Ministry of Higher Education & Scientific Research
Foundation of Technical Education
Technical Institute /Mosul
Nursing Department

(Training Package of Anatomy)

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Lecturer
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ANATOMY

Ministry of Higher Education & Scientific Research
Institute of Technical Teaching
Nursing Department
<table>
<thead>
<tr>
<th>Week</th>
<th>Theory Topics</th>
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<tr>
<td>1</td>
<td>Anatomical Directions : Give description to the all directions of the human body.</td>
</tr>
<tr>
<td>2</td>
<td>Surface anatomy heart : Describe the position of the heart according to the chest wall and the number of the rib.</td>
</tr>
<tr>
<td>3</td>
<td>Surface Anatomy of lungs : Describe the position of the lungs according to the chest wall and the number of the rib.</td>
</tr>
<tr>
<td>4</td>
<td>Anatomy of the abdomen surface : We draw the regions of the abdominal surface according to the horizontally &amp; vertically lines.</td>
</tr>
<tr>
<td>5</td>
<td>Anatomy of stomach : We demonstrate the relation of the stomach to the other organs to the abdomen.</td>
</tr>
<tr>
<td>6</td>
<td>Anatomy of the liver &amp; spleen : We show them the regions of liver &amp; spleen according to the surface anatomy of abdomen.</td>
</tr>
<tr>
<td>7</td>
<td>Anatomy of Intestine : We demonstrate the relation of the Intestine to the other organs to the abdomen.</td>
</tr>
<tr>
<td>8</td>
<td>Anatomy of the Appendix : We define the region of the appendix at the right iliac region.</td>
</tr>
<tr>
<td>9</td>
<td>Anatomy of the gall bladder : We determine the region of gall bladder at the right sub – costal region.</td>
</tr>
</tbody>
</table>
| 10 | Anatomy of the uterus:  
    | We define the region of the uterus at the supra – pubic region. |
| 11 | Anatomy of the skeleton:  
    | We describe the center skeleton:  
    | Skull – vertebral column & the peripheral. |
| 12 | Bones of the shoulder:  
    | We show the bones of the shoulder on the skeleton which are the  
    | scapula and the clavicle. |
| 13 | Bones of the arm:  
    | We show the bones of the arm (Humerus). |
| 14 | Bones of the forearm:  
    | We show the bones of the forearm:  
    | (ulna and radius). |
| 15 | Bones of the hand:  
    | We demonstrate the bones of the hand:  
    | (carpal bones and meta carpal and phalanges). |
| 16 | Bones of the pelvis:  
    | We define the bones of the pelvis which are:  
    | (Iliac and Ischemic and sacrum). |
| 17 | Bones of the thigh:  
    | We demonstrate of the skeleton the femur bone with the lower and  
    | upper ends. |
| 18 | Bones of the leg:  
    | We show the bones which are: (Tibia & fibula)  
    | femur and the foot. |
| 19 | Bones of the foot:  
    | We describe the bones which are: (Tarsal & metatarsal &  
    | phalanges). |
| 20 | Bones of the skull:  
    | We name the numbers of the bones on all at surfaces of the skull. |
| 21 | Bones of vertebral column:  
    | We show the student the types of the vertebrae column and their  
    | numbers |
| 22 | Anatomy of the chest wall:  
    | We give the types and numbers of the ribs and declaration of the  
<pre><code>| sternum |
</code></pre>
<table>
<thead>
<tr>
<th>Week</th>
<th>practical</th>
</tr>
</thead>
</table>
| 1    | Anatomical Directions :-  
We learn the directions of the body as: superior-inferior-medial-lateral. |
| 2    | Surface Anatomy Heart;  
learn the site of the heart in relation to the ribs of the chest and sternum. |
| 3    | Surface Anatomy lungs: learn the relation of the lungs to the Number of the ribs and clavicle bone. |
| 4    | Anatomy of the Abdomen surface :-  
We divide the surface of the Abdomen to nine regions according to horizontal and vertical lines. |
| 5    | Anatomy of stomach: -  
We maintain the relation of stomach to the surface region of Abdomen. |
<p>| 6    | Anatomy of the Liver &amp; spleen:- |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>We give the site of liver and spleen</td>
<td>according to the region of The Abdomen.</td>
</tr>
<tr>
<td>7</td>
<td>Anatomy of intestine:</td>
<td>We give the relation of small and large intestine to the region of Abdomen.</td>
</tr>
<tr>
<td>8</td>
<td>Anatomy of the Appendix:</td>
<td>The site of the appendix in relation to the Surface Anatomy of Abdomen.</td>
</tr>
<tr>
<td>9</td>
<td>Anatomy of the gallbladder:</td>
<td>The site of the gallbladder in relation to the liver and Abdomen.</td>
</tr>
<tr>
<td>10</td>
<td>Anatomy of the uterus:</td>
<td>The site of the uterus according to the abdominal region.</td>
</tr>
<tr>
<td>11</td>
<td>Anatomy of the skeleton:</td>
<td>Describe the types of the bones and the central and peripheral skeleton.</td>
</tr>
<tr>
<td>12</td>
<td>Bones of the shoulder:</td>
<td>Rename the bones of the scapula and Clavicle.</td>
</tr>
<tr>
<td>13</td>
<td>Bones of the arm:</td>
<td>Name the humerus bone in relation to Shoulder.</td>
</tr>
<tr>
<td>14</td>
<td>Bones of the forearm:</td>
<td>We describe the radius and ulna bones.</td>
</tr>
<tr>
<td>15</td>
<td>Bones of the hand:</td>
<td>Name the bones of the tarsal bones and the metatarsal and phalanges.</td>
</tr>
<tr>
<td>16</td>
<td>Bones of the Pelvis:</td>
<td>Describe the iliac bone and sacrum bone.</td>
</tr>
<tr>
<td>17</td>
<td>Bones of the thigh:</td>
<td>Name the femur bone in and sacrum bone.</td>
</tr>
<tr>
<td>18</td>
<td>Bones of the leg:</td>
<td>Name the bones which are the tibia and fibula.</td>
</tr>
<tr>
<td>19</td>
<td>Bones of the foot:</td>
<td>It consist from tarsal bone and metatarsal and phalanges.</td>
</tr>
<tr>
<td>20</td>
<td>Bones of the Skull:</td>
<td>Name the bones of the interior surface and other surface of the Skull.</td>
</tr>
<tr>
<td>21</td>
<td>Bones of the vertebral column:</td>
<td>Name the types of the vertebra: cervical, thoracic, lumber and sacral vertebra.</td>
</tr>
<tr>
<td>22</td>
<td>Anatomy of the chest wall:</td>
<td>Give the types and numbers of ribs in relation to the sternum.</td>
</tr>
<tr>
<td>23</td>
<td>Muscle of the shoulder:</td>
<td>Mention the pectoralis major and pectoralis minor-muscles.</td>
</tr>
<tr>
<td>24</td>
<td>Muscle of the chest and abdomen:</td>
<td>Name the muscles of the abdominal wall and muscles of the interior.</td>
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</tr>
<tr>
<td>25</td>
<td><strong>Muscle of the Back and Gluteal region:</strong> Describe the name of the muscles on the back and muscles of the gluteal region.</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td><strong>Anatomy of the digestive system:</strong> Describe the organs of the digestive system.</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td><strong>Anatomy of the cardiovascular system:</strong> Name the organs of the system (heart and the blood vessels of the systems).</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td><strong>Respiratory system:</strong> Describe the lungs and bronchi.</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td><strong>The Urinary-genital System:</strong> Describe the kidney and Urinary bladder With relation to the genital system.</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td><strong>The Central nervous System:</strong> It consist from the brain, cerebellum and spinal cord.</td>
<td></td>
</tr>
</tbody>
</table>

**Title of lecture (1):** Anatomical Terms.
**Target group:** 1st class of Nursing Department Technical Institute in Mosul.
**Subject:** Anatomy.
Central idea:
1. Definition of anatomy.
2. Division of anatomy.
3. Anatomical positions.
4. Anatomical planes, lines and directions.
5. Types of movement.

Aims:
Student should be able to know about:
1. Anatomical planes.
2. Anatomical lines.
3. Anatomical position.
4. Anatomical directions.

Pre-exam:
1. Enumerate sub divisions of anatomy.
2. What are the opposite of these anatomical terms?
   Lateral, anterior, proximal, adduction, flexion.

Anatomical Terms

Anatomy: study the structure of body parts and their relationships to one another by the method of dissection and divided into:

1. microscopic anatomy.
2. macroscopic or gross anatomy.

Microscopic anatomy:
Study the structures of cells or tissues by the use of a microscope.

The cell: is the basic building blocks of life, consist from cell membrane, cytoplasm and the nucleus.

The tissues: is group of cells similar in shapes, functions and contain intercellular materials.
The organ: is a structure that contains at least two different types of tissue functioning together for a common purpose.

There are 4 primary tissue types in the human body:

1. Epithelial Tissue:
   - Some examples: the outer layer of the skin, the inside of the mouth and stomach, and the tissue surrounding the body's organs.

2. Connective Tissue:
   - Connective tissue adds support and structure to the body.
   - Some examples: the inner layers of skin, tendons, ligaments, cartilage, bone and fat tissue. Blood is also considered a form of connective tissue.

3. Muscle Tissue:
   - A specialized tissue that can contract. Examples are the muscles throughout body.

4. Nerve Tissue:
   - Has the ability to generate and conduct electrical signals in the body.
   - Nerve tissue is two cell types:
     - Neurons: Cells that convert stimuli into electrical impulses to the brain.
     - Neuroglia: Supportive cells.

Macroscopic anatomy (or Gross anatomy):

- The study of structures of the human body that are observable with the naked eye or (without the use of a microscope).

Subdivided in to:

1. Surface anatomy: Study of internal structures
   - As they relate to overlying skin,
In relation to true land mark and arbitrary lines. (this land mark and lines facilitates the study).

2. **Systemic anatomy:** which mean study of system such as skeletal, muscular, circulatory, ................. etc.

3. **Regional anatomy:** study the region of the body such as head, neck, abdomen.

**Anatomical position:**

When the body is standing upright or erect with the upper limbs hanging by the sides and the face and the palms of the hands directed forward.

**Supine position:** When the body is lying face up in the anatomical position.

**Prone position:** When the body is lying face down in the anatomical position.

**Planes of the Body, lines and directions:**

- For clinical purposes, and for good description, the external surface of the human body divided into anatomical regions by arbitrary lines and planes either vertical or horizontal.

**Vertical planes:**

1. **median planes:** divides the body into equal right and left parts. running through the middle of the (sternum).
2. **Sagittal Plane**: running from front to back (Antero Posterior) dividing the body into right and left parts.

3. **Coronal Plane**: dividing the body into anterior and posterior (ventral and dorsal) portion.

**Transverse Plane**:

Divides the body or limbs into lower parts, and upper parts in relation to the anatomical position.

![Diagram](image)

**Vertical lines**:

1. **Anterior median line**: the anterior border of the median plane.
2. **Posterior median line**: the posterior border of the median plane.
3. **Mid clavicular line**: vertical lines from the middle of the clavicle to the middle of the inguinal region passing through the areola.
4. **Mid sternal line**: vertical lines (middle line of the sternum).
5. **The anterior axillary lines** are drawn vertically from the anterior axillary folds.
6. **The posterior axillary lines** are drawn vertically from the posterior axillary folds.
7. **The mid axillary line** runs downward from the apex of the axilla.
8. **Scapular line** on the posterior surface of the thorax is drawn vertically through the inferior angle of the scapula.
Directional Terms:

1. **Superior, cranial, cephalic**: toward the head.
   
   In the feet: superior is replaced by **dorsum**.

2. **Inferior, caudal**: away from the head (nearer to the feet).
   
   In the feet: Inferior is replaced by **planter**.

3. **Anterior, Ventral**: toward the front of the body.
   
   In the hands: **Palmer** used instead of anterior.

4. **Posterior, dorsal**: toward the back of the body.

5. **Medial**: toward the midline.

6. **Lateral**: away from the midline.

7. **Intermediate**: between medial and lateral structure.

8. **Proximal**: closer to the origin of the body.
9. **distal**: far from the origin of the body.

10. **Superficial**: toward the body surface.

11. **deep**: away from the body surface.
Types of movement:

different types of movement have specific terms, often in pairs to describe opposite movements.

Knee

Flexion  Extension

Inversion  Neutral  Eversion
Abduction  Adduction

Flexion  Extension
**Post-exam:**
1. what are the synonym of the following terms?
   Anterior, posterior, superior, inferior.
2. Enumerate the anterior vertical lines.

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**Keys answers of exams**

<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sub division of anatomy:</td>
<td>1. The synonym of the following terms:</td>
</tr>
<tr>
<td>a) Surface anatomy.</td>
<td>a) Anterior------ ventral</td>
</tr>
<tr>
<td>b) Systemic anatomy.</td>
<td>b) Posterior------ dorsal</td>
</tr>
<tr>
<td>c) Regional anatomy.</td>
<td>c) Superior------ cranium</td>
</tr>
<tr>
<td>2. The opposite of these anatomical terms:</td>
<td>d) Inferior------ caudal</td>
</tr>
<tr>
<td>a) Lateral ---- medial</td>
<td>2. The anterior vertical lines:</td>
</tr>
<tr>
<td>b) Anterior------ posterior</td>
<td>a) Anterior median line.</td>
</tr>
<tr>
<td>c) Proximal------ distal</td>
<td>b) Mid clavicular line.</td>
</tr>
<tr>
<td>d) Adduction------ abduction</td>
<td>c) Mid sternal line.</td>
</tr>
<tr>
<td>e) Flexion------ extension</td>
<td>d) The anterior axillary line.</td>
</tr>
</tbody>
</table>

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المصادر:

2. مبادئ علم التشريح لطلبة معاهد المهن الصحية الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.
4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (2): The surface anatomy of heart.
Target group: 1\textsuperscript{st} class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Location of the heart in thoracic cavity.
2. Relation of the heart to the ribs.
3. Borders of the heart.

Aims:
Student should be able to:
1. Describe the location of heart in relation to other chest organ.
2. Localize the location of heart at chest wall.

Pre-exam:
1. Give the relation of heart at the thoracic cavity.

The surface anatomy of heart

Surface anatomy of the heart:
- The heart is an important chest organ.
- Lying in the center of thoracic cavity.
- On the superior surface of diaphragm.
• Anterior to the vertebral column.
• Posterior to the sternum.
• In between the lungs

• The location of heart on the chest wall can be draw by 4 imaginary lines formed the boundaries of the heart:

1. **Superior border of the heart:**
   Formed by drawing a line between 2 points:
   • The 1\textsuperscript{st} One finger breadth left to the sternum on 2\textsuperscript{nd} intercostal space.
   • The 2\textsuperscript{nd} One finger breadth right to the sternum on 2\textsuperscript{nd} intercostal space.

2. **Inferior border of the heart:**
   Formed by drawing a curve line between 2 points:
   • **Left** of the sternum in the 5\textsuperscript{th} intercostal space at the mid-clavicular line (which represent the apex beat).
   • One finger breadth right of the sternum on the 6\textsuperscript{th} costal cartilage.

3. **Right border of the heart:**
   A curve line to the right between the right end of the superior and inferior border of the heart.

4. **Left border of the heart:**
   A curve line to the left between the left end of the superior and inferior border of the heart.
Borders of the hearts

Fig. 18.8: Surface projection of the borders of the heart.
A  Upper border of right 3rd costal cartilage.
B  Lower border of left 2nd costal cartilage.
C  Apex beat at left 5th intercostal space, lateral to mid-clavicular line.
D  Middle of right 6th costal cartilage
Post-exam:
1. Mention the points that made the inferior border of the heart.

Keys answers of exams

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1. Relation of the heart.</td>
<td>1. Inferior border of the heart:</td>
</tr>
<tr>
<td>• Lying in the center of thoracic cavity.</td>
<td>Formed by drawing a curve line between 2 points:</td>
</tr>
<tr>
<td>• On the superior surface of diaphragm.</td>
<td>a) The 1st Left of the sternum in the 5th intercostal space at the mid-clavicular line. (which represent the apex beat.).</td>
</tr>
<tr>
<td>• Anterior to the vertebral column.</td>
<td>b) The 2nd One finger breadth right of the sternum on the 6th costal cartilage.</td>
</tr>
<tr>
<td>• Posterior to the sternum.</td>
<td></td>
</tr>
<tr>
<td>• In between the lungs</td>
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4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (3): Surface Anatomy of lungs
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Location of the lung in relation to chest wall.

Aims:
Student should know about:
1. Lobes of lung
2. Relation of lung to the surface

Pre-exam:
1. Enumerate lobes of right lung.

Surface anatomy of the lungs
- The lungs are essential organs of respiration.
- They are two in number located on either side of the thoracic cavity.
- Separated from each other by the mediastinum (contain the heart, blood vessels and the trachea and esophagus).
- The right lung has 3 lobes, the superior is separated from the middle lobes by a horizontal fissure, the middle lobe is separated from the inferior lobe by the oblique fissure.
• The left lung has 2 lobes, the superior is separated from the inferior lobe by the oblique fissure.

• The apex of the lungs (narrow superior tip) lies above the level of 1st rib, 3 cm above the medial third of clavicle.

• The base of the lungs semi lunar and concave rest on the dome of the diaphragm the right sided is higher than the left.
### Keys answers of exams

<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
</table>
| **1.** The right lung has 3 lobes:  
  - the superior lobe  
  - the middle lobe  
  - the inferior lobe | **2.** the mediastinum contain:  
  - The heart.  
  - Blood vessels.  
  - The trachea.  
  - Esophagus. |

### المصادر:


2. مبادئ علم التشريح لطلبة معاهد المهن الصحية الدكتور عبد الرحمن محمود الريحيم / وزارة الصحة 1983.


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (4): Anatomy of the abdomen surface  
Target group: 1st class of Nursing Department Technical Institute in Mosul.  
Subject: Anatomy.

Central idea:
1. Surface anatomy of the abdomen.  
2. Division of the abdominal wall.

Aims:
Student should be able to:
1. Enumerate quadrants of abdomen.  
2. Enumerate abdominal regions.

Pre-exam:  
1. Enumerate 4 quadrants of abdomen.

Surface anatomy of the abdomen
• On the anterior surface of the abdomen, the (umbilicus) is the prominent depression or projection in the midline of the abdominal wall midway between the xiphoid process and the pubic symphysis.  
• In the midline the linea alba, a tendinous structure that extends inferiorly from the xiphoid process to the pubic symphysis, this line divides the anterior abdominal wall into right and left halves.  
• The linea semilunaris is a curved line or groove (convex laterally) that extends from the 9th costal cartilage to the pubic tubercle.  
• This indicates the lateral border of the left and right rectus abdominis muscle.  
• The superior aspect of the ilium (iliac crest) terminates anteriorly at the anterior superior iliac spine.
• The **inguinal ligament** is attached to the anterior superior iliac spine, which forms the lower boundary of the abdominal wall.

For clinical purpose:

The abdomen is divided into parts by:

1. Two vertical lines (extend on each side of the body from the cartilage of the eighth rib to the center of the inguinal ligament).
2. Two horizontal lines (The upper horizontal line passes along the level of the cartilages of the ninth rib, the lower along the iliac crests (top of hip bone)).

**Abdominal Quadrant**

1. Right Upper Quadrant (RUQ).
2. Right Lower Quadrant (RLQ).
3. Left Upper Quadrant (LUQ).
4. Left Lower Quadrant (LLQ)

**Abdominopelvic Regions:**

1. Umbilical.
2. Epigastric.
3. Hypogastric.
4. Right iliac or inguinal.
5. Left iliac or inguinal.
6. Right lumbar.
7. Left lumbar.
8. Right hypochondriac.
9. Left hypochondriac

Post-exam:
1. Enumerate abdominal regions.

Pre-exam
<table>
<thead>
<tr>
<th>Post-exam</th>
</tr>
</thead>
</table>

1. Abdominal quadrants.
   a) Right Upper Quadrant
   b) Right Lower Quadrant
   c) Left Upper Quadrant
   d) Left Lower Quadrant

   1. Abdominal regions.
      a) Umbilical.
      b) Epigastric.
      c) Hypogastric.
      d) Right iliac or inguinal.
      e) Left iliac or inguinal.
      f) Right lumbar.
      g) Left lumbar.
      h) Right hypochondriac.
      i) Left hypochondriac
المصادر:


2. مبادئ علم التشريح لطلبة معاهد المهن الصحية
   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.

4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (5 ) : Anatomy of stomach
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. relation of stomach with other organs.
2. Parts of stomach.
3. Relation of stomach to the abdominal wall.

Aims : 
Student should know about:
1. Parts of stomach.
2. Surface anatomy of the stomach.

Pre-exam:
1. Enumerate parts of stomach.

Anatomy of the stomach :
- Important organ of the digestive system .
- Located at the epigastric region .
- Inferior to diaphragm.
- Anterior to the spleen and pancreas .
- Posterior to the left side of the liver.
- In the supine position, the stomach commonly lies in the right and left upper quadrants, or( epigastric, umbilical, and left hypochondriac and lumbar regions).
• Resemble J shape.
• It is formed from the following parts:
  • **Cardiac orifice** (the gastro-esophageal junction) the sphincter prevent the return of gastric content to the esophagus.
  • In the left lateral line **fundus** elevated and punched part reaches as high as the fifth inter space or the sixth costal cartilage, a little below the apex of the heart.

• **Body**
• **Pylorus** (pyloric orifice) is on the transpyloric line about 5 cm. below the seventh right sterno costal articulation, formed of 2 parts:
  • muscular sphincter
  • pyloric canal
• **Greater curvature** a curved line is drawn from the cardiac orifice to the summit of the fundus, then downward and to the left, finally turning medially to the pyloric orifice, it is 3 to 4 time greater than lesser curvature

• **Lesser curvature** A curved line, convex downward and to the left begin at the gastro esophageal junction reach the pylorus.
Post-exam:
1. Describe the relation of stomach to the nearby organs.
### Pre-exam

1. Stomach is formed from the following parts:
   - Cardiac orifice
   - Fundus
   - Body
   - Pylorus
   - Greater curvature
   - Lesser curvature

### Post-exam

1. Relations
   - Located at the epigastric region.
   - Inferior to diaphragm.
   - Anterior to the spleen and pancreas.
   - Posterior to the left side of the liver.

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   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.
4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (6): Anatomy of the liver & spleen
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Anatomical position of liver.
2. Lobes of liver.
3. Anatomical position of spleen.

Aims:
Student should be able to:
1. localize the location of liver and it's relation.
2. Enumerate lobes of liver.
3. Localize and describe location and relation of spleen.

Pre-exam:
1. Enumerate lobes of liver.

Surface anatomy of liver

- The largest gland in the body.
- Occupying the whole right hypochondrium, the greater part of the epigastric region, and may extend into the left hypochondrium.

Lobes:

It consist from:

1. Right lobe: It occupies the right hypochondrium.
2. Left lobe: is smaller situated in the epigastric and left hypochondriac regions.
3. Quadrate lobe: is situated on the under surface of the right lobe.
4. Caudate lobe: is situated upon the posterior surface of the right lobe.
Relation:

The **superior surface** consist of a part of both (R. and L.) lobes.

- It is convex, and fits under the diaphragm which in front separates it:
- On the right from the 6\textsuperscript{th} to the 10\textsuperscript{th} ribs and their cartilages.
- On the left from the 7\textsuperscript{th} and 8\textsuperscript{th} costal cartilages.
- Its middle part lies behind the xiphoid process.
- The liver lies predominantly in the thorax; although it is classified as an abdominal organ.
- The liver cannot be palpated in the abdomen; if it can this is a sign of enlargement.
Surface anatomy of spleen:

- The spleen is an wedge-shaped secondary lymphoid organ.
- lies in relation to the 9th and 11th ribs.
- located in the left hypochondrium and partly in the epigastrium.
- It is situated between the fundus of the stomach and the diaphragm.
- The spleen is highly vascular its size and weight are variable (size of fist).
- A normal spleen is not palpable.

Post-exam:
1. Describe location and relation of spleen.
### Pre-exam

1. Enumerate lobes of liver.
   a) **Right lobe**: It occupies the right hypochondrium.
   b) **Left lobe**: is smaller situated in the epigastric and left hypochondriac regions.
   c) **Quadrate lobe**: is situated on the under surface of the right lobe.
   d) **Caudate lobe**: is situated upon the posterior surface of the right lobe.

### Post-exam

1. Describe location and relation of spleen.
   - lies in relation to the 9th and 11th ribs.
   - located in the left hypochondrium and partly in the epigastrium.
   - It is situated between the fundus of the stomach and the diaphragm.

### المصادر:

2. مبادئ علم التشريح لطلبة معاهد المهن الصحية الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة / 1983.
Title of lecture (7): Anatomy of Intestine
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
  1. parts of intestine.

Aims:
Student should know about:
  1. parts of intestine.
  2. anatomy and relation of:
     - small intestine.
     - large intestine.
     - rectum.

Pre-exam:
  1. enumerate parts of intestine.

The surface anatomy of the intestine:

The intestines are a long, continuous tube running from the stomach to the anus.

The intestines include:

  1. small intestine.
  2. large intestine.
  3. rectum.
The **small intestine** (small bowel):

- It is about 20 feet long and about one inch in diameter.
- The coils of small intestine occupy the front of the abdomen.
- It consists of three parts:

1. **duodenum** (the C-shaped part), or horseshoe-shaped structure that lies in the upper abdomen near the midline.
2. **jejunum** (the coiled midsection), the coils of the jejunum are situated on the left side (in the left lumbar and iliac regions, and in the left half of the umbilical region).
3. **ileum** (the last section).
   - The coils of the ileum lie toward the right (in the right lumbar and iliac regions, in the right half of the umbilical region, and in the hypogastric region)
   - A portion of the ileum is within the pelvis.
   - The end of the ileum is (the **ileocolic junction**).
The **large intestine**: 

- It is that part of the digestive tube between the terminal ileum and anus.
- It is about 5 feet long and about 3 inches in diameter.
- The large intestine forms inverted U over the coiled small intestine.
- Consist of three major segments:
  1. The **caecum**
     - It is a blind-ended pouch that carries a worm-like extension called the vermiform appendix.
     - It is connects to The ileum (last part of the small intestine)
  2. The **colon**
     - It is constitutes the majority of the length of the large intestine.
- It is divided into 4 parts:

- The **ascending colon** travels up the right side of the abdomen.

- Right colic flexures (hepatic) - the corners made between the ascending and the transverse colon.

- The **transverse colon** runs across the abdomen (It can parallel the line between the hepatic and splenic flexures in the horizontal plane).

- Left colic flexures (splenic) - the corners made between the descending colon and the transverse colon.

- The **descending colon** travels down the left abdomen.

- The **sigmoid colon** is a short curving of the colon, ascends just above the pubis just before the rectum.
3. The rectum is the short, terminal segment of the digestive tube, continuous with the anal canal.

Post-exam:
1. Enumerate parts of small intestine.
2. Enumerate parts of large intestine.

### Keys answers of exams

<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
</table>
| 1. Parts of intestine  
   a) small intestine.  
   b) large intestine.  
   c) rectum. | 1. Parts of small intestine  
   a) duodenum  
   b) jejunum  
   c) Ileum |
| 2. Parts of large intestine  
   a. The caecum  
   b. The colon  
   • The ascending colon  
   • The transverse colon).  
   • The descending colon  
   • The sigmoid colon |
المصادر:


2. مبادئ علم التشريح لطلبة معاهد المهن الصحية

3. الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة / 1983


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (8): **Anatomy of the Appendix**  
Target group: 1st class of Nursing Department Technical Institute in Mosul.  
Subject: Anatomy.

Central idea:
1. Relation of appendix to the other parts of digestive system.

Aims:
Student should be able to know:
1. Position of appendix in relation to surface anatomy of the abdomen.

Pre-exam:
1. Describe the relation of appendix to the other abdominal organ.

Surface anatomy of the Appendix:

- The appendix sits at the junction of the small intestine and large intestine.

- It’s a thin tube about four inches long.

- Normally, the appendix sits in the lower right abdomen.

- It lies in right iliac fossa in relation to anterior abdominal wall.

- The base of the appendix is opposite "**Mc Burney's point**," located on the surface at the junction of the upper and middle thirds of a line drawn from the umbilicus to the right anterior superior iliac spine.
• The function of the appendix is unknown.

• Surgical removal of the appendix causes no observable health problems.

Post-exam:

1. How we can identify the base of appendix in relation to surface anatomy of the abdomen.
<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
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المصادر:

2. مبادئ علم التشريح لطلبة معاهد المهن الصحية
   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.
4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (9): Anatomy of the gall bladder
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. anatomical description of gall bladder.

Aims:
Student should be able to know:
1. relation of gall bladder to the surrounding organs.

Pre-exam:
1. what are the relation of gall bladder to the liver.

Surface anatomy of the Gallbladder

- The gallbladder is a small pouch that sits on inferior surface of liver.
- Located at right hypochondriac region, between quadrate and right lobes of liver at the plane of the ninth rib.
- The gallbladder stores bile produced by the liver.
• Before a meal, the gallbladder may be full of bile and about the size of a small pear.
• After meals, the gallbladder is empty and flat, like a deflated balloon.

Post-exam:
1. Describe gall bladder before and after meal.

Keys answers of exams

<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
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2. مبادئ علم التشريح لطلبة معاهد المهن الصحية
   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (10): Anatomy of the uterus
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. relation of uterus to the surrounding organs.

Aims:
Student should be able to know about:
1. uterus and its relation.

Pre-exam:
1. Define the uterus.

Uterus and its relation:
Definition:
- One of the internal organs of female reproductive system
- Pear shaped thick wall muscular organ measure 8cm long, 5cm wide, 2.5cm thickness.

Position:
- In the pelvic cavity, between urinary bladder and rectum.
- Anterior surface rests on the urinary bladder.
- Posteriorly: the rectum and anal canal.
- Superiorly: loops of intestine
- Inferiorly: the vagina
- Laterally: the uterine tubes and ovaries
Parts of the uterus

1. **Fundus**: dome shaped part

2. **Body**: main part. Narrowest inferiorly at the internal os where it continues with cervix

3. **Cervix**: protrudes through the anterior wall of the vagina, opening into it at the external os.

**Post-exam:**
1. Enumerate parts of uterus
### Pre-exam

- One of the internal organs of female reproductive system
- Pear shaped thick wall muscular organ measure 8cm long, 5cm wide, 2.5cm thickness.

### Post-exam

**Parts of the uterus:**
1. **Fundus**: dome shaped part
2. **Body**: main part. Narrowest inferiorly at the internal os where it continues with cervix
3. **Cervix**: protrudes through the anterior wall of the vagina, opening into it at the external os.

### المصادر:

2. مبادئ علم التشريح لطلبة معاهد المهن الصحية
   
   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983 .
4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (11): Anatomy of the skeleton
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Classification of bones.
2. Classification of joints.
3. Division of skeletal system.

Aims:
Student should be able to:
1. Classify bones according to shape.
2. Classify joint according to function and structure.
3. Classify the human skeleton.

Pre-exam:
1. Enumerate types of bone according to shape.

Skeletal System:
Human skeleton is composed of:

1. Bones.
2. Cartilages.
4. Ligament.
5. Tendon

**Bones:**

it is responsible for strength of human skeleton.

**Cartilages:**

Cartilage is also a form of connective tissue but is not as rigid as bone.

**Joints:**

“A point in the body where two bones meet (articulate)”

allows the skeleton to move (with the help of muscles!).

**Ligament:**

Bands of tough, slightly elastic connective tissue, Connect one bone to another
And help to prevent dislocation.
**Tendon:**

Very strong connective tissue, connect muscle to bone.

---

Bones are classified by their shape:

- **Long bones**
  - Its length is greater than its width.
  - Have a shaft 2 heads.
  - Contain mostly compact bone
    - Examples: Femur, humerus

- **Flat bone**
  - (e.g., parietal bone of skull)

- **Short bones**
  - (e.g., carpals of wrist)

- **Irregular bone**
  - (e.g., vertebra)
• **Short bones**
  • About equal in length, width and thickness, (Cube-shape).
  • Contain mostly spongy bone.
    • Examples: Carpals, tarsal

• **Flat bones**
  • Thin and flattened.
  • Usually curved.
  • Thin layers of compact bone around a layer of spongy bone.
    • Examples: Skull, ribs, sternum.

• **Irregular bones**
  ▪ Irregular shape.
  ▪ Example: Vertebrae and hip.

• **Pneumatic bones**
  ▪ Bone that contain sinuses
  ▪ Example: skull bones.

**Joint:**

Joints are mainly classified structurally and functionally.

• Structural classification = how the bones connect to each other.
• Functional classification = the degree of movement between the articulating bones.

• There are three main types of joints:
  1. **Fibrous** (immoveable), e.g. the radio ulnar and tibio fibular joints, skull.
2. **Cartilaginous** (cushion of cartilage allows only partially moveable), e.g. between vertebrae, ribs.

3. **Synovial** (freely moveable) joints are the most common joint within the human body.
   Shoulder, Elbow, Wrist, Thumb.
There are 6 types of synovial joints which are classified by the shape of the joint and the movement available.

**Types of Synovial Joint**

<table>
<thead>
<tr>
<th>Joint Type</th>
<th>Movement at joint</th>
<th>Examples</th>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hinge</strong></td>
<td>Flexion/Extension</td>
<td>Elbow/Knee</td>
<td>Hinge joint</td>
</tr>
<tr>
<td><strong>Pivot</strong></td>
<td>Rotation of one bone around another</td>
<td>Top of the neck (atlas and axis bones)</td>
<td>Pivot Joint</td>
</tr>
<tr>
<td>Joint Type</td>
<td>Movements</td>
<td>Diagram 1</td>
<td>Diagram 2</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Ball and Socket</td>
<td>Flexion/Extension/Adduction/Abduction/Internal &amp; External Rotation</td>
<td><img src="image1" alt="Shoulder/Hip" /></td>
<td><img src="image2" alt="Ball and socket joint" /></td>
</tr>
<tr>
<td>Saddle</td>
<td>Flexion/Extension/Adduction/Abduction/Circumduction</td>
<td><img src="image3" alt="CMC joint of the thumb" /></td>
<td><img src="image4" alt="Saddle joint" /></td>
</tr>
<tr>
<td>Condyloid</td>
<td>Flexion/Extension/Adduction/Abduction/Circumduction</td>
<td><img src="image5" alt="Wrist/MCP &amp; MTP joints" /></td>
<td><img src="image6" alt="Condyloid joint" /></td>
</tr>
<tr>
<td>Gliding</td>
<td>Gliding movements</td>
<td><img src="image7" alt="Intercarpal joints" /></td>
<td><img src="image8" alt="Gliding joint" /></td>
</tr>
</tbody>
</table>

**Divisions of Human Skeleton:**

Human skeleton can be divided into two divisions.

a. Axial skeleton.

b. Appendicular skeleton.
Types of skeletal system

1. **Axial skeleton**: forms the axis of human body.
   a. **Skull bones**.
      - Cranium .
      - Bones of the face.
   b. **Vertebral column**
   c. **Rib cage (thoracic )**:
      - Ribs
      - Sternum.

2. **Appendicular skeleton**:
   a. **Shoulder girdle**.
   b. **Skeleton of the upper limbs**.
   c. **Pelvic girdle**.
   d. **Skeleton of the lower limbs**.
Post-exam:
1. What are the divisions of skeletal system.

### Keys answers of exams

<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
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<tbody>
<tr>
<td>1. Bones are classified by their shape</td>
<td>1. <strong>Axial skeleton</strong>: forms the axis of human body.</td>
</tr>
<tr>
<td>• Long bones</td>
<td>a. <strong>Skull bones</strong>.</td>
</tr>
<tr>
<td>• Short bones</td>
<td>• Cranium.</td>
</tr>
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<td>• Flat bones</td>
<td>• Bones of the face.</td>
</tr>
<tr>
<td>• Irregular bones</td>
<td>b. <strong>Vertebral column</strong></td>
</tr>
<tr>
<td>• Pneumatic bones</td>
<td>c. <strong>Rib cage (thoracic )</strong>:</td>
</tr>
<tr>
<td></td>
<td>• Ribs</td>
</tr>
<tr>
<td></td>
<td>• Sternum.</td>
</tr>
<tr>
<td>2. <strong>Appendicular skeleton</strong></td>
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<tr>
<td>a. Shoulder girdle.</td>
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</tr>
<tr>
<td>b. Skeleton of the upper limbs.</td>
<td>b. <strong>Skeleton of the upper limbs</strong>.</td>
</tr>
<tr>
<td>c. Pelvic girdle.</td>
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<tr>
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الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (12 ) : Bones of the shoulder :
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. anatomy of clavicle.
2. anatomy of scapula.

Aims:
Student should be able to know about:
1. Character of clavicle.
2. Character of scapula.

Pre-exam:
1. describe the medial and lateral end of clavicle.

Shoulder girdle:
It attaches the upper limb to body trunk and is formed by two bones:
1. Clavicle
2. Scapula
The clavicle:

- A modified long bone, double-curved and is subcutaneous throughout its position.
- Support the shoulder and transmit weight of upper limb to the trunk through the sternum.
- Connected between the scapula and the sternum just above the first rib.
- The clavicle also articulates with first costal cartilage through extension.
- Clavicle divided into a cylindrical part called the **shaft**, and rounded **medial end** and flattened **lateral end**.

- It articulates
  1. Medially (by the medial end) with the manubrium to form the **sterno clavicular joint**.
  2. Laterally (by the lateral end) with the acromion of the scapula to form the **acromio-clavicular joint**.
The shaft of the clavicle can be divided into the lateral one third and the medial two thirds.

**Scapula:**

- Triangular shaped flat bone that contains the glenoid fossa for the Formation of shoulder joint.
- It possesses three important processes:
  - Spine of scapula, Acromion process and Coracoid process.
- Located at upper part of back.
- Has 2 surfaces (anterior and posterior surface).
  1. **anterior surface** concave forming fossa called sub scapular fossa.
2. **posterior surface** convex slightly divided into two parts by bony prominence called spine.

- these parts are **supra spinous** and **infra spinous fossae**.
- lateral end of spine called **acromion** that articulate with clavicle.
- 3 borders (upper, medial, lateral).
  1. **upper border** has projection at lateral end called coracoid process.
  2. **medial (thin long) border** parallel to vertebral column and connect to it by small muscle.
  3. **lateral border** thick short form concavity called Glenoid cavity.

- 3 angle (superior, inferior, lateral angle).
- Inferior angle are sharp.

**Post-exam:**
1. Enumerate angles and borders of scapula.
<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Clavicle had 2 ends, rounded</td>
<td>• borders (upper, medial, lateral)</td>
</tr>
<tr>
<td>medial end and flattened lateral end.</td>
<td>1. upper border has projection at lateral end called coracoid process.</td>
</tr>
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<td>• It articulates</td>
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</tr>
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المصادر:


2. مبادئ علم التشريح لطلبة معاهد المهن الصحية
الدكتور عبد الحليم محمود الجريج / وزارة الصحة 1983.


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (13): Bones of the arm:
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
   1. the humerus.

Aims:
Student should be able to know about:
   1. Parts of humerus.
   2. Marking on the bone
   3. Characters of shaft and the two ends.

Pre-exam:
   1. Enumerate parts of the humerus.

Humerus

- The humerus is the largest bone of the upper limb.
- It has a long cylindrical shaft with expanded ends.
- Most of the shaft of the bone is tubular but it flattens at the lower end.
- Upper end (head) is a rounded end, articulates with the glenoid cavity of the scapula and forms the shoulder joint.
- The line separating the head from the rest of the upper end is called the anatomical neck.

- Lesser tuberosity: an elevation on the anterior aspect of the upper end.
- Greater tuberosity: an elevation that forms the lateral part of the upper end.
- Inter tubercular sulcus separates the lesser tubercle (medially) from the anterior part of the greater tubercle.
The line separating the upper end of the humerus from the shaft is called the **surgical neck**.

The **Body (Shaft)**

- Cylindrical in the upper half.
- Flattened below.
- Has **3** borders
  - Anterior border.
  - Lateral border
  - Medial border
- Has **3** surfaces.
  - Antero-lateral surface.
  - Antero-medial surface.
  - Posterior surface.
• At the elbow the humerus has (lower end) a flattened end.

• It has two parts:
  - **Articular**
  - **Non articular**

• The articular part consist of:
  - **Trochlea**: medial side of the lower end articulates with the ulna.
  - **Capitulum**: lateral side of the lower end articulates with the radius.

• The non articular part consist of:
1. Medial epicondyle.

2. Lateral epicondyle.

3. Lateral supracondylar ridge: sharp lateral margin above lower end.

4. Medial supracondylar ridge: sharp medial margin above lower end.

5. Coronoid fossa.

6. Radial fossa.

7. Olecranon fossa: above the posterior aspect of the trochlea.

Post-exam:

1. Enumerate pats and marking in the lower end of humerus.
### Pre-exam

1. **Parts of humerus:**
   a. Upper end.
   b. Shaft.
   c. Lower end.

### Post-exam

1. (lower end of humerus), has two parts:
   - Articular
   - Non articular

   - The articular part consist of:
     1. Trochlea:
     2. Capitulum:

   - The non articular part consist of:
     1. Medial epicondyle.
     2. Lateral epicondyle.
     3. Lateral supracondylar ridge.
     4. Medial supracondylar ridge.
     5. Coronoid fossa.
     6. Radial fossa.
     7. Olecranon fossa.

### المصادر:


2. مبادئ علم التشريح لطلبة معاهد المهن الصحية

   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة / 1983


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (14 ): Bones of the forearm :
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. anatomy of radius.

Aims:
Student should be able to know about:
1. Characters of parts ,borders and ends of radius.
2. Characters of parts ,borders and ends of ulna.

Pre-exam:
1. Enumerate borders and surface of radius.

SKELETON OF THE FOREARM:

- It consist of two bones ulna and radius .

- These bones articulate with each other on their upper and lower ends.

- Also each one articulate with humerus at elbow joint..

- While at lower end only radius articulate with bones of wrist (carpal bones).
RADIUS:

- It extends from the lateral side of the elbow to the thumb side of the wrist.
- Between it and ulna (interosseous space) occupied by interosseous membrane.
- The radius is a long bone so it has two ends (upper and lower) and (shaft).
- The upper end is smaller than lower end and composed of following parts:
  1. The head of radius located at upper end articulate with ulna and humerus.
2. **The neck** is narrow short site of connection between head and shaft.

3. **Radial tuberosity** located below the neck.

- **Shaft** it extend from neck to lower end.
  - It gradually become wide at lower end.
  - It has 3 border (medial, anterior, posterior).
  - It has 3 surface (anterior, posterior, lateral).

- **The lower end** is a largest and widest part.
- articulate with two carpals bones.
- articulate with ulna forming inferior radio-ulnar joint.
- it has styloid process.

**ULNA (elbow bone):**

- Long bone, longer than radius.
- Extend along medial side of fore arm., the side of the little finger.
- has shaft and two ends (upper and lower).

- **upper end** is thick and strong, It contain:
  1. Coronoid process
  2. Olecranon process: is hook shape
  3. Ulnar tuberosity.
  4. Radial notch: for the head of the radius.

- **Shaft:**
  1. Has 3 surface(anterior, posterior, medial).
  2. Has 3 borders (anterior, posterior, inter osseous).

- **Lower end** of ulna consist of:
  - spherical head.
  - styloid process.
1. **Shaft of radius** it extend from neck to lower end.
   - It has 3 border
     1. Medial.
     2. Anterior.
     3. Posterior.

<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Shaft of radius</strong> it extend from neck to lower end.</td>
<td>1. <strong>Ulna has shaft and two ends (upper and lower).</strong></td>
</tr>
<tr>
<td></td>
<td><strong>upper end</strong> contain:</td>
</tr>
<tr>
<td></td>
<td>1. Coronoid process</td>
</tr>
<tr>
<td></td>
<td>2. Olecranon process: is hook shape</td>
</tr>
<tr>
<td></td>
<td>3. Ulnar tuberosity.</td>
</tr>
<tr>
<td></td>
<td>4. Radial notch: for the head of the radius.</td>
</tr>
<tr>
<td><strong>Shaft:</strong></td>
<td><strong>Shaft:</strong></td>
</tr>
<tr>
<td></td>
<td>1. Has 3 surface (anterior, posterior, medial).</td>
</tr>
<tr>
<td></td>
<td>2. Has 3 borders (anterior, posterior, inter osseous).</td>
</tr>
<tr>
<td><strong>Lower end</strong> of ulna consist of:</td>
<td><strong>Lower end</strong> of ulna consist of:</td>
</tr>
<tr>
<td></td>
<td>1. spherical head.</td>
</tr>
<tr>
<td></td>
<td>2. styloid process.</td>
</tr>
</tbody>
</table>

المصادر:

2. مبادئ علم التشريح لطلبة معاهد المهن الصحية
   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.
4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture ( 15 ): Bones of the hand :
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Bone of the wrist.
2. Bone of the palm.
3. Bone of the finger.

Aims :
Student should be able to know about:
1. name of the bone of hand.
2. arrangement of hand bones.

Pre-exam:
1. How many phalanges in each finger.

skeleton of wrist:
Consist of 8 bones called carpal bones arrange in two raw:

proximal raw: 4 small bones .
1. Scaphoid bone.
2. Lunate.
3. Triquetral.
4. Pisiform.

Distal raw : 4 small bones
1. Trapezium .
2. Trapezoid
3. Capitate.
4. Hamate
Skeleton of the palm:

- Consist of 5 small long bones called Metacarpals.
- It had upper and lower end.
- The upper end articulate with distal raw of the carpal bones.
- The lower end articulate with fingers at metacarpophalangeal joint.

Skeleton of Fingers:

- Phalanges small long bones.
- 3 in each finger (proximal, middle, distal).
- 2 in each thumb.
Articulate with each other at inter phalangeal joint.

Post-exam:
1. Enumerate the proximal row of carpal bone.
## Keys answers of exams

<table>
<thead>
<tr>
<th>Pre-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Phalanges small long bones.</td>
</tr>
<tr>
<td>• 3 in each finger</td>
</tr>
<tr>
<td>(proximal, middle, distal).</td>
</tr>
<tr>
<td>• 2 in each thumb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. proximal raw of carpal bone: 4 small bones.</td>
</tr>
<tr>
<td>• Scaphoid bone.</td>
</tr>
<tr>
<td>• Lunate.</td>
</tr>
<tr>
<td>• Triquetral.</td>
</tr>
<tr>
<td>• Pisiform.</td>
</tr>
</tbody>
</table>

### المصادر:


2. مبادئ علم التشريح لطلبة معاهد المهن الصحية الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة / 1983 .


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (16 ): Bones of the pelvis :
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. anatomy of pelvic girdle bone.

Aims:
Student should be able to know about:
1. Bones that forming the hip bone.
2. Characters of hip bones.

Pre-exam:
1. Enumerate the bone forming hip bone.

Bone of the Pelvis:
- The bone of pelvic girdle consists of:

1. Hip bones (2) left and right.
2. Sacrum.
3. Coccyx.

Each hip bone consist from fusion of 3 bones:
1. Ilium.
2. Ischium.
3. Pubis.
Ilium:

- A large, flat bone that forms the superior part of the hip bone.
  - Iliac crest
  - Iliac fossa
- Anterior
  - Anterior superior iliac spine
  - Anterior inferior iliac spine
- Posterior
  - Posterior superior iliac spine
  - Posterior inferior iliac spine
  - greater sciatic notch
**Ischium:**

- The ischium forms the posterior/inferior part of the hip bone.
- The **body** form the posterior/inferior portion of the acetabulum.
- On the inferior surface the **ischial tuberosity**.
- **Obturator foramen**: large opening formed by ischium and pubic bone.

**Pubis** or pubic bone:

- the most anterior part of the hip bone.
- Connect with the other bone by **pubic symphysis**.
- Consist of 3 portion:
  1. **Superior ramus**.
  2. **Inferior ramus**.
  3. **Body** (contain border called pubic crest).

- The **ilium**, ischium and pubis together form a deep socket called the **acetabulum** which articulates with the head of the femur.

**Post-exam:**

1. Describe the pubis bone.
<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each hip bone consist from fusion of 3 bones:</td>
<td><strong>Pubis</strong> or pubic bone:</td>
</tr>
<tr>
<td>1. <strong>Ilium</strong>.</td>
<td>o the most anterior part of the hip bone .</td>
</tr>
<tr>
<td>2. <strong>Ischium</strong>.</td>
<td>o Connect with the other bone by <strong>pubic symphysis</strong>.</td>
</tr>
<tr>
<td>3. <strong>Pubis</strong>.</td>
<td>o Consist of 3 portion :</td>
</tr>
<tr>
<td></td>
<td>1. Superior ramus.</td>
</tr>
<tr>
<td></td>
<td>2. Inferior ramus.</td>
</tr>
<tr>
<td></td>
<td>3. Body (contain border called pubic crest).</td>
</tr>
<tr>
<td></td>
<td>The <strong>ilium</strong>, <strong>ischium</strong> and <strong>pubis</strong> together form a deep socket called the <strong>acetabulum</strong> which articulates with the head of the femur</td>
</tr>
</tbody>
</table>

المصادر:

1. **Grant's atlas of anatomy** (twelfth edition) 2009.

2. مبادئ علم التشريح لطلبة معاهد المهن الصحية

   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983


4. Wikipedia, From **Wikipedia**, the free encyclopedia
Title of lecture (17): Bones of the thigh
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:

Aims:
Student should be able to know about:
1. Parts of femur.
2. Articulation with other bones.

Pre-exam:
1. Enumerate parts of femur.

Bone of the thigh:
Femur
the largest, longest, and strongest bone in the body.

✓ Proximal end
• Head of the femur articulates with the acetabulum.
• Greater trochanter attachment site for muscles.
• Lesser trochanter attachment site for muscles.
- The **shaft** of the femur, has anterior, medial, and lateral surfaces.
- In the middle third, the prominent posterior border is known as the linea aspera.
- It has medial and lateral lips and an intermediate area that broadens into a posterior surface in the upper and lower thirds of the shaft.

✔ Distal end

✔ **lateral & medial condyles** articulation with the tibia

✔ **lateral & medial epicondyle.**

✔ **patellar surface.**

✔ The femur articulates with the patella, tibia, and (hip bone).

---

**Patella:** a triangular shaped sesamoid bone.
**Post-exam:** 1. Enumerate the articulation of femur.

### Keys answers of exams

<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Proximal end</td>
<td>1. The femur articulates with the patella, tibia, and (hip bone).</td>
</tr>
<tr>
<td>• <strong>Head of the femur</strong> articulates with the acetabulum.</td>
<td>And the patella articulates with the femur only.</td>
</tr>
<tr>
<td>• <strong>Greater trochanter</strong> attachment site for muscles.</td>
<td></td>
</tr>
<tr>
<td>• <strong>Lesser trochanter</strong> attachment site for muscles.</td>
<td></td>
</tr>
<tr>
<td>✓ Distal end</td>
<td></td>
</tr>
<tr>
<td>• <strong>lateral &amp; medial condyles</strong> articulation with the tibia</td>
<td></td>
</tr>
<tr>
<td>• <strong>lateral &amp; medial epicondyle.</strong></td>
<td></td>
</tr>
</tbody>
</table>

المصادر:


2. مبادئ علم التشريح لطلبة معاهد المهن الصحية

   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983 .


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (18): Bones of the leg
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Anatomy of tibia and fibula.

Aims:
Student should be able to know about:
1. Anatomical marking of tibia and fibula.
2. Articulation of tibia and fibula.

Pre-exam:
1. Enumerate parts of tibia.

Bones of Leg:

Tibia

- Long bone on the medial side of the lower leg.

- Has shaft and 2 ends.

- Distal end:
  - Medial malleolus: large bony prominence on the medial side of ankle
  - Fibular notch.

- Proximal end:
  - Medial & Lateral condyles.
  - Tibial tuberosity.
Fibula

- Slender long bone on the lateral side of the lower leg.
- Has shaft and 2 ends.
  - Distal end:
    - Lateral malleolus: Large prominence on the lateral side of ankle.
    - Articulates with the lateral surface of the talus.

Post-exam:
1. Describe the fibula.
### Tibia
- Long bone on the medial side of the lower leg.
- Has shaft and 2 ends.
- **Distal end**:
  - Medial malleolus: large bony prominence on the medial side of ankle
  - Fibular notch.
- **Proximal end**:
  - Medial & Lateral condyles.
  - Tibial tuberosity.

### Fibula
- Slender long bone on the lateral side of the lower leg.
- Has shaft and 2 ends.
- **Distal end**:
  - Lateral malleolus: large prominence on the lateral side of ankle.
  - Articulates with the lateral surface of the talus.

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المصادر:

2. مبادئ علم التشريح لطلبة معاهد المهن الصحية الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.
4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (19): Bones of the foot
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Anatomy of the foot bone.

Aims:
Student should be able to know about:
1. Name of tarsal bone.
2. Character of metatarsal and phalanges.

Pre-exam:
1. Enumerate phalanges bone.

Bones of the foot:

Tarsals bones: 7 bones arranges in 2 rows (anterior and posterior).

Posterior row:
- Calcaneus.
- Talus.

Anterior row:
- Navicular.
- Cubiod.
- Medial cuneiform.
- Intermediate cuneiform.
- Lateral cuneiform.

Metatarsals
Labeled 1 to 5 medial to lateral starting at the big toe.
Phalanges:

- Phalanges small long bones.
- Labeled 1 to 5 medial to lateral starting at the big toe.
- 3 in each (proximal, middle, distal). 2 in big toe.
- Articulate with each other at inter phalangeal joint.

Post-exam:
1. Enumerate anterior raw of tarsal bone.
<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Phalanges small long bones.</td>
<td>Anterior row of tarsal bone:</td>
</tr>
<tr>
<td>• Labeled 1 to 5 medial to lateral starting at the big toe</td>
<td>o Navicular.</td>
</tr>
<tr>
<td>• 3 in each (proximal, middle, distal). 2 in big toe</td>
<td>o Cubiod.</td>
</tr>
<tr>
<td></td>
<td>o Medial cuneiform.</td>
</tr>
<tr>
<td></td>
<td>o Intermediate cuneiform.</td>
</tr>
<tr>
<td></td>
<td>o Lateral cuneiform.</td>
</tr>
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2. مبادئ علم التشريح لطلبة معاهد المهن الصحية

الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.


4. Wikipedia, From Wikipedia, the free encyclopedia
Central idea:

1. Bones of skull.

Aims:

Student should be able to know about:

1. Bones in the anterior and posterior surface.
2. Bones in the inferior and lateral surface

Pre-exam:

1. Enumerate 4 main sutures.

Bone of the skull:

- The skull is complex skeletal structure consisting of 22 bones.
  
  o The cranium.
  
  o The facial bones.

- With the exception of the mandible, all skull bones are connected to each other by sutures.

- Sutures: Meaning to stitch, are immovable joint found between skull bones.

- There are four main sutures in the skull.
  
  a) Coronal suture: between the frontal & the two-parietal bone.
  b) Sagittal suture: between the two parietal bones.
  c) Lambdoid suture: between parietal & occipital bone.
  d) Squamosal suture: between parietal bone and temporal bone.
superior surface of the skull

- **Frontal bone (1):** Anterior and superior parts of cranium, forehead, brow areas.

- **Orbits:** A pyramid shaped space that contains the eyeball & associate structures. It is formed by bones of the skull.

- **Lacrimal bones (2):** Medial wall of orbit.

- **Nasal bones (2):** Upper bridge of nose.

- **Palatine bones (2):** Posterior part of hard palate, floor of nasal cavity and orbit.

- **Mandible bone (1):** Lower jaw.
Anterior surface of the skull

- **Maxillae bones (2):** Upper jaw and anterior part of hard palate.
- **Zygomatic bones (2):** Cheekbones below and lateral to orbit.
lateral surface of the skull

- **Parietal bones** (2): Superior sides and roof of cranium, between frontal and occipital bones.

- **Temporal bones** (2): Sides and base of cranium at temples.
inferior surface of the skull

- **Ethmoid bone (1):** Base of cranium, anterior to body of sphenoid.
- **Sphenoid bone (1):** Base of cranium, anterior to occipital and temporal bones.
posterior surface of the skull

- **Occipital bone (1):** Posterior part of cranium.

Post-exam:
1. Enumerate bones in the superior surface of the skull.
### Keys answers of exams

<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. There are four main sutures in the skull.</td>
<td>1. Enumerate bones in the superior surface of the skull.</td>
</tr>
<tr>
<td>a) Coronal suture.</td>
<td>a) Frontal bone.</td>
</tr>
<tr>
<td>b) Sagittal suture.</td>
<td>b) Parietal bones</td>
</tr>
<tr>
<td>c) Lambdoid suture.</td>
<td>c) Occipital bone</td>
</tr>
<tr>
<td>d) Squamosal suture.</td>
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</tbody>
</table>

المصادر:


2. مبادئ علم التشريح لطلبة معاهد المهنة الصحية

3. الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.


4. Wikipedia, From Wikipedia, the free encyclopedia
Central idea:
   1. Anatomy of vertebral column.

Aims:
Student should be able to know about:
   1. Number of vertebrae in each region.
   2. Names of region.
   3. Characters of typical vertebrae.

Pre-exam:
   1. Names the regions of vertebral column.

Bones of vertebral column:
- It is consist of irregular bones called vertebrae.
- Articulate with each other by ligament and disc which called inter vertebral discs.
- The vertebral column consists of 26 bones from the skull to the pelvis.
- The vertebral column is divide into 5 major regions given a name according to its location.
- The cervical region – 7 vertebrae
- The thoracic region – 12 vertebrae.
- The lumbar region – 5 vertebrae.
- The sacrum – 1 bone fused from 5 vertebrae.
- The coccyx – 1 bone fused from 4 vertebrae.
Vertebral column has 4 curvature:


2. Thoracic curvature: convex.

3. Lumber curvature: concave.

**Typical vertebrae:**

Consist of:

Body of the vertebrae.

1. Vertebral arch:
   - a) Pedicle.
   - b) Lamina.

2. Vertebral process:
   - a) Spine.
   - b) Transverse process.
   - c) Articular process.
Cervical vertebrae
(c1,c2)

cervical vertebrae (c3 ,c4, c5 ,c6)
Cervical vertebrae (c4, c7)

Thoracic vertebrae
Lumbar vertebrae

Post-exam:
1. Enumerate parts of typical vertebrae.
<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The cervical region – 7 vertebrae</td>
<td><strong>Typical vertebrae:</strong></td>
</tr>
<tr>
<td>2. The thoracic region – 12 vertebrae</td>
<td>Consist of:</td>
</tr>
<tr>
<td>4. The sacrum – 1 bone fused from 5 vertebrae</td>
<td>2. Vertebral arch:</td>
</tr>
<tr>
<td></td>
<td>• Pedicle.</td>
</tr>
<tr>
<td></td>
<td>• Lamina.</td>
</tr>
<tr>
<td>5. The coccyx – 1 bone fused from 4 vertebrae</td>
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<tr>
<td></td>
<td>• Articular process.</td>
</tr>
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</table>

المصادر:

4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (22): Anatomy of the chest wall
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
   1. Anatomy of chest cage (thoracic cage).

Aims:
Student should be able to know about:

Pre-exam:
   1. Enumerate parts of sternum.

Anatomy of the chest wall (chest skeleton):

The skeleton of the thorax:

- It has a conical shape.

- Narrower at the top and broader at the bottom.

- Longer behind than in front.

- Consists of:
   1. The sternum.
   2. 12 pairs of ribs and costal cartilages.
   3. 12 thoracic vertebrae.
The sternum:

- A narrow, elongated, flattened bone that forms the center of the front of the chest.
- Has 2 surface (anterior and posterior).
- Has 2 border (left and right) which connect with 1\textsuperscript{st} 7 costal cartilage.
- It consists of three parts: manubrium, body and xiphoid process.
Manubrium:

- Upper part, articulate with the body of the sternum forming the **sternal angle**.
- The superior border called the **supra sternal notch**.
- In each side articulate with the clavicle forming the L. and R. **sterno clavicular joints**.

The body:

A middle part, flat and has 2 surface (anterior and posterior) and 4 border (superior, inferior, right and left).

- The left and right border articulate with costal cartilages (3-7).
- The superior border articulate with the manubrium.
- The inferior border articulate with the xiphoid process.
**xiphoid process:**
- A lower part that projects down.

**The ribs:**
- Are flexible, long bones that look like arches (curved to connect the vertebral column).
- There are 12 ribs on each side.
- They are located one below the other.
- Anteriorly forming the costal margin.
- Inter-costal spaces occur between them.
- The first seven (1-7) are called **True ribs**, directly attached to the sternum.
- The (8-10) ribs are called the **false ribs**, their costal cartilages attached to the costal cartilage of the seventh true rib.
- The last two ribs (11-12) are only attached to the vertebral column and are thus called **Floating ribs**, (that are not attached to the sternum) also called the **vertebral ribs**.
**Typical rib:**

The typical rib consist of:

- 2 surfaces (external and internal).
- 2 borders (superior rounded and smooth, inferior sharp and thin).
- Posterior end; formed from the
  
  a. **Head**: connects with the body of the vertebrae.
  
  b. **Neck**: situated between head and tubercle.
  
  c. **Tubercle**: is a bony growth, that comes after the neck of the rib, connects with the transverse process of the vertebrae.
o **Anterior end**; it is concave and articulate with costal cartilage.

- **Body** (shaft) is the longest part of a typical rib.
- **Angle** is the point at which the body of the rib starts to curve, just after the tubercle.

**Post-exam:**
1. Enumerate the parts of typical rib.

---

### Keys answers of exams

<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
</table>
| • sternum consists of three parts:  
  1. Manubrium.  
  2. Body.  
  3. xiphoid process. | Typical rib consist of:  
  o 2 surfaces (external and internal).  
  o 2 borders (superior rounded and smooth, inferior sharp and thin).  
  o Posterior end; formed from the  
    a) **Head**.  
    b) **Neck**.  
    c) **Tubercle**.  
  o **Anterior end**.  
  o **Body** (shaft).  
  o **Angle** |
المصادر:


2. مبادئ علم التشريح لطلبة معاهد المهن الصحية
   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (23): Muscle of the shoulder
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Name the muscle involve in the movement of shoulder joint.

Aims:
Student should be able to know about:
1. Pectoralis muscle.
2. The rotator cuff.

Pre-exam:
1. Enumerate muscle that involve in the movement of shoulder joint.

Muscles of shoulder:
- 5 muscles primarily involved in shoulder girdle movements.
- All originate on axial skeleton & insert on scapula and/or clavicle.
- Providing stability of the scapula.

1. Pectoralis minor – deep
2. Trapezius - upper, middle, lower
3. Rhomboid - deep
4. Levator scapula
5. Serratus anterior
The rotator cuff:

- The **rotator cuff** is a group of tendons and muscles in the shoulder.
- connecting the upper arm (humerus) to the shoulder blade (scapula).

- Include:

  1. Teres minor
2. Infraspinatus

3. Supraspinatus

4. Subscapularis
Post-exam:
1. Enumerate muscles forms the rotator cuff.

### Keys answers of exams

<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscle of the shoulder</td>
<td>❖ The <strong>rotator cuff</strong> is a group of tendons and muscles in the shoulder.</td>
</tr>
<tr>
<td>1. Pectoralis minor – deep</td>
<td>❖ Include:</td>
</tr>
<tr>
<td>2. Trapezius - upper, middle, lower</td>
<td>1. Teres minor</td>
</tr>
<tr>
<td>3. Rhomboid - deep</td>
<td>2. Infraspinatus</td>
</tr>
<tr>
<td>4. Levator scapula</td>
<td>3. Supraspinatus</td>
</tr>
<tr>
<td>5. Serratus anterior</td>
<td>4. Subscapularis</td>
</tr>
</tbody>
</table>

المصادر:

2. مبادئ علم التشريح لطلبة معاهد المهن الصحية الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.
4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (24): **Muscles of the chest & abdomen**  
Target group: **1st class of Nursing Department Technical Institute in Mosul.**  
Subject: Anatomy.

**Central idea:**  
1. Superficial and deep layer of chest wall muscle.  

**Aims:**  
Student should be able to know about:  
1. Pectoralis muscle.  
2. Muscle of the deep layer of chest wall.  
3. Layers and muscles of abdominal wall.  

**Pre-exam:**  
1. Enumerate muscle of the deep layer of chest wall.

**Muscle of the chest and abdominal wall:**  

**Muscles of chest:** are divided into two groups

1. superficial group.  
2. deep group.  

**Superficial group are**  
1. **Pectoralis major m.**  
2. **Pectoralis minor m.**  
3. **Serratus anterior m.**
pectoralis muscle:

- Any of the muscles that connect the front walls of the chest with the bones of the upper arm and shoulder.

pectoralis minor:

- Is situated at the upper part of the chest, beneath the pectoralis major.
- It is a thin, triangular muscle.
- Originate from the 3rd, 4th, and 5th ribs, near their cartilage.
- Inserts into medial border and upper surface of coracoid process of the scapula.

Muscle functions:

- Aids in respiration
- Medially rotates the scapula
- Protracts the scapula
- Draws the scapula inferiorly
Pectoralis major

- Is a thick, fan-shaped muscle, situated at the anterior chest, it is most superficial of the two chest muscles.
- Has two heads: sternocostal and clavicular.
- Originate from the:
  - Sternum and superior six costal cartilages.
  - Medial 1/2 of the clavicle.
- Inserts into the Inter tubercular groove (between the greater and lesser tubercles) of the humerus
- Muscle Functions:
  - flexes and extends humerus.
  - medially rotates the arm.
  - Adduction.
Serratus anterior:

- It is a large muscle cover the lateral wall of the chest.

Deep group are:

1. Intercostal muscle.
2. Diaphragm muscle.

Intercostal muscle:

- 11 pairs of muscle located in the intercostal space.

Function of the muscle:

- Aid in respiration.
Diaphragm:

- It is flat muscle form a muscular wall separate abdominal from thoracic viscera.

Muscles of abdominal wall: are divided into two groups

1. Muscle of anterior and lateral wall.
2. Muscle of posterior wall.

Muscle of anterior and lateral wall:

1. **External oblique muscle.**
2. **Internal oblique.**
3. **Transversus abdominis muscles.**
4. **Rectus abdominis.**
5. **Pyramidalis muscle.**
Function of anterior and lateral abdominal m.:

- Support abdominal viscera and protect it.
- Flexion and rotation vertebral column.
- Aid in expiration, micturition, defecation, vomiting, parturition.

Muscles of posterior abdominal wall:

1. Psoas major muscle.
2. Psoas minor muscle.
3. Iliacus muscle.

Post-exam:
1. Enumerate posterior abdominal wall.

<table>
<thead>
<tr>
<th>Pre-exam</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Deep group of chest wall are:</td>
<td>Muscles of posterior abdominal wall:</td>
</tr>
<tr>
<td>a. Intercostal muscle.</td>
<td>1. Psoas major muscle.</td>
</tr>
<tr>
<td></td>
<td>3. Iliacus muscle.</td>
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المصادر:

2. مبادئ علم التشريح لطلبة معاهد المهن الصحية
   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983
4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (25): Muscles of the back & gluteal region:
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Muscle of the back.

Aims:
Student should be able to know about:
1. Layers of muscle of the back.
2. Name of the muscle of gluteal region

Pre-exam:
1. Enumerate layers of back muscle.

Muscle of the back:
1. Superficial groups.
2. Intermediate group.
3. Deep group.
Superficial group muscle:

1. Trapezius.
2. Latissimus Dorsi.
3. Teres Major.
4. Teres Minor.
5. Levator Scapulae.
6. Rhomboid Major.
7. Rhomboid Minor.
Intermediate group muscle:

1. Serratus Posterior Superior
2. Serratus Posterior Inferior
Muscles Of The Gluteal Region:

- The muscles of the gluteal region are responsible for:
  - Extension.
  - Abduction.
  - Lateral rotation.
  - Slight medial rotation of the hip joint.

Starting from superficial and going deep identify the following muscles:

1. Gluteus maximus.
2. Gluteus medius.
4. Piriformis muscle.
- **Gluteus maximus**: the largest and most superficial muscle in the gluteal region.

- **Gluteus medius**: is a broad, thick, muscle which is covered by the Gluteus maximus.

- **Gluteus minimus**: the smallest of the Glutei, is placed immediately beneath the Gluteus medius.
**Piriformis muscle:** is a flat muscle, pyramidal in shape, lying almost parallel with the posterior margin of the gluteus medius.

**Sciatic nerve:**
- It is the longest and widest single nerve in the human body.
- It begins in the lower back and runs through the buttock and down the lower limb on the posterior aspect.

**Sciatic nerve and intra muscular injection:**

- Intramuscular injections are usually given in gluteus maximus
- Sciatic nerve passes midway between greater trochanter and ischial tuberosity
- To avoid injury to sciatic nerve, injection should be given in upper outer quadrant
Post-exam:
1. Enumerate muscle of gluteal region from superficial to deep layer.

Keys answers of exams

<table>
<thead>
<tr>
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<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscle of the back:</td>
<td>Starting from superficial and going deep identify the following muscles:</td>
</tr>
<tr>
<td>2. Intermediate group.</td>
<td>2. Gluteus medius.</td>
</tr>
<tr>
<td></td>
<td>4. Piriformis muscle .</td>
</tr>
</tbody>
</table>

المصادر:
2. مبادئ علم التشريح لطلبة معاهد المهن الصحية
   الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة /1983
4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (26): Anatomy of the digestive system
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1 anatomy of the organs of digestive system.

Aims:
Student should be able to know about:
1. Description of all true digestive organ.
2. Description of accessory digestive organs.

Pre-exam:
1. Enumerate organs of digestive organs.

Anatomy of the Digestive system (Gastrointestinal tract):
- It is a long muscular tube.
- about (9–10 meters).
- Irregular in shape.
- Beginning at the mouth, where food is taken in,
- Terminating at the anus, where the solid waste products of digestion are expelled from the body

The digestive system Composed of two separate types of organs:

1. Digestive organs

2. Accessory digestive organs, that assist in the digestive process.
- This accessories some of them for the mouth and the other is for intestine.
Parts of the digestive system:

1. Oral cavity
2. Pharynges
3. Esophagus
4. Stomach
5. Small intestine
6. Large intestine
7. Anus

Accessories of the digestive system:

- For the mouth:
  1. Salivary gland
  2. Teeth
  3. Tongue

- For the intestine:
  1. Liver
  2. Pancreas
  3. Gallbladder
Mouth cavity:

- consist of 2 part:
  1. vestibule (between teeth and inner surface of cheek and lips).
  2. mouth cavity proper (located between teeth and pharynx posteriorly).
- It is the entrance of the digestive system.
- Bounded anteriorly by the teeth and lips and posteriorly by the Oropharynx.
- Superior boundary is formed by the hard and soft palates.
- Floor, or inferior surface, contains the tongue as well as the mylohyoid muscle covered with mucosa.

Palate

- Anterior two-thirds of the palate is hard and bony (called the hard palate).
- Posterior one-third is soft and muscular (called the soft palate).
  - Extending inferiorly from posterior part of the soft palate is the uvula.
  - When swallowing, the soft palate and the uvula elevate to close off the opening of the nasopharynx.

Tongue:

- An accessory digestive organ.
- It is muscular organ consist of voluntary m. covered by mucus membrane
It has 2 surface superior and inferior

Function:
- Aid in Chewing
- Swallowing
- Speech
- Tasting

Teeth:
- It is a bony part grow on both jaw.
- It appear in to 2 stages:
  - 1st stage temporary teeth
  - 2nd stage permanent teeth

Salivary gland:
- It is considered accessory of the mouth.
- It secrete saliva which has important role in the digestion.
- This glands located around mouth cavity and their duct open in it.

Types of the salivary glands:
- Parotid
- Submandibular
- Sublingual
The Parotid Glands

- Largest salivary glands.
- Each parotid gland is located anterior and inferior to the ear.

The Submandibular Glands

- Inferior to the body of the mandible.
- A duct opens from each gland in the floor of the mouth.

The Sublingual Glands

- Inferior to the tongue and internal to the oral cavity mucosa.
- Open onto the inferior surface of the oral cavity, posterior to the submandibular duct papilla.

Pharynx:

- It is a muscular tube located posterior to the nose, mouth, larynx.
- The length 13 cm.
- Continue with beginning of esophagus.
- For anatomical purpose it divided into 3 parts:
1. **Nasopharynx**  
   (Eustachian tube).

2. **Oropharynx**  
   (tonsil).

3. **Laryngopharynx**

**Esophagus:**

- It is muscular tube lined by mucus membrane.
- It extend from end of pharynx to cardiac orifice of stomach.
- The length 25cm.
- It is the narrowest region of alimentary tract except vermiform appendix.
- Posterior to the trachea.
- Anterior to the vertebral column.
- It has 2 Sphincters
  
  1. **Upper Esophageal Sphincter:** between pharynx & oesophagus.
  2. **Lower Esophageal Sphincter:** between the esophagus and stomach

- It consist of 3 parts:
  
  1. Cervical part
  2. Thoracic part
  3. Abdominal part.
Post-exam:
1. Enumerate the accessory digestive organs.

**Keys answers of exams**

<table>
<thead>
<tr>
<th>Pre-exam</th>
<th>Post-exam</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parts of the digestive system:</strong></td>
<td><strong>Accessories of the digestive system:</strong></td>
</tr>
<tr>
<td>1. Oral cavity</td>
<td>✤ For the mouth:</td>
</tr>
<tr>
<td>2. Pharynges</td>
<td>1. Salivary gland</td>
</tr>
<tr>
<td>3. Esophagus</td>
<td>2. Teeth</td>
</tr>
<tr>
<td>4. Stomach</td>
<td>3. Tongue</td>
</tr>
<tr>
<td>5. Small intestine</td>
<td>✤ For the intestine:</td>
</tr>
<tr>
<td>6. Large intestine</td>
<td>1. Liver</td>
</tr>
<tr>
<td>7. Anus</td>
<td>2. Pancreas</td>
</tr>
<tr>
<td></td>
<td>3. Gallbladder</td>
</tr>
</tbody>
</table>

المصادر:

4. Wikipedia, From Wikipedia, the free encyclopedia
Anatomy of cardiovascular system
Title of lecture (27): Anatomy of the cardio-vascular system
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Anatomy of organs of cardio vascular system.

Aims:
Student should be able to know about:
1. Description of heart.
2. Description and name of great vessels.

Pre-exam:
1. Enumerate major veins.

Anatomy of cardiovascular system:
Cardiovascular system consist of:
1. Heart.
2. Blood vessels.

Heart
- The heart is a muscular organ weighing between 250-350 grams.
- Located obliquely in the mediastinum.
- Functions as:
  1. A pump supplying blood to the body and accepting it.
  2. Also pump to the pulmonary circulation for gas exchange.
- The heart contains 4 chambers:
  - In each side 2 chamber (atrium and ventricle).
- **Left side** chambers supply the **systemic circulation**.

- **Right side** chambers supply the **pulmonary circulation**.

- Chambers of each side are separated by an **atrioventricular valve**.

- **Left-sided** chambers are separated by the **mitral (bicuspid) valve**.

- **Right-sided** chambers are divided by the **tricuspid valve**.

- Blood flows through the heart **in only one direction**, regulates opening and closure of valves.
Heart layers:

1. **Epicardium.**

2. **Myocardium.**

3. **Endocardium.**

Covering of the heart:

- **Pericardium:**
  - double walled sac around the heart.
  - *Superficial fibrous layer (parietal).*
  - *Deep layer serous layer (visceral).*

Blood vessels may be classified into 3 groups:
1. **Arteries**: carry blood from the ventricles (pumping chambers) of the heart out to the capillaries in organs and tissue.

- The smallest arteries are called **arterioles**.

2. **Veins**: drain blood from the tissues & organs and return blood to the heart.

- The smallest veins are the **venules**.

3. **Capillaries**: allow for exchanges between the blood and body cells, or between the blood and air in the lung tissues.

- The **capillaries** connect the **arterioles** and **venules**.

---

**Diagram:**

Ventricle of the heart → arteries → arterioles ↓

↑ Atrium of the heart ← Veins ← Venules ← capillaries

( in organs & tissues)
Major vessels of the heart

Veins: → to the heart

1. Superior vena cava.
2. Inferior vena cava.
3. R. Pulmonary vein.
4. L. Pulmonary vein.

Arteries: ← away from the heart.

1. Pulmonary trunk:
   - R. Pulmonary artery
   - L. Pulmonary artery.

2. Ascending aorta:
   - Brachiocephalic.
   - Left common carotid.
   - Subclavian artery.
Differences between arteries and veins:

<table>
<thead>
<tr>
<th>Types of vessels</th>
<th>arteries</th>
<th>veins</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Direction of flow</td>
<td>Away From the heart</td>
<td>To the heart</td>
</tr>
<tr>
<td>2. Pressure</td>
<td>Higher</td>
<td>Lower</td>
</tr>
<tr>
<td>3. Wall</td>
<td>Thicker</td>
<td>Thinner</td>
</tr>
<tr>
<td>4. Lumen</td>
<td>Smaller</td>
<td>Larger</td>
</tr>
<tr>
<td>5. Valves</td>
<td>No valves</td>
<td>Valves</td>
</tr>
</tbody>
</table>
Post-exam:

1. Enumerate layers and covering of the heart.

<table>
<thead>
<tr>
<th>Major veins of the heart</th>
<th>Heart layers:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veins: → to the heart</td>
<td>1. Epicardium.</td>
</tr>
<tr>
<td>2. inferior vena cava.</td>
<td>3. Endocardium.</td>
</tr>
<tr>
<td>3. R. Pulmonary vein.</td>
<td>Covering of the heart:</td>
</tr>
<tr>
<td>4. L. pulmonary vein.</td>
<td>❖ Pericardium:</td>
</tr>
</tbody>
</table>

- double walled sac around the heart.
  - Superficial fibrous layer (parietal).
  - Deep layer serous layer (visceral).

المصادر:


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (28 ): Respiratory system
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Anatomy of upper respiratory system.
2. 1. Anatomy of lower respiratory system

Aims:
Student should be able to know about:
1. Description of upper respiratory organs.
2. Description of lower respiratory organs

Pre-exam:
1. Enumerate parts of pharynx.

Anatomy of Respiratory System

Consists of:
1. an upper respiratory tract (nose to larynx).
2. a lower respiratory tract (trachea onwards).

