KEY

1) Blood agar
2) Enriched media

Blood agar:

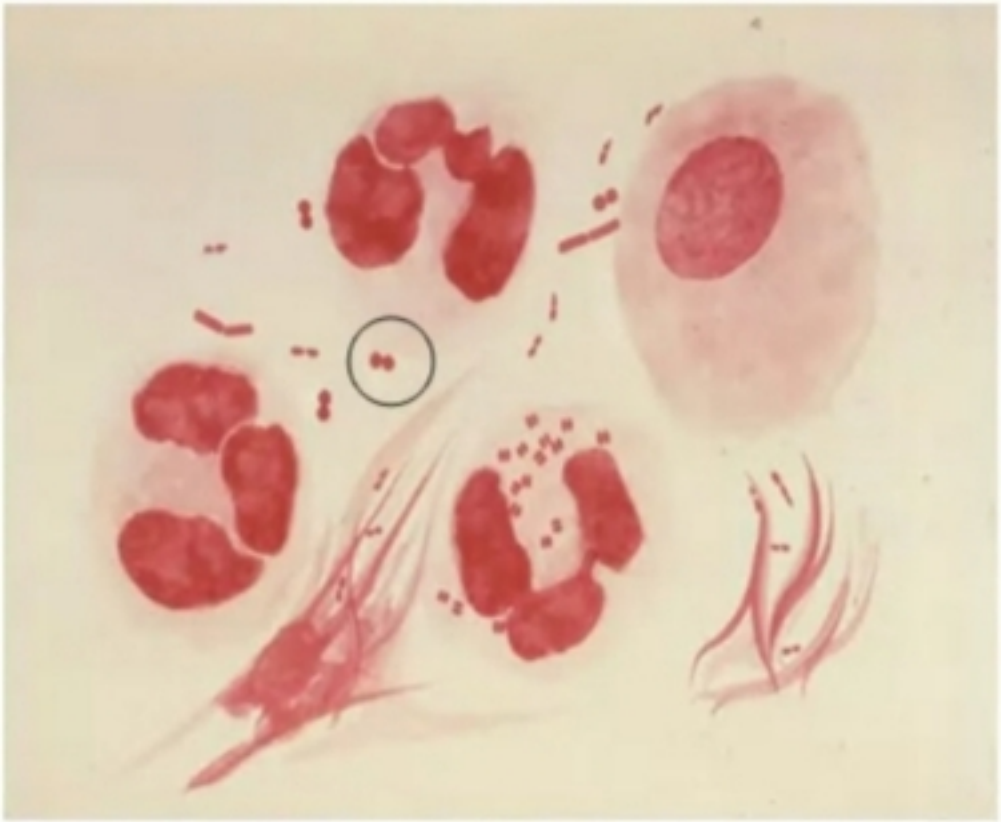
1) Identify the following media.
2) Is blood agar an example of enriched or enrichment media?

2. Name the selective media used for its culturing.
3. Name another diplococci.

KEY:

1. Neisseria gonorrhea
2. Thayer martin medium
3. Streptococcus pneumonia

bleeding. Gram stain of her discharge revealed the following organism. The organism showed Oxidase positivity.



Carefully examine the photograph and answer the following questions:

TASK:

1. Name the causative agent.
2. Name the selective media used for its culturing.
3. Name another diplococci.

KEY:

1. Zn staining technique.
2. Pink rods
3. Mycobacterium tuberculosis, Mycobacterium bovis

OBSERVERED STATION

Marks: 04 Time allowed: 04 minutes

For Candidate:

You are shown a preparation made from sputum of a patient suffering from cough and fever for last three months. Examine the following slide and answer the following questions:

1. Name the staining technique.
2. Give the findings.
3. Name two other organisms with same staining reaction.

1) Candida albicans
2) Sabourad's agar
3) Candidemia
4) Anti-fungal drugs

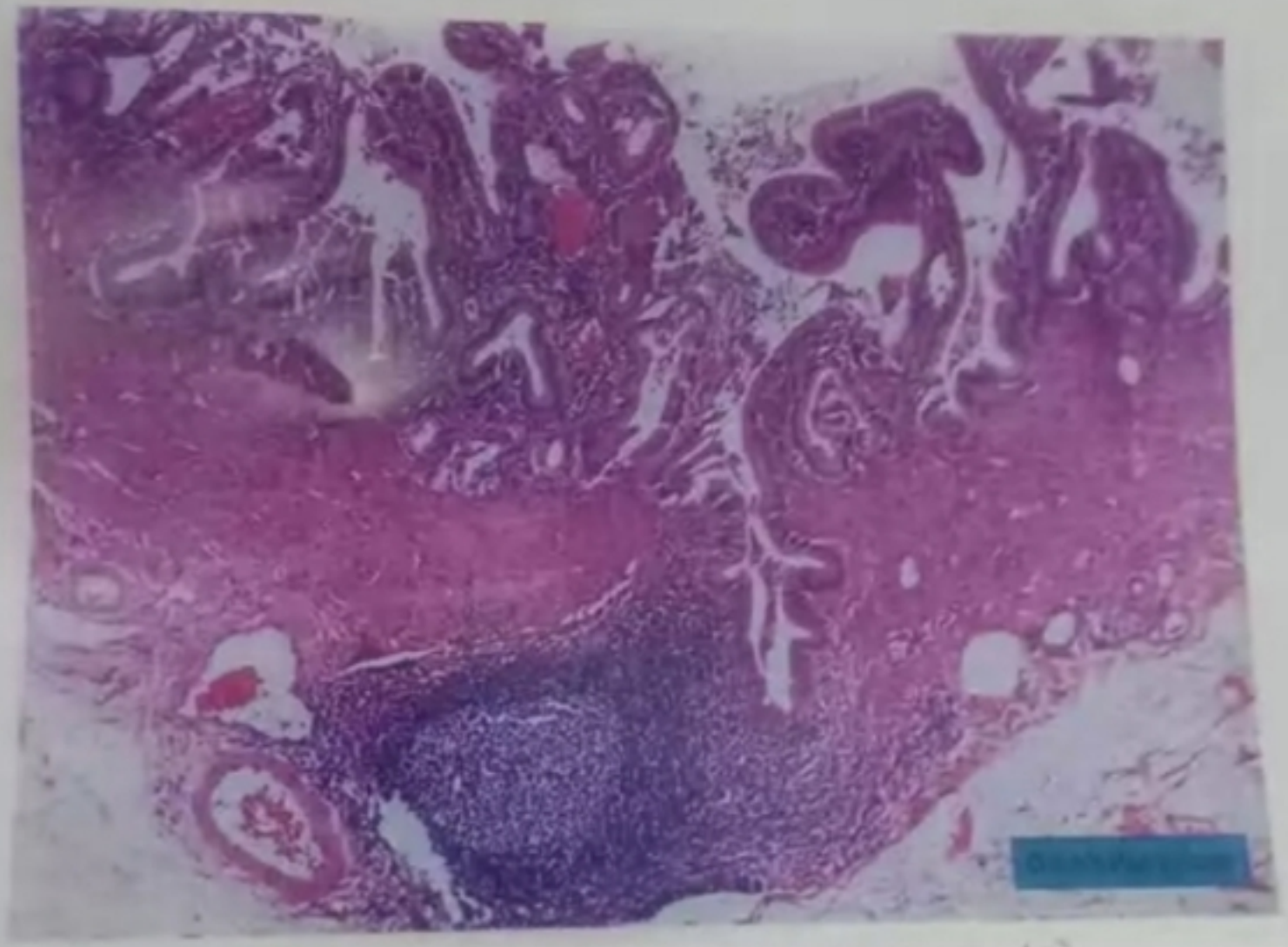
KEY

1) Benign lesion
2) Liposarcoma
3) Cushing's syndrome

A 37 years old man identifies a localized mass on his fore-arm. It was small in size and has not increased in size as far as that patient could remember. It was later identified as a lipoma.

a) What is the nature of this lesion?
b) What is the malignant counterpart of this lesion?
c) Name one paraneoplastic syndrome.

Lipoma (neoplasia)



See the images which is a gall bladder and mention the type of lesion (2)

A 35years old man suffered with acute abdomen pain and was operated in emergency and appendix was removed.

A) see the images and describe the most likely diagnosis of lesion.

b) what will be the cellular infiltrate of this lesion.

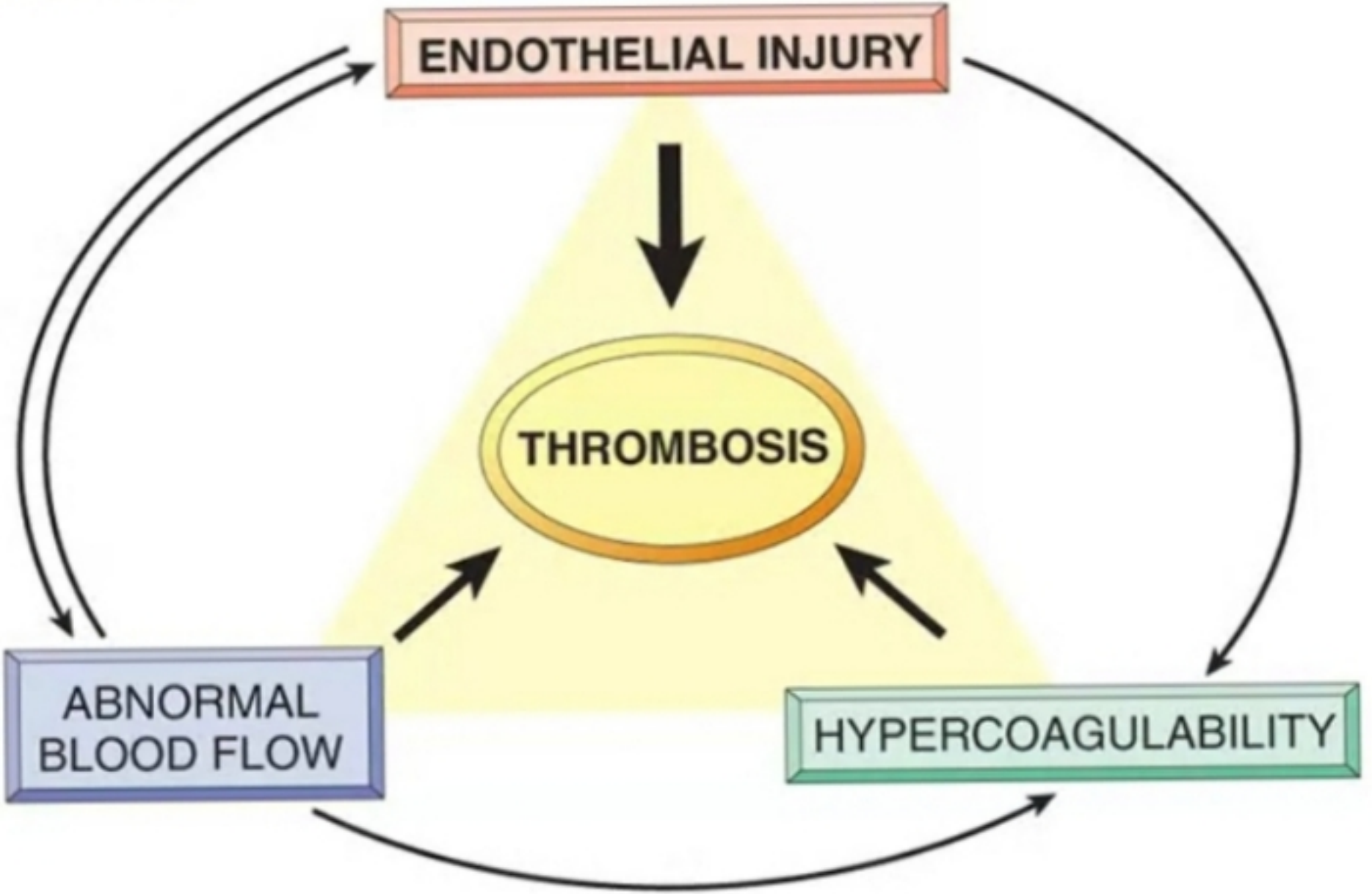
KEY

1) Virchow's triad
2) Thrombosis, atheroma, vasodilattion, blockage

A 56 years old male had myocardial infarction after thrombosis of coronary arteries.

1) Three factors are shown above. What is the name of this triad? (1)
2) Name one cause each for these abnormal factors. (3)

Virchows triad



UNOBSERVERED STATION **Marks: 04** **Time allowed: 04 minutes**

1. autoclave 2. moist heat sterilization at which the contents become exposed to saturated steam at the required temp for the appropriate length of time. 3. physical methods Chemical methods

Task:

Carefully examine the given slide/photograph and answer the following questions;

1. **identify the above object 1**
2. **what is the principle involved in its use 2**
3. **what are the two main methods of sterilization. 1**

MBBS 2ND PROFESSIONAL
GENERAL PATHOLOGY AND MICROBIOLOGY
OBJECTIVE STRUCTURED PERFORMANCE EVALUATION (OSPE)

UNOBSERVERED STATION

Marks: 04 **Time allowed: 04 minutes**

For Candidate:

Unobserved Station

Marks: 04 **Time Allowed: 04 Minutes**

For Examiner:

1. Leiomyoma 1
2. Well encapsulated, circumscribed 1,1
3. Benign tumor 1

MBBS 2ND PROFESSIONAL

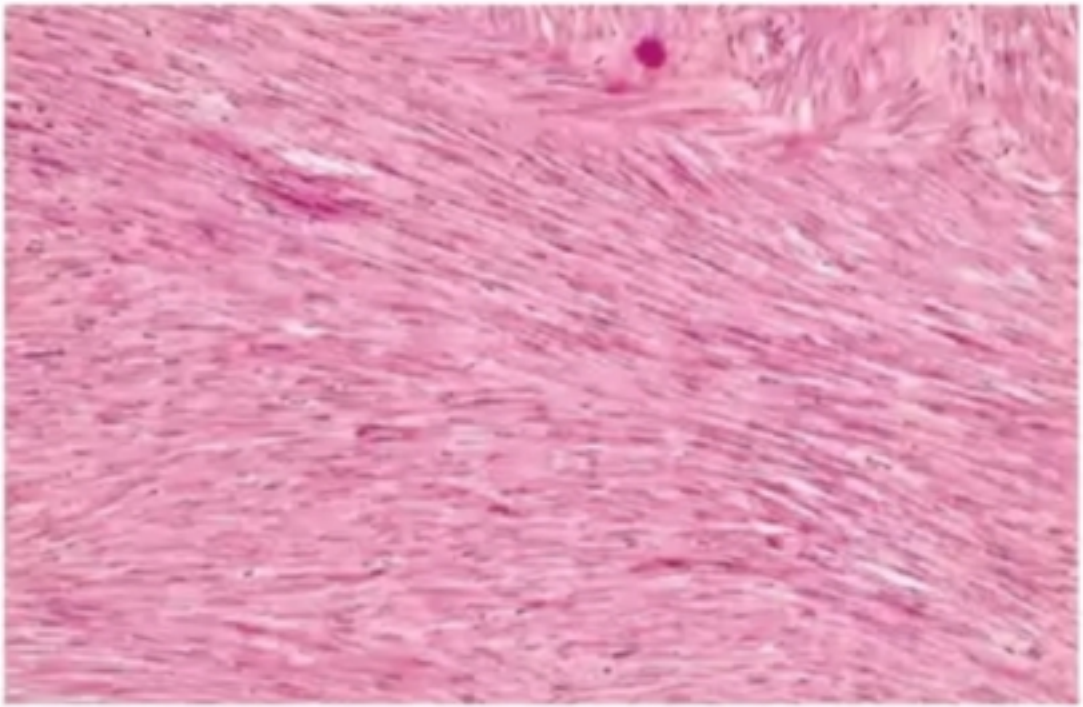
GENERAL PATHOLOGY AND MICROBIOLOGY

Objectively structured Performance Evaluation (OSPE)

Unobserved Station

Marks: 04 **Time Allowed: 04 Minutes**

For Candidate:



A 35yr old female presents with history of menorrhagia & lower abdominal pain. On USG uterus is enlarged. Multiple masses of different sizes are observed in the uterus. The specimen /photograph is provided to you.

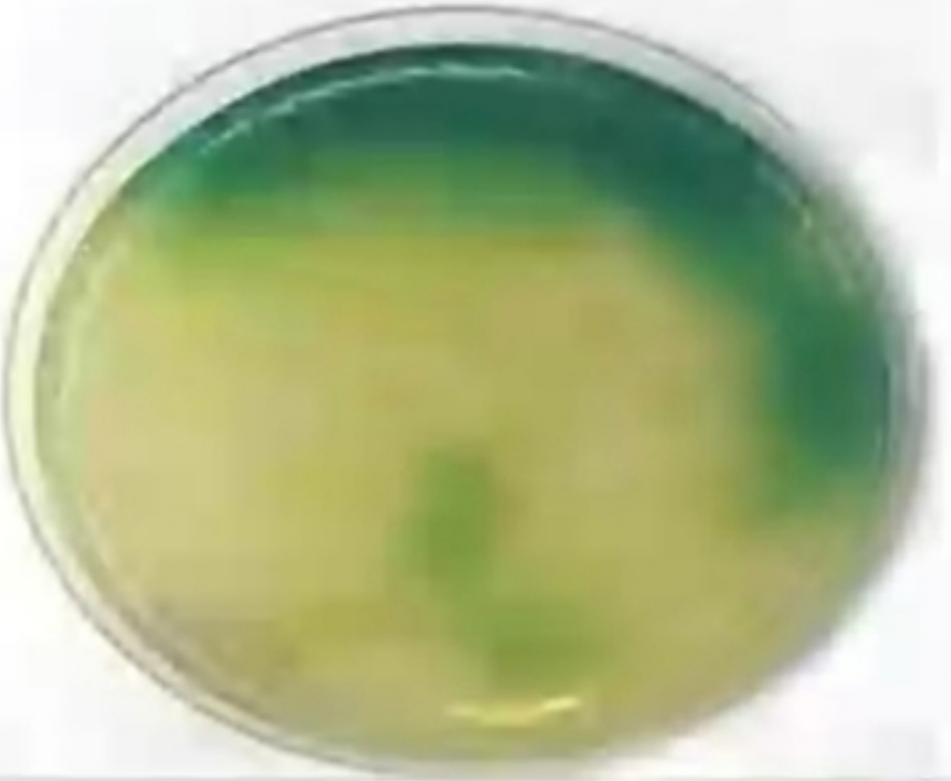
KEY:

1. Pseudomonas
2. Oxidase positive
3. Pyocynin, Pyoverdin, Pyorubin
4. Red/ Alkaline Slant: Red/ Alkaline Butt, No H2S production

1. Name the causative agent.
2. Name on biochemical test for its identification.
3. Name three pigments produced by this organism.
4. What is the picture of this organism on TSI?

For candidate:

