BT 101 MODERN BIOLOGY 3 0 0 6

Pre-requisite: Nil

Diversity in biological systems; cell biology and cell structure; biological membranes.

Bioenergetics; genetics: DNA as genetic material; structure of DNA; DNA replication; transcription; translation.

Genes to proteins and to protein function; gene expression and regulation; recombinant DNA technology.

Human physiology: biological axons and neurons, neuromuscular and synaptic junctions; sensory systems - hearing, taste, smell and visual receptors. Dr. Souptick Chanda

Texts:

1. J. L. Tymoczko, J. M. Berg and L. Stryer, Biochemistry, 5th Ed, W. H. Freeman & Co, 2002. 2. D. L. Nelson and M. M. Cox, Lehninger Principles of Biochemistry, Macmillan Worth, 2000.

References:

1. N. Hopkins, J. W. Roberts, J. A. Steitz, J. Watson and A. M. Weiner, Molecular Biology of the Gene, 4th Ed, Benjamin Cummings, 1987.
2. C. R. Cantor and P. R. Schimmel, Biophysical Chemistry (Parts I, II and III), W.H. Freeman & Co., 1980.
3. **C. C. Chatterjee, Human Physiology, Vol 1 & 2, 11th Ed, Medical Allied Agency, 1987.**

http://shilloi.iitg.ernet.in/~biotech/BT%20Syllabus/BT%20101.htm

Text book of Medical physiology, Guyton and Hall

Grading Pattern

- Mid semester: 40 marks
- Quiz before mid semester: 10 marks
- Final semester : 40 marks
- Quiz after mid semester: 10 marks

Quiz 2

- **Syllabus = First 4 Lectures**
- **Marks = 10**
- **Date and Time: 7th April 2018 (tentatively)**
- **Venue : L1, L2, L3, L4**

- No re-examination
- Attendance guidelines shall be strictly followed

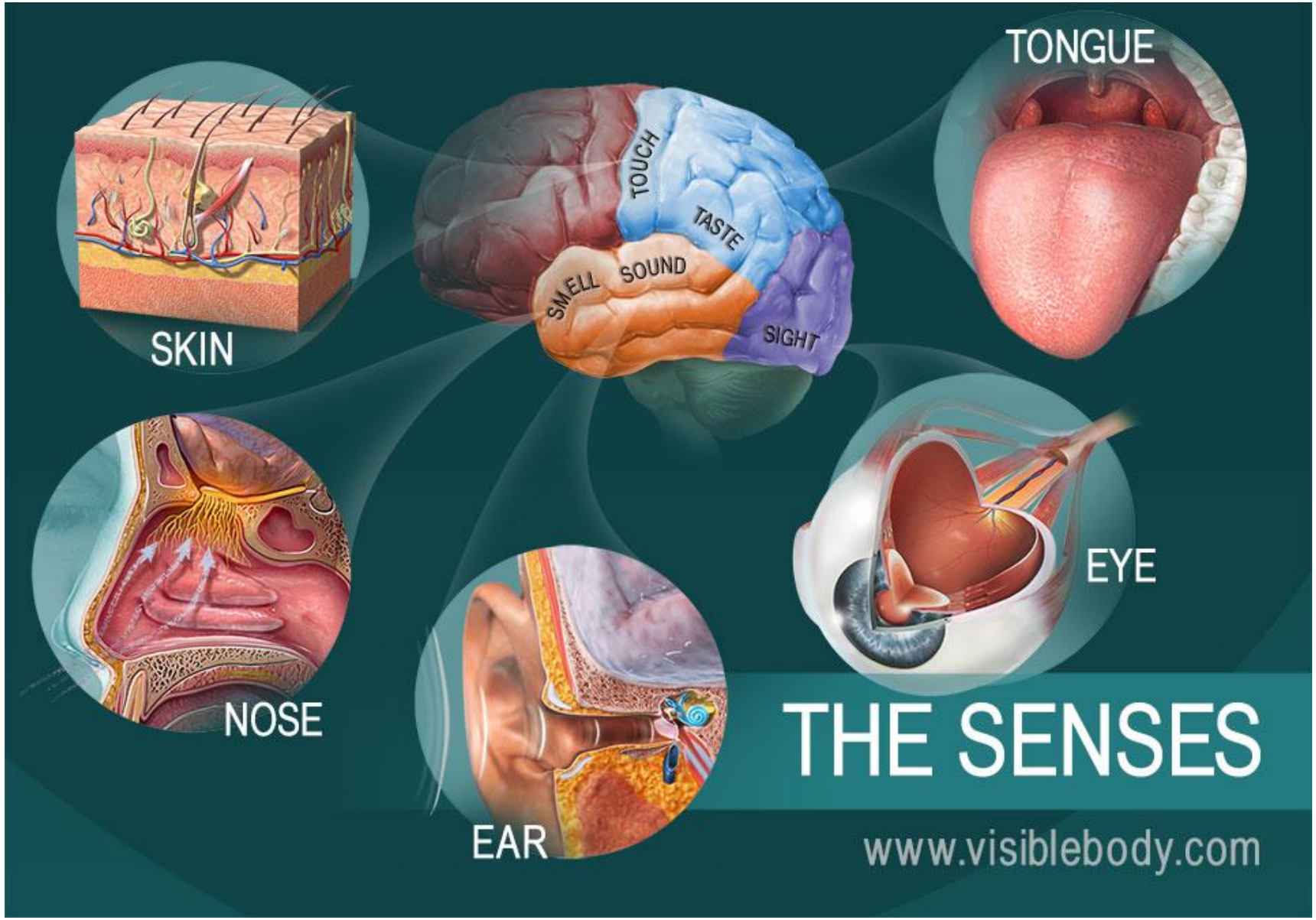
Human physiology:

