *A somatic lower motor neuron :*
a. Carries impulses to skeletal muscle but not to other neurons.

b. Often innervates more than one muscle fibre.

c. Conducts impulses at the same speed as an autonomic lower motor (postganglionic) neuron.

d. May conduct impulses which cause skeletal muscle to relax.

126) **Regarding autonomic ganglia:**

a. Paravertebral sympathetic ganglia are located on the sides of the vertebral column.

b. Parasympathetic ganglia lie close to or within the organ which they innervate.

c. All fibres passing through these ganglia should relay in them.

d. Prevertebral ganglia are present mainly in the chest.

127) **Acetylcholine is the chemical transmitter at:**

a. All neuromuscular junctions in the somatic nervous system.

b. All postganglionic sympathetic endings.

c. All autonomic ganglia.

d. All postganglionic parasympathetic effectors endings

e. Any sites that are blocked by atropine.

128) **The following processes are brought about by activation of the parasympathetic nerve fibres:**

a. Defecation.

b. Micturition.

c. Sweating.

d. Ejaculation of semen.
129) *The substances that block neuromuscular transmission include:*

- b. Curare.
- c. Epinephrine.
- d. Neostigmine.
- e. Neomycin.

130) *A drug which augment parasympathetic activity can be:*

- a. Diisopropylfluorophosphate (DFP)
- b. Isoproterenol.
- c. Pilocarpine.
- d. Prodtigmine.
- e. Muscarine.

131) *Regarding acetylcholine:*

- a. It can be blocked by atropine at the motor end plates.
- b. It is released at the parasympathetic ganglia only.
- c. It is synthesized from active acetate and the base choline.
- d. It is inactivated by the choline esterase enzyme, of which there are 2 types.
- e. When released as a result of vagal stimulation, it leads to coronary V.D.

132) *Atropine causes:*

- a. Paralysis of accommodation during reading.
b. Constriction of the pupil.

c. Constriction of the bronchi.

d. Diarrhoea.

e. Difficulty with micturition.

133) **Acetylcholine:**

a. Acts on the same type of receptor in sympathetic and parasympathetic ganglia.

b. Acts on the same receptors at sympathetic and parasympathetic nerve endings.

c. Acts on the same receptors at autonomic and somatic terminals.

d. Is the transmitter released by some sympathetic nerve endings?

134) **The Vagus nerve:**

a. When stimulated has little direct affect on the strength of ventricular contraction.

b. Contains parasympathetic postganglionic fibres.

c. Supplies the sinoatrial and atrioventricular nodes.

d. Exerts at rest a tonic effect on the heart rate which becomes more marked with regular long distance running.

135) **Parasympathetic nerves:**

a. Have opposite effects to sympathetic nerves in the intestine.

b. Have opposite effects to sympathetic nerves in the bladder.

c. Play an important part in the vasodilatation in skeletal muscle during prolonged exercise.

d. Liberate acetylcholine at both pre and postganglionic terminals.
e. Have longer postganglionic than preganglionic fibres.

136) **Sympathetic:**

a. Ganglia have acetylcholine as a transmitter substance.

b. Nerve terminals supplying the heart transmit via adrenaline.

c. Nerves supplying skin arterioles transmit via acetylcholine.

d. Nerves supplying sweat glands transmit via noradrenaline.

e. Ganglia are closer to the end organ than parasympathetic ganglia.

137) **Among the clinical uses of atropine:**

a. Induction of anaesthesia in surgical operations.

b. Examination of the fundus of the eye due to its mydriatic effect.

c. Treatment of constipation.

d. Treatment of intestinal & renal colic.

138) **Blockade of autonomic cholinergic nerve endings causes:**

a. A reduction in sweat production.

b. An increase in the resting heart rate.

c. Excessive salivation.

d. Overactivity of the intestine.

139) **About norepinephrine (noradrenaline):**

a. Its release in inhibited by ephedrine & stimulated by guanethidine.

b. It is the chemical transmitter of most parasymp. Postgang. nerve fibres.
c. It produces severe V.D.

d. It is inactivated by MAO (monoamine oxidase enzyme).

140) **Blockade of beta adrenoceptors is likely to cause:**

a. Loss of tone in the smooth muscle of the alimentary tract.

b. Worsening of the condition in a patient suffering from heart bronchoconstriction.

c. Worsening of the condition in a patient suffering from heart failure.

d. A decrease ability to increase heart rate during exercise in a patient who had a cardiac transplant.

e. Inability to increase blood flow to exercising muscles.

141) **Sympathetic preganglionic neurons arise from the:**

a. Cervical part of the spinal cord. 

b. Brain stem.

c. Thoracic part of the spinal cord.

d. Upper lumbar part of the spinal cord.

142) **some of the parasympathetic preganglionic neurons may arise from:**

a. Cervical part of the spinal cord.

b. Brain stem.

c. Thoracic part of the spinal cord.

d. Upper lumbar part of the spinal cord.

e. Sacral part of the spinal cord.
143) *The vagus nerve provides the parasympathetic innervation to the:*

a. Eye. ( )
b. Salivary glands. ( )
c. Urinary bladder. ( )
d. Small intestine. ( )
e. Heart. ( )

144) *Atropine injection:*

a. Accelerates the heart rate. ( )
b. Increases the intestinal motility. ( )
c. Diminishes the salivary secretion. ( )
d. Facilitates micturition. ( )

**Key of Answers**

One best Answer

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Key of True or False Q

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