THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF PSYCHOLOGY AND COUNSELLING
ACADEMIC YEAR 2018/19 – 2ND SEMESTER

**BSC (HONS.) IN PSYCHOLOGY**
**PLU3310 BIOLOGICAL PSYCHOLOGY, LEVEL 3**
**CONTINUOUS ASSESSMENT TEST - NBT 1**
**DURATION: 1 HOUR**

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DATE: 13.07.2019 TIME: 9.00 -10.00 am

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**REGISTRATION NO: .....**

**IMPORTANT INSTRUCTIONS/ INFORMATION TO CANDIDATES**

- This question paper consists of **12 pages** with **2 sections**

  **Section 1: 20 Multiple Choice Questions (40 Marks)**

  **Section 2: 12 Short Answer Questions (60 Marks)**

- Write your Registration Number in the space provided.
- Answer **ALL** questions.
- **Multiple Choice Questions (Section 1):** Indicate answers in the answer sheet provided by placing a cross (X) in **INK** in the relevant cage (answers in pencil will **NOT** be marked)
- **Short Answer Questions (Section 2):** Write answers within the space provided.
- Do **NOT** remove any page/part of this question paper from the examination hall.
- Do **NOT** keep unauthorized material, including mobile phones and other electronic equipment, with you during the examination.

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**SECTION 1: MULTIPLE CHOICE QUESTIONS (20 QUESTIONS – 40 MARKS)**

1.1 Biological factors significantly influence mental processes and one's behaviour. Which of the following explanations describes why a behaviour or structure evolved as it did?
- a evolutionary
- b ontogenetic
- c physiological
- d functional

1.2 The nervous system is comprised of two basic cell types. They are,
- a neurons and axons.
- b dendrites and axons.
- c neurons and neuroglia.
- d dendrites and neurons.

1.3 How many sensory organs do you find within the human body?
- a 6
- b 5
- c 4
- d 3

1.4 Which one of the following structures of the cell contains the chromosomes?
- a Ribosome
- b Nucleus
- c Endoplasmic reticulum
- d Cell membrane

1.5 Which one of the following is a main cause for the resting membrane potential?
- a A difference in size between axons and dendrites.
- b The refractory period of the membrane.
- c The sodium-potassium concentration gradient across the membrane.
- d A high permeability of the membrane to water molecules.

1.6 A cell that is involved in electrical signaling is,
- a neuron.
- b red blood cell.
- c liver cell.
- d white blood cell.

1.7 An effect of the sympathetic nervous system includes,
- a constriction of pupils.
- b increase production of saliva.
- c increasing heart rate.
- d constriction of urinary bladder.

1.8 Which of the following is an important function of the spinal cord?
- a Control of vision
- b Control of reflex actions
- c Pumping of blood
- d Transferring of substances

1.9 Neurons consist of different parts, each serving a specialized function. Among them, the nodes of Ranvier are,
- a branching points in an axon.
- b places where dendrites join the cell body.
- c gates in the membrane that admit all ions freely.
- d gaps in the myelin sheath.

1.10 The structure which is involved in the transmission of impulses away from the neuron is,
- a dendrites
- b nucleus
- c axon
- d cytoplasm

1.11 The circle of Willis does not include,
- a subclavian artery.
- b anterior cerebral artery.
- c internal carotid artery.
- d basilar arteries.

1.12 Which of the following maintains the balance of the body?
- a Medulla Oblongata
- b Cerebellum
- c Pons
- d Midbrain

1.13 The area of the eye involving colour vision is,
- a retina.
- b lens.
- c cornea.
- d sclera.

1.14 Neurotransmitters allow the transmission of signals from one neuron to another. High concentrations of all neurotransmitters except for nitric oxide, are stored in the,
- a presynaptic terminals.
- b cell body.
- c postsynaptic membrane.
- d axon.

1.15 Which of the following transmits the impulses from the central nervous system to the muscles?
- a Sensory neuron
- b Interneuron
- c Blood
- d Motor neuron

1.16 Which structure with in the ear contains auditory receptors?
- a tympanic membrane.
- b organ of Corti.
- c semicircular canals.
- d malleus.

