

الجامعة



# PAST PAPERS 022

SUBJECT NAME

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# Physiology

A 10-year-old patient presents with decreased immunoglobulins and abnormal acute or delayed skin sensitivity reactions. What is most likely affected?

- A) Plasma cells
- B) Cytotoxic T cells
- C) Helper T cells
- D) B cells

Answer: **C**

Which of the following statements about hemolytic disease of the newborn (HDN) is correct?

- A) We give Rh+ antigens to the mother before and after delivery to prevent a reaction in pregnancy.
- B) Agglutination in an Rh+ fetus occurs when anti-Rh antibodies cross the placenta after a previous pregnancy with an Rh+ fetus.
- C) We prevent it by giving Rh+ blood transfusions to the mother.
- D) It occurs when an Rh+ mother is pregnant with an Rh- fetus.

Answer : **B**

If a baby is injected with a strong antigen during the third trimester to 6 months after birth, what is most likely to happen?

- A) Specific clones of both T and B lymphocytes will recognize the antigen and reside in a lymphoid organ
- B) Hypersensitivity reaction will develop
- C) Specific clones of T lymphocytes will recognize the antigen and reside in a lymphoid organ
- D) No specific clones will recognize the antigen
- E) Specific clones of B lymphocytes will recognize the antigen and reside in a lymphoid organ

Answer : **D**

Which of the following is most likely to cause an immediate transfusion reaction?

- A) O Rh-negative whole blood to an O Rh-positive patient
- B) AB Rh-negative packed cells to an AB Rh-positive patient
- C) O Rh-negative whole blood to a B Rh-positive patient
- D) AB Rh-negative packed cells to a B Rh-negative patient

Answer: **D**

# Pathology

1) Eosinophilia appears in :

- A) Bacterial infections
- B) Fungal
- C) Helminth
- D) Viral

Answer: C

What's right about von Willebrand (vWB) disease?

- A) It is inherited in an autosomal recessive pattern.
- B) It is caused by a deficiency in vitamin K.
- C) It is inherited in an autosomal dominant pattern.
- D) It primarily affects red blood cell production.

answer: C

All of the following are essential in thrombocytopenia, except:

- A) Bone marrow fibrosis
- B) Elevated platelet count
- C) Megakaryocyte proliferation
- D) Presence of JAK2 mutations

answer: A

Which mutation causes hairy cell leukemia?

- A) JAK2
- B) BRAF
- C) TP53
- D) KRAS

answer: B

All of the following are causes of parafollicular hyperplasia EXCEPT:

- A) Rheumatologic disease
- B) Medullary thyroid carcinoma
- C) HIV infection
- D) Hypercalcemia

Answer: A

**Which of the following is associated with HLH?**

- A) Rheumatoid arthritis
- B) T cell lymphoma
- C) Systemic lupus erythematosus (SLE)
- D) Chronic lymphocytic leukemia (CLL)
- E) Asthma

answer: B

**Which of the following statements about Hodgkin lymphoma is incorrect?**

- A) It may be linked to EBV infection
- B) It is commonly seen in children
- C) It is characterized by low numbers of malignant cells
- D) The disease course is predictable
- E) The cells resemble normal lymphocytes

Answer: E

**Which of the following conditions is linked to IDH mutations?**

- A) Chronic lymphocytic leukemia
- B) Marginal zone lymphoma of the spleen
- C) Glioblastoma
- D) Acute myeloid leukemia

Answer: D

**Which of the following conditions is characterized by a deficiency in ADAMTS13?**

- A) Immune thrombocytopenic purpura
- B) Thrombotic thrombocytopenic purpura
- C) Hemolytic uremic syndrome
- D) Christmas disease
- E) Disseminated intravascular coagulation

Answer: B

**Which of the following is not typically seen in Myelodysplastic syndrome?**

- A) Hypercellular bone marrow
- B) Polycythemia
- C) Small megakaryocytes
- D) Hyposegmented neutrophils
- E) A slightly elevated number of myeloblasts

Answer: B



# Pharmacology

Which stage of ALL treatment is most likely to cause severe tumor lysis syndrome?