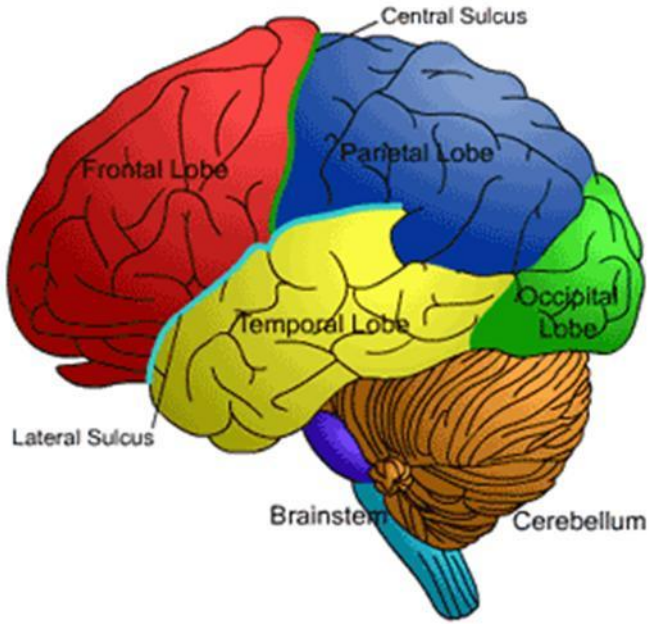
Biological axons and neurons, neuromuscular and synaptic junctions;

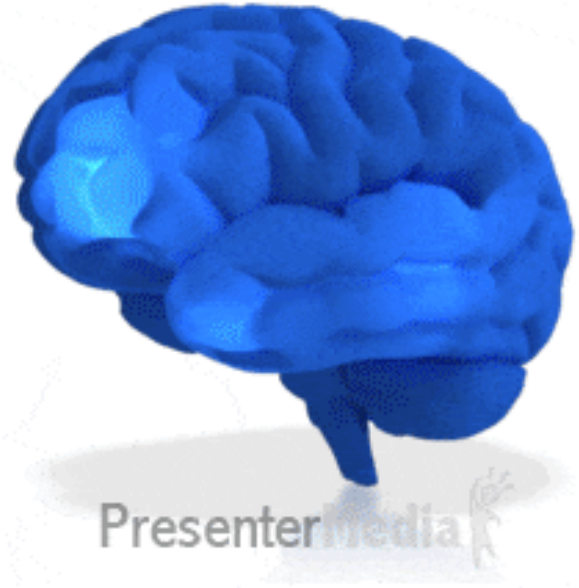
Sensory systems - hearing, taste, smell and visual receptors.

Dr. S. Chanda,
BSBE, IIT Guwahati

The Senses


SKIN
TOUCH
TASTE
SMELL
SOUND
SIGHT
TONGUE
NOSE
EAR
EYE
THE SENSES
www.visiblebody.com


Central Sulcus
Frontal Lobe
Parietal Lobe
Occipital Lobe
Temporal Lobe
Lateral Sulcus
Brainstem
Cerebellum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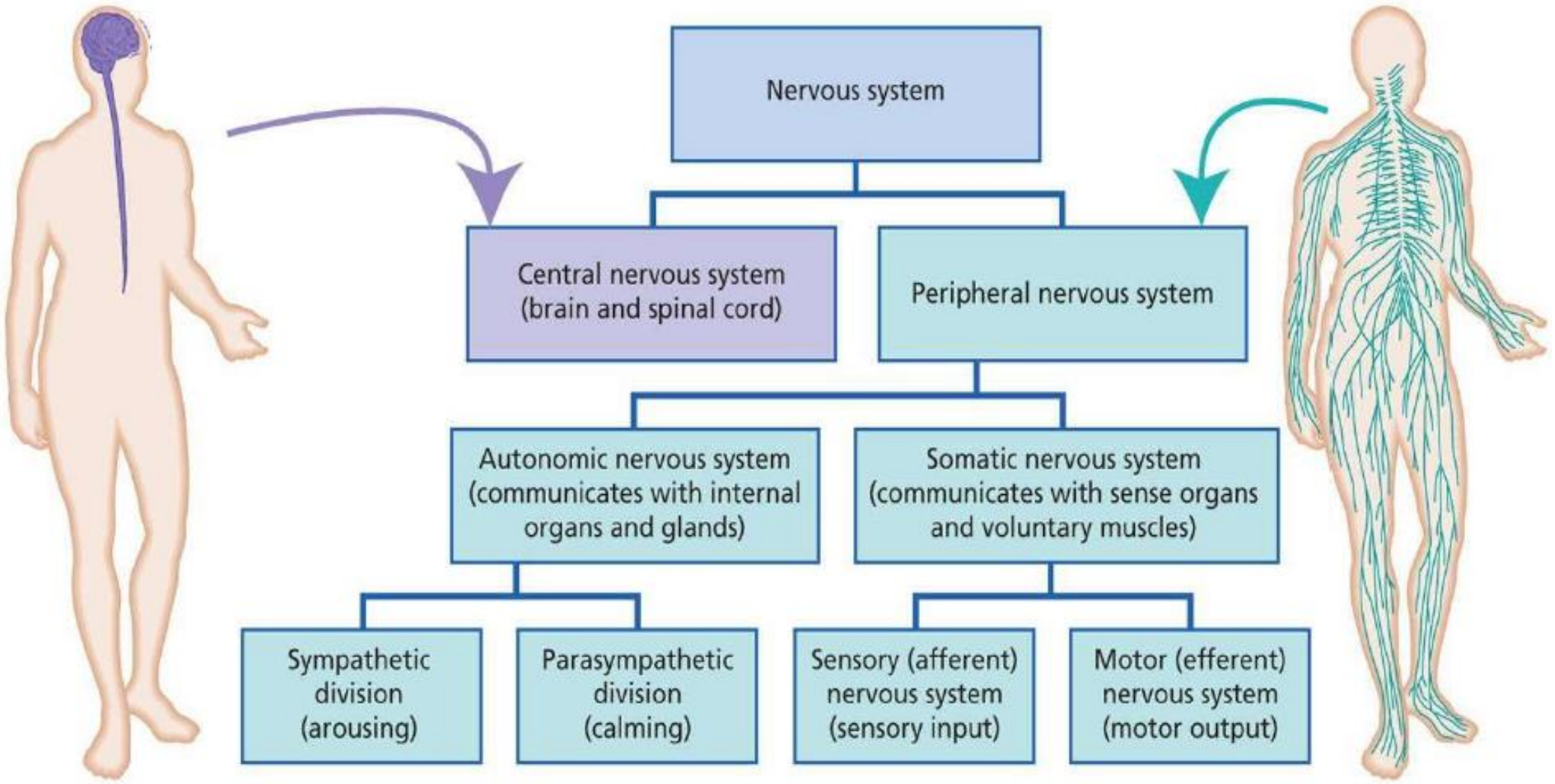
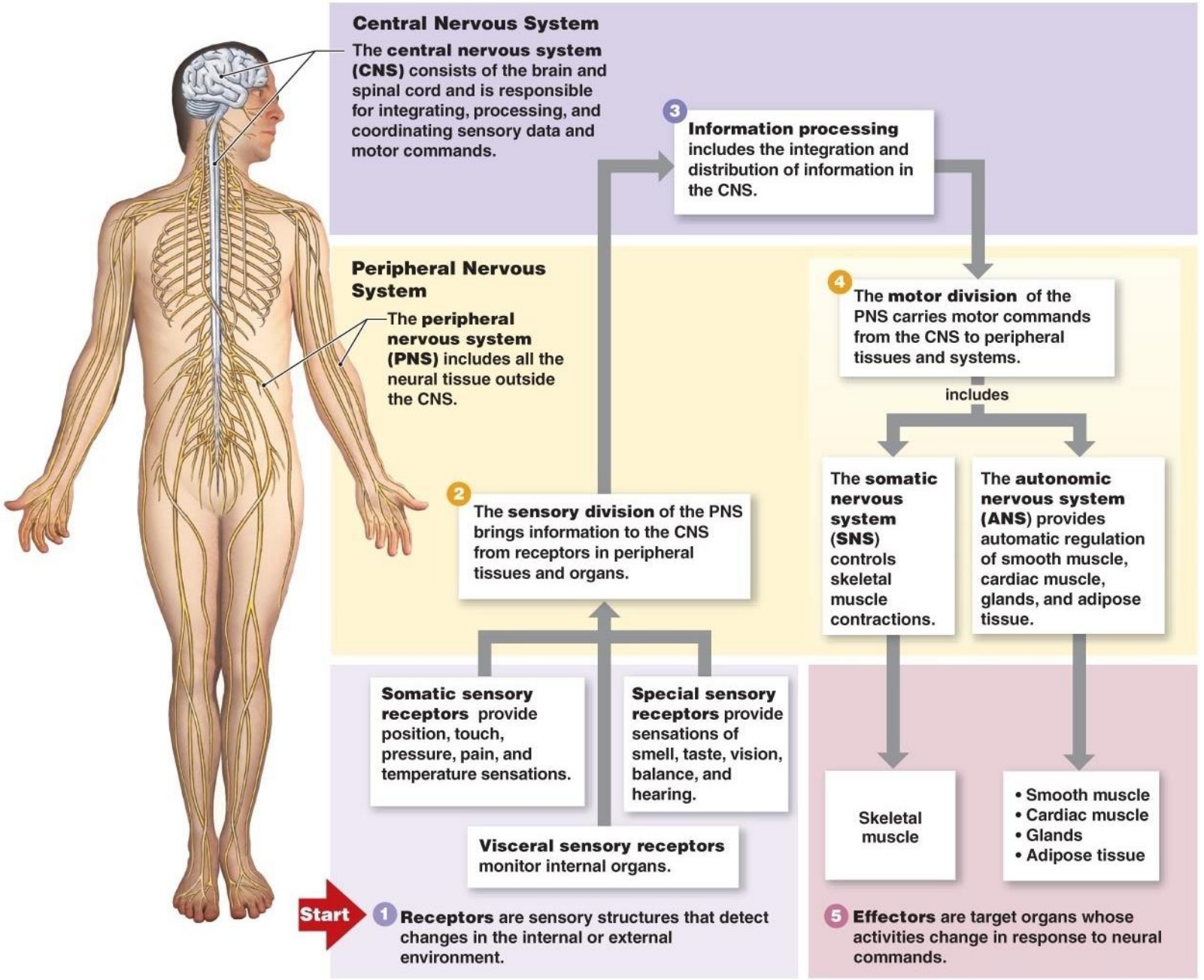
The Nervous System





The major components and functions of the <u>central nervous system (CNS)</u>

In short, the nervous system has three overall functions:

- Sensory function - sensory receptors detect the changes in the external environment.
- Integrative function - The CNS integrates this information.
- Motor function - effectors (muscles and glands) bring about a response.

Example: You are riding a bicycle and see that the traffic light has turned RED (sensory function). Your CNS integrates the information (RED light means 'STOP' - integrative function), and you use your muscles to apply your brakes to stop the bicycle (motor function).