1.17 In which part of the brain does comprehension of spoken and written words take place?
- a Broca's Area.
- b Association Area.
- c Wernicke's Area.
- d Motor Area.

1.18 Which of the following slows down the body's functions?

a Spinal cord
b Sympathetic nervous system
c Somatic nervous system
d Parasympathetic system

1.19 Which one of the following is a function of electroencephalography (EEG)?

a Measures and records the electrical activity of the brain.
b Makes detailed pictures of structures of the body.
c Provides data about how the muscles and nerves function.
d Examine the functional anatomy of the brain.

1.20 The brain is divided into four lobes. Which of the following areas is responsible for controlling voluntary muscle movement?

a Temporal lobe
b Occipital lobe
c Frontal lobe
d Parietal lobe

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ANSWER SHEET FOR SECTION-1

| Q. No. | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| 1.1 | | | | |
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**SECTION 2: SHORT ANSWER QUESTIONS (12 QUESTIONS - 60 MARKS)**

**WRITE ANSWERS ONLY WITHIN THE SPACE PROVIDED.**

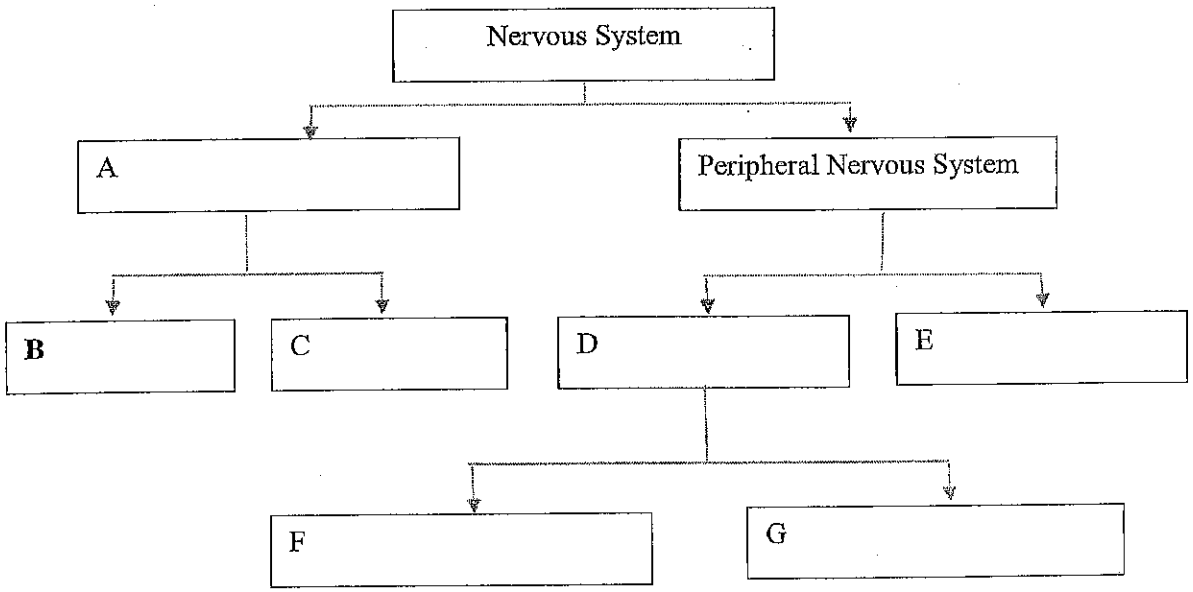
**2.1** List three basic functions of nervous system. (3 marks)

i. .....