- A) Induction
- B) Maintenance
- C) CNS prophylaxis
- D) Intensification
- E) Consolidation

Answer: A

Which of the following is not a reason for choosing enoxaparin over heparin?

- A) Reduced need for frequent blood tests
- B) More consistent therapeutic effect
- C) Lower chance of developing thrombocytopenia
- D) Greater efficacy in anticoagulation
- E) Decreased risk of osteoporosis

Answer: D

A patient on warfarin with an HIV infection experiences severe bleeding. Which of the following medications should be considered?

- A) Zidovudine
- B) Saquinavir
- C) Oseltamivir
- D) Nevirapine
- E) Baloxavir marboxil

Answer: B

Which of the following drugs is initially phosphorylated by virally encoded thymidine kinase?

- A) Acyclovir
- B) Ganciclovir
- C) Valacyclovir
- D) Fanciclovir
- E) Lamivudine

Answer: A



**Which of the following statements is correct?**

- A) Intermittent phlebotomy can be used to treat acute iron toxicity**
- B) Folate can mask the neurological symptoms of B12 deficiency**
- C) Iron absorption is inefficient in humans**
- D) Non-heme iron in plant foods is absorbed without alteration**
- E) Vitamin C enhances the absorption of non-heme iron**

Answer: C

**Which of the following genetic variations may influence the effectiveness of warfarin in the Jordanian population?**

- A) VKOR**
- B) CYP2C9**
- C) CYP3A5**
- D) CYP2C19**
- E) CYP3A4**

Answer: A

**Why are antiplatelet drugs sometimes given after thrombolytic therapy?**

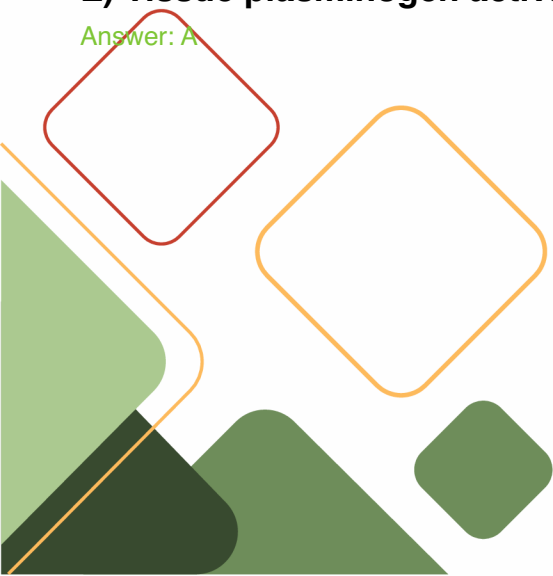
- A) When a thrombus dissolves, platelet aggregation increases**
- B) When a thrombus dissolves, hypotension may occur**
- C) When a thrombus dissolves, reperfusion arrhythmias can happen**
- D) When a thrombus dissolves, antibodies may be formed against Streptokinase**
- E) When a thrombus dissolves, local thrombin levels decrease**

Answer: A

**A patient presents to the Emergency Room with a stroke. Which of the following treatments should be administered?**

- A) Alteplase**
- B) Aspirin**
- C) Clopidogrel**
- D) Heparin**
- E) Tissue plasminogen activator (tPA)**

Answer: A



**Why is warfarin often combined with heparin during the initial phase of treatment?**

- A) Due to the delayed onset of action of warfarin**
- B) Because warfarin has a short half-life**
- C) Because heparin has a delayed onset of action**
- D) Due to the long half-life of protein C**
- E) Because thrombin has a short half-life**

Answer: A

**Which of the following medications is recommended for a patient undergoing coronary stenting within 2 hours?**

- A) Clopidogrel**
- B) Prasugrel**
- C) Cangrelor**
- D) Ticlopidine**
- E) Ticagrelor**

Answer: C

**Which of the following drug and side effect pairings are accurate?**

- A) Zidovudine – rash**
- B) Nevirapine – bone marrow suppression**
- C) Foscarnet – bone marrow suppression**
- D) None of the above**

Answer: D

**Side effect of Asparaginase:**

- A) Hypoglycemia**
- B) Hyperglycemia**
- C) Nausea**
- D) Hypotension**

Answer: B

**Which drug has great clinical value for preventing relapses of *P. vivax* or *P. ovale* malaria?**

- A) Chloroquine**
- B) Artemisinin**
- C) Primaquine**
- D) Mefloquine**

answer: C



A patient with chronic myelogenous leukemia (CML) who was initially treated with Imatinib becomes unresponsive to therapy. Genetic testing reveals a T315I mutation. Which of the following drugs is most suitable for this patient?

- A) Ponatinib
- B) Dasatinib
- C) Nilotinib
- D) Cytosine arabinoside
- E) Daunorubicin or doxorubicin

Answer: A

## Microbiology

The primary causative agent of human babesiosis world wide is babesia microti . What is the vector for transmission?

- A) Ixodes Scapularis
- B) Ixodes pacificus
- C) Ixodes dentatus
- D) Triatomine bugs

answer: A

Which developmental stage of leishmania is the infective stage ?

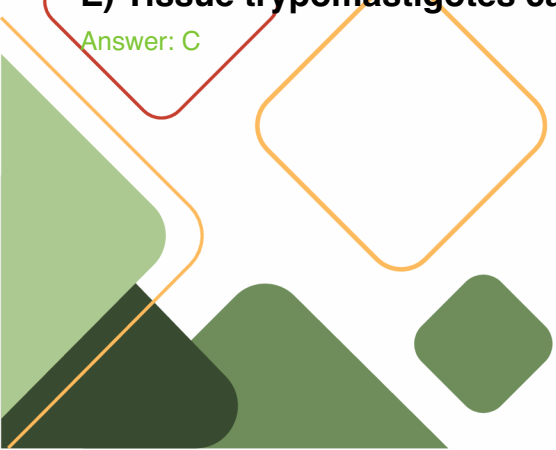
- A) amastigot
- B) promastigot
- C) epimastigot
- D) metacyclic trypanomastigot

answer: B

Which of the following statements about *Trypanosoma cruzi* is most accurate?

- A) Chloroquine is used to treat acute trypanosomiasis
- B) The primary reservoir is humans
- C) The vector is the Reduviid bug (also known as the kissing bug)
- D) The primary damage is caused by the parasite attacking skeletal muscles
- E) Tissue trypomastigotes can be found in muscle biopsy samples

Answer: C





Which of the following *Plasmodium* species has the highest relapse rate?

- A) *Plasmodium vivax*
- B) *Plasmodium ovale*
- C) *Plasmodium falciparum*
- D) *Plasmodium malariae*
- E) *Plasmodium knowlesi*

Answer: A

Which of the following statements about the EBV virus is incorrect?

- A) It is primarily transmitted through saliva
- B) Agglutination occurs when patient plasma is mixed with sheep blood
- C) It remains latent in T cells
- D) The VCA IgM marker can be used to identify early infections
- E) It shares structural and morphological similarities with other herpesviruses

Answer: C

Which of the following represents the infective stage of *Plasmodium*?

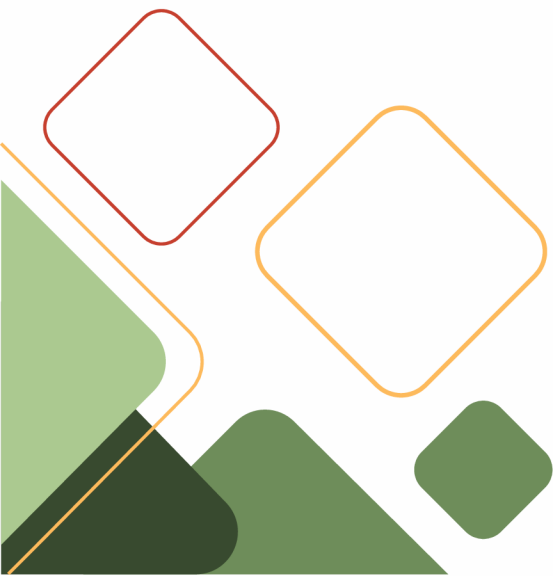
- A) Schizonts
- B) Ring form
- C) Sporozoites
- D) Gametocytes
- E) Trophozoites

Answer: C

Which of the following conditions is NOT caused by Parvovirus B19?

- A) Erythema infectiosum
- B) Pure red-cell aplasia
- C) Hydrops fetalis
- D) Transient aplastic crisis
- E) Infectious mononucleosis

Answer: E



# Histology

Review the following statements and answer the question based on them:

1. IgA is transported to the lumen to neutralize antigens.
2. Dendritic cells capture antigens and present the processed antigen to T helper cells.
3. Antigens bind to M cells and are transported into the intraepithelial pocket.
4. T helper cells activate B lymphocytes to produce IgA.

What is the correct sequence of M cell function in immune response?

- A) 3, 2, 4, 1
- B) 2, 3, 4, 1
- C) 4, 3, 2, 1
- D) 1, 3, 2, 4

Answer: A

Where are T lymphocytes primarily found in the spleen?

- A) Marginal zone
- B) Periarterial lymphoid sheaths (PALS)
- C) White pulp
- D) Red pulp
- E) Follicular areas

Answer: B

Which of the following statements about the spleen is incorrect?

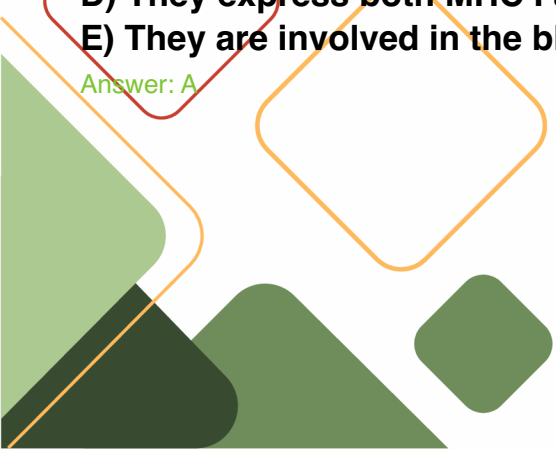
- A) Central arterioles branch into short, straight penicillar arterioles as they exit the white pulp
- B) Splenic cords (Billroth's cords) contain various cells located between the sinusoids in the red pulp
- C) Marginal zone sinuses are located between the white pulp and the red pulp
- D) Stave cells are joined by unique intercellular junctions

Answer: D

Which of the following statements about thymic epithelial cells is incorrect?

- A) They are linked by tight junctions between their processes
- B) They secrete hormones that support the maturation and differentiation of T cells
- C) They can present tissue-specific antigens
- D) They express both MHC I and MHC II
- E) They are involved in the blood-thymic barrier

Answer: A



# PBL

A 42-year-old female with a history of gastric bypass surgery 10 years ago presents with symptoms of fatigue on exertion, shortness of breath, mental sluggishness, and difficulty walking. Her family expresses concern about her increasing forgetfulness and possible depression. She has not been attending her follow-up appointments and is non-compliant with her medications. Which of the following is the most likely diagnosis?

- A) Vitamin B12 deficiency
- B) Iron deficiency
- C) Hypothyroidism
- D) Folic acid deficiency
- E) Depression

Answer: A

A 62-year-old retired engineer presents with a two-month history of exertional fatigue, shortness of breath, and recent changes in his bowel habits. He also suspects unintentional weight loss. He has been diagnosed with iron deficiency. What is the next appropriate step in his management?

- A) Colonoscopy
- B) Protein electrophoresis
- C) Upper gastrointestinal endoscopy
- D) CT scan of the abdomen
- E) Fecal occult blood test

Answer: A

A 12-year-old boy has been requiring regular blood transfusions since the age of 10 months, receiving one unit every 3 to 4 weeks. He also has a family history of similar issues. What is the most likely diagnosis?

- A) Hemophilia
- B) Sickle cell anemia
- C) Beta thalassemia
- D) Iron deficiency anemia
- E) Vitamin B12 deficiency

Answer: C

The bleeding time test involves applying a cuff to the patient's arm and making a standardized incision to a specific depth and length. Which of the following conditions can this test help diagnose?

- A) Hemophilia
- B) Von Willebrand disease
- C) Vitamin K deficiency
- D) Platelet dysfunction

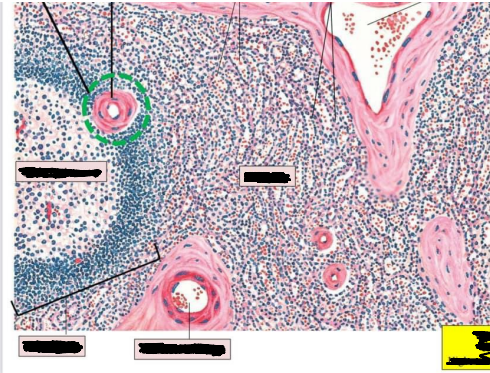
Answer: B

# Histo lab

Identify the organ from which this tissue section was taken:

- A) Lymph node
- B) Peyer's patches
- C) Thymus
- D) Spleen
- E) Palatine tonsils

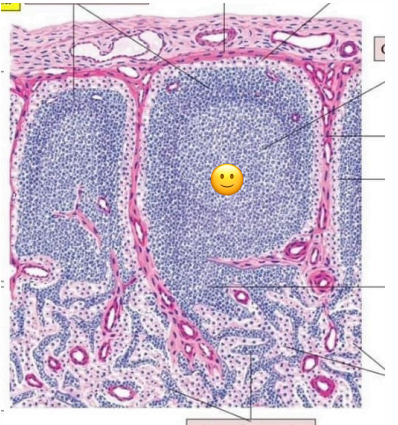
Answer: D



What type of cells are located in the structure marked with the smiley face?

- A) Plasma cells
- B) Activated B cells
- C) Inactive B cells
- D) T lymphocytes
- E) Macrophages

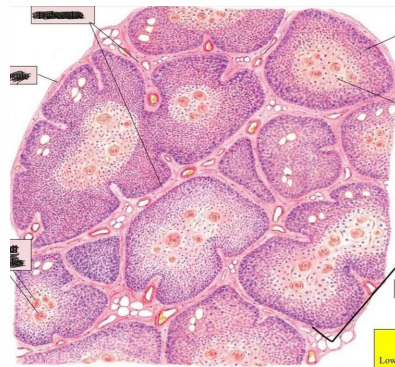
Answer: B



Identify the organ from which this tissue section is derived:

- A) Lymph node
- B) Thymus
- C) Peyer's patches
- D) Spleen
- E) Bone marrow

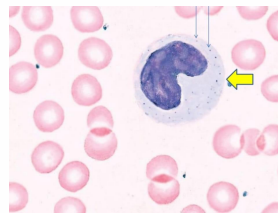
Answer: B



Which type of cell is present in the image on the right?

- A) Eosinophil
- B) Mast cell
- C) Monocyte
- D) Neutrophil

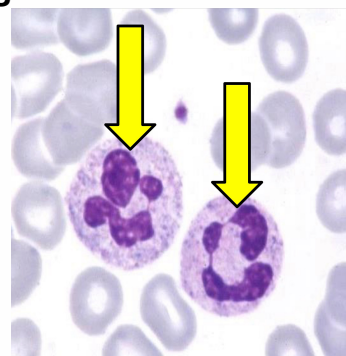
Answer: C



Which of the following cells can you see in the right image:

- A) Neutrophils
- B) eosinophil

Answer: A

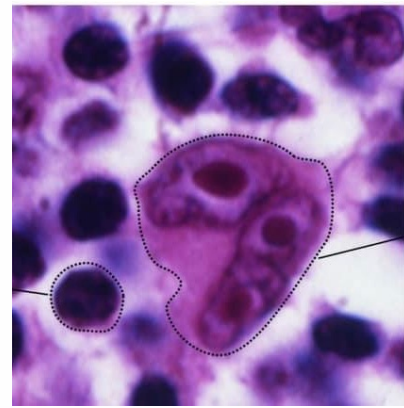


# Pathology lab

What is the marker that can be present on the cell in the right image:

- A) CD1a
- B) CD13
- C) CD1a
- D) CD30

Answer: D



Which of the following is not associated with the condition shown in the image?

- A) A mutation in the beta-globin chain
- B) Autosplenectomy
- C) Stroke

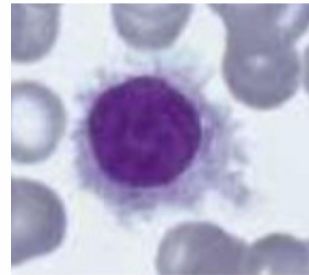
Answer: A



Which gene is altered in the cells shown in the image?

- A) Warburg metabolism
- B) BRAF mutation
- C) KRAS mutation
- D) TP53 mutation

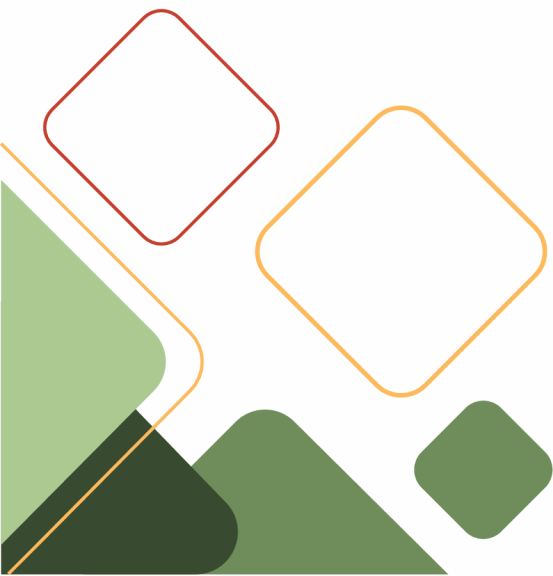
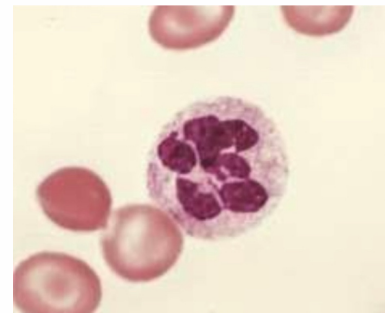
Answer: B



The following cell is associated with which condition?

- A) Iron deficiency anemia
- B) Macrocytic anemia
- C) Sickle cell disease
- D) Thalassemia

Answer: B



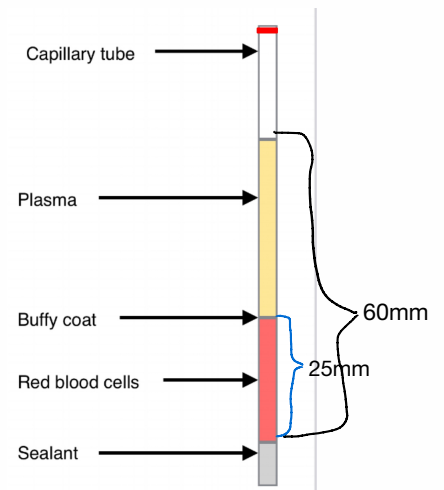


# Physiology lab

Calculate the PCV from the values in the right image:

- A) 60%
- B) 41.7%
- C) 49%
- D) 58%

Answer: B



We placed 3 drops of blood from a person on separate slides, adding anti-A to one, anti-B to another, and anti-Rh to the last. After waiting for agglutination and observing under a microscope with no reaction, what is the most likely blood type of this individual?

- A) AB-
- B) O-
- C) O+
- D) AB+
- E) B-

Answer: B

A sample of blood has a WBC count of 20000 with the following percentages: neutrophils 50%, monocytes: 10%, Eosinophils: 2%, Basophils: 2%. What is the absolute lymphocytes count:

- A) 7000
- B) 4400
- C) 7200
- D) 11000

Answer: c

An osmotic fragility test was performed on a blood sample. In normal blood samples, hemolysis begins at a 0.48% NaCl concentration. In our sample, hemolysis started at a 0.68% concentration. What is the most likely condition?

- A) Hereditary spherocytosis
- B) Thalassemia
- C) Iron deficiency anemia
- D) Thrombocytopenia

Answer: A