Other classification:
1. Conducting portion( transports air).

   includes the nose, nasal cavity, pharynx, larynx, trachea, and from the primary bronchi to the terminal bronchioles.
2. Respiratory portion( carries out gas exchange).

   composed of respiratory bronchioles and alveolar ducts as well as alveoli
Pharynx

- Common space used by both the respiratory and digestive systems.
- Commonly called the throat.
- Posterior to the nasal and oral cavities.
- Consist of:
  1. Nasopharynx.
  2. Oropharynx.
  3. Laryngopharynx
Lower respiratory tract:

- Conducting airways (trachea, bronchi, up to terminal bronchioles).
- Respiratory portion of the respiratory system (respiratory bronchioles, alveolar ducts, and alveoli).

**Larynx:**
- **Voice box** is a short, somewhat cylindrical airway ends in the trachea.
- Prevents swallowed materials from entering the lower respiratory tract.
- Conducts air into the lower respiratory tract.
- Produces sounds.
Trachea:

- a tube about 4 inches long and less than an inch in diameter.
- The trachea begins just under the larynx and runs down behind the sternum.
- The trachea is composed of about 20 rings of tough cartilage.

- The back part of each ring is made of muscle and connective tissue.

- The trachea widens and lengthens slightly with each breath in, returning to its resting size with each breath out.

- The trachea then divides in the upper part of the thoracic cavity into two smaller tubes called **primary bronchi**.

- one bronchus for each lung (left and right bronchus).

- The right primary bronchus is wider, shorter, and more vertical than the left primary bronchus.

- Each primary bronchus divides into a **secondary or lobar bronchus** that enters the individual lobes of the lung.
• The right lung has three secondary bronchi.
• The left lung has two.
• Within each lobe, the secondary bronchi divide into *tertiary or segmental bronchi*
• that provide air to specific segments of the lobe.
• These are called *bronchopulmonary segments*.
• There are generally 10 bronchopulmonary segments in each lung.
• These bronchi subsequently branch into smaller and smaller airways
• get down to the *alveoli*, where gaseous exchange happens.
Post-exam:
1. describe the division of trachea.

### Keys answers of exams

<table>
<thead>
<tr>
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2. مبادئ علم التشريح لطلبة معاهد المهن الصحية
الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (29): The Uri-genital system
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Anatomy of urinary system.
2. Anatomy of male genital system.
3. Anatomy of female genital system.

Aims:
Student should be able to know about:
1. Description of urinary organs.
2. Description of male genital system.
3. Description of female genital system

Pre-exam:
1. Enumerate organs of urinary system.

Anatomy of the Uri-genital system:
❖ The urinary system is also called the excretory system of the body.

❖ Functions: remove waste products from blood and eliminate them from body.

❖ The urinary system consists of:

✓ 2 kidney

✓ 2 ureters

✓ urinary bladder

✓ urethra

The kidney

❖ Located in the posterior wall of the abdominal region.
✓ one in each side of the vertebral column.

✓ They usually span between T12 to L3.

✓ They are protected partially by the last pair of ribs.

✓ And capped by the adrenal gland.

✓ Reddish brown, bean shaped organ.

✓ Medially concave and laterally convex.

✓ On the medial concave border is the **hilus** (small indented area).

✓ Where blood vessels, nerves & ureters enter and leave the kidney.

**Internal Anatomy of the kidney**

Formed from 3 regions from inside out called:

1. **Pelvis**

2. **medulla**

3. **cortex**

✓ The **Renal pelvis** is the large collecting space within the kidney formed from the expanded upper portion of the ureters.

✓ The **Renal medulla** is the middle portion of the kidney.
- The **Renal cortex** is the *outermost portion* of the kidney.

Ureters
- A tube attached to each kidney.
- Transport urine from the *renal pelvis* to the *urinary bladder*.
- It is narrow at the kidney and widen near the bladder.

Urinary bladder
- Urinary bladder is a hollow, muscular organ that collects urine from the ureters and store until it is excreted.
- It usually accumulates 300 to 400 ml. of urine. It is located on the floor of the pelvic cavity.
In males it is anterior to the rectum and above the prostate gland.

In females, it is located lower, anterior to the uterus and upper vagina.

The triangular area, between the openings of the ureters and the urethra, is called the **trigone**.

**Urethra**

- Urethra is a tube of smooth muscle lined with mucosal layer.
- It joins the bladder at its inferior surface and transport urine outside the body during urination.
- It is 4 cm in female and 12 cm in length in male.
- In male it pass through prostate, and open at the tip of penis.

**Reproductive system:**

In male it include the following:
- external genial organs: include(**penis**)
internal genital organs: include : (testes; vas deference ; seminal vesicle; prostate )

**In female** it include the following:

- external genital organ : only (vulva)

- internal genital organ : include (ovaries; fallopian tubes; uterus; vagina)

- secondary sex organ : include (breast and mammary glands)

### Uterus and its relation:

**Definition:**
- One of the internal organs of female reproductive system
- Pear shaped thick wall muscular organ measure 8cm long, 5cm wide, 2.5cm thickness.

**Position:**
- In the pelvic cavity, between urinary bladder and rectum.
- Anterior surface rests on the urinary bladder.
- Posteriorly : the rectum and anal canal.
- Superiorly : loops of intestine
- Inferiorly : the vagina
- Laterally : the uterine tubes and ovaries
Parts of the uterus & female genital organ:
1. **Fundus**: dome shaped part
2. **Body**: main part. Narrowest inferiorly at the internal os where it continues with cervix
3. **Cervix**: protrudes through the anterior wall of the vagina, opening into it at the external os.
4. **Vagina**: muscular canal connects the uterus to the outside world.
5. **vulva and labia**: form the entrance.

Parts of the male genital organ:
1. **The prostate**: is a walnut-sized gland located between the bladder and the penis. The prostate is just in front of the rectum.
2. **The urethra**: runs through the center of the prostate, from the bladder to the penis, letting urine flow out of the body.
3. **The vas deferens**: bring sperm from the testes to the seminal vesicles. The **seminal vesicles**: contribute fluid to semen during **Ejaculation**.
Post-exam:
1. Enumerate female genital organs
The urinary system consists of:

1. kidney
2. ureters
3. urinary bladder
4. urethra

Parts of the uterus & female genital organ:

1. Fundus: dome shaped part
2. Body: main part. Narrowest inferiorly at the internal os where it continues with cervix
3. Cervix: protrudes through the anterior wall of the vagina, opening into it at the external os.
4. Vagina: muscular canal connects the uterus to the outside world.
5. vulva and labia: form the entrance.

المصادر:


2. مبادئ علم التشريح لطلبة معاهد المهن الصحية الدكتور عبد الرحمن محمود الرحيم / وزارة الصحة 1983.


4. Wikipedia, From Wikipedia, the free encyclopedia
Title of lecture (30) : The central nervous system
Target group: 1st class of Nursing Department Technical Institute in Mosul.
Subject: Anatomy.

Central idea:
1. Anatomy of central nervous system.
2. Anatomy of peripheral nervous system.

Aims:
Student should be able to know about:
1. Parts of central nervous system.
2. Parts of peripheral nervous system.

Pre-exam:
1. Enumerate parts of C.N.S.

Nervous system:
The master system of the body, divided in to :

1. Central nervous system (brain and spinal cord).
2. Peripheral nervous system (sympathetic and parasympathetic).

Cerebral tissue:
Is consist from :
1. The external called cerebral cortex also called gray matter consist of nerve cell.
2. The internal called white matter consist of nerve axons.

Meninges:
- Membranes covered brain and spinal cord.
- 3 layers of protective tissue.
1. **Dura mater** (tough mother):
   - A tough membrane protect the brain and spinal cord from the skull.

2. **Arachnoid mater** (spider web):
   - Middle meningeal membrane.
   - Contain space for the store and circulation of (C.S.F.) .

3. **Pia mater** (Faithful mother):
   - The innermost meningeal membrane.
   - Directly cover the surface of the brain.

**Central nervous system:**
- The central nervous system (**C.N.S**) response for all the voluntary movement of the body.
- consist from:

  1. **Brain**
  2. **Spinal cord**

**major parts of brain:**

1. **Cerebrum**
2. **Diencephalon.**
   a. Thalamus
   b. Hypothalamus
3. **Brain stem.**
   a) Midbrain.
   b) Pons.
   c) Medulla oblongata.
4. **Cerebellum**
1. **The cerebrum (forebrain):**
   - It is the largest part of the brain.
   - Occupy most of the cranial cavity.
   - Consist of two hemisphere called( cerebral hemisphere).
   - Each hemisphere occupy anterior and middle cranial fosse.
   - These hemisphere connected by a bundle of nerve fibers called corpus callosum.
   - Each hemisphere divided in to 4 lobes:
     1. frontal
     2. parietal
     3. temporal
     4. occipital.
Fissures of: cerebrum

Longitudinal fissure .
Transverse fissure : between cerebrum and cerebellum.

2. Diencephalon : between cerebral hemisphere , above brain stem.
   include:
   ❖ Thalamus : station for sensory impulse.
   ❖ Hypothalamus : regulate visceral activity (nervous ↔ endocrine system).

3. Cerebellum:
   ❖ It occupy posterior cranial fosse, inferior to the cerebrum.
   ❖ Posterior to brain stem.
   ❖ It consist of two cerebellar hemisphere
4. **Brain stem:**

- Connect the cerebrum to spinal cord.
- Consist of 3 parts

1. **midbrain**: join spinal cord to higher region in brain.
2. **Pons**: rounded plugging in underside of brain stem.
   - Between mid brain and medulla oblongata.
3. **medulla oblongata**: enlarge continuation of spinal cord.
Brain ventricle:

- Communicating cavities within the brain filled with fluid.
- It is continuous with the central canal of the spinal cord.
- These are four ventricles:
  - 2 lateral ventricles (right and left).
  - The third ventricle,
  - The fourth ventricle.

- The lateral ventricles are in the cerebral hemispheres.
- The lateral ventricles communicate with the third ventricle through the interventricular foramen (opening).
- The third ventricle is a median (midline) cavity in the brain, bounded by the thalamus and hypothalamus on either side.
In front, the third ventricle communicates with the lateral ventricles.

In back, third ventricle communicates with the aqueduct of the midbrain.

The fourth ventricle is the most inferior of the four ventricles of the brain.

The fourth ventricle extends from the aqueduct of the midbrain to the central canal of the upper end of the spinal cord.

The ventricles are filled with cerebrospinal fluid (CSF).

Spinal cord:

- Conduct nervous impulse from brain and brain stem to peripheral nervous system.
- Located in the spinal canal of the vertebral column.
- 17 – 18 inches long
- Extends from foramen magnum to lower border of 1st lumbar vertebrae
- Subdivided into cervical, thoracic, lumbar, sacral regions.
Peripheral nervous system (PNS):

Carries messages to and from the spinal cord and brain

- Paired spinal nerves.
  - Autonomic part
  - Somatic part
- Paired cranial nerves.
  - Autonomic part.
  - Somatic part.
Post-exam:
1. Enumerate lobes of cerebral hemisphere.

Keys answers of exams

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<td>2. Spinal cord</td>
<td>2. parietal</td>
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<tr>
<td>major parts of brain:</td>
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المصادر:


2. مبادئ علم التشريح لطلبة معاهد المهن الصحية
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هيئة التعليم التقني
المعهد التقني/ الموصل
قسم التمريض

الحقيقة التعليمية
التشريح

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