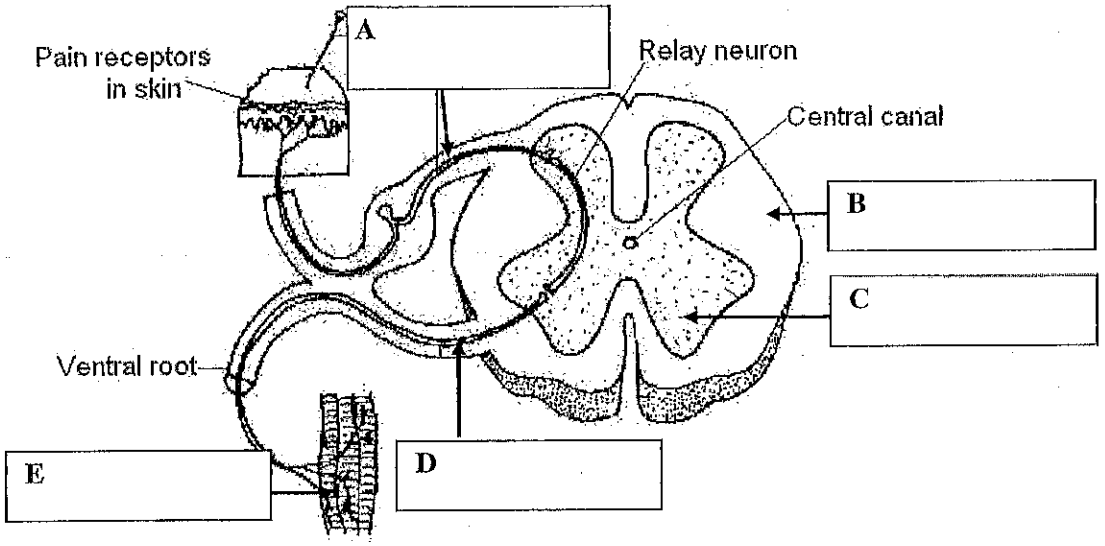
ii. .....

iii. .....

**2.2** Major divisions of the nervous system is given below. Identify the components in A, B, C, D, E, F & G. (7 marks).



**2.3** A cross section of the spinal cord has been provided below. Identify the missing components named A-E. (5 marks).



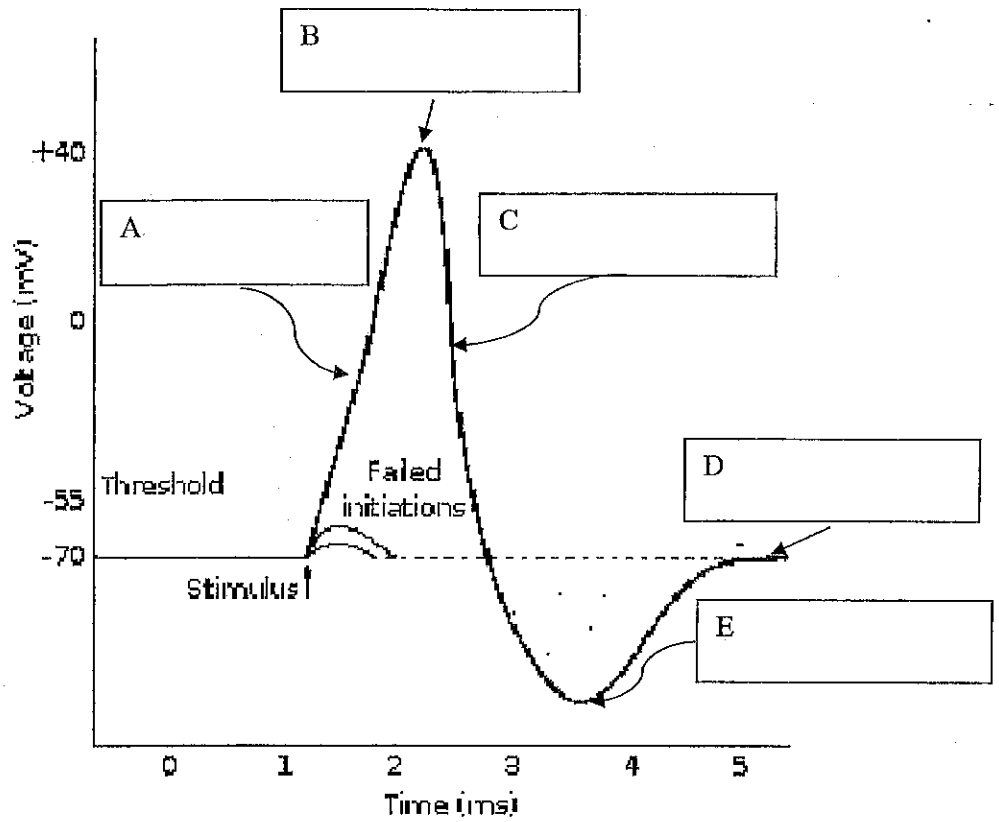

**2.4** Draw a clearly labelled diagram to show the structure of a neuron. (8 marks).

**2.5** List 2 abnormalities of olfaction. (2 marks).

i. .....

ii. .....

**2.6** Phases of an action potential is given below. Identify the phases from A—E. (5 marks).




**2.7** What is the resting membrane potential of a nerve cell? (5 marks).

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**2.8** Some events that occur at a synapse in the chemical transmissions are given below. Identify and write the correct answer matching with the statements: (5 marks).

postsynaptic membrane, inhibitory, neurotransmitters, excitatory, presynaptic axon terminal, dendrites, neuromuscular junction

i. When impulse reaches a (A) ..... voltage gated calcium channels open.

ii. Entry of calcium ions release their (B) ..... into the synaptic cleft.

iii. Opening of ion channels on the (C) ..... produces a change in the membrane potential.

iv. A neurotransmitter which causes depolarization of a nerve cell is called (D) ..... neurotransmitter.

v. A neurotransmitter which causes hyperpolarization of a nerve cell is called (E) ..... neurotransmitter.

**2.9** Briefly describe the correction for the following visual disorders. (5 marks).

i. Hyperopia

.....

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ii Myopia

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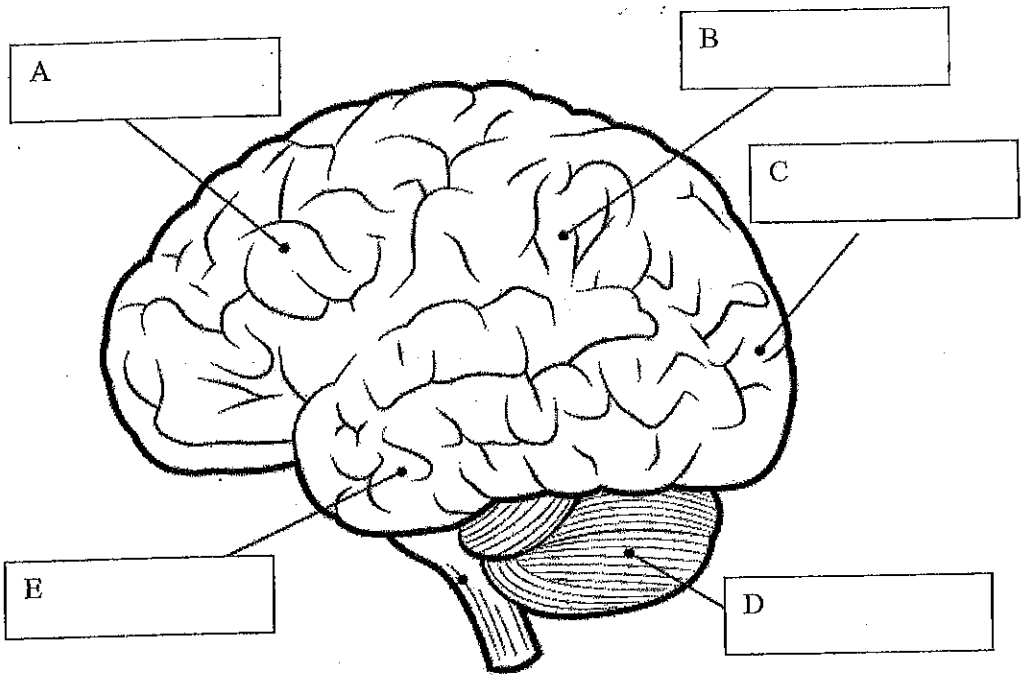
**2.10** Identify the following lobes and areas (A – E) of the brain. (5 marks).




**2.11** A). List the three components of emotion. (3 marks).

i. .....

ii. .....

iii. .....

B). What are the two main areas of the brain related to emotional expressions? (2 marks).

i. .....

ii. .....

**2.12** The following table includes activities related to REM sleep. Complete the following table in relation to sleep activity during REM sleep. (5 marks).

| Sleep Activity | REM Sleep |
|---|---|
| i. Eye movement | |
| ii. Body movement | |
| iii. Muscle tones | |
| iv. Dreams | |
| v. State of the brain | |

----------END OF QUESTION PAPER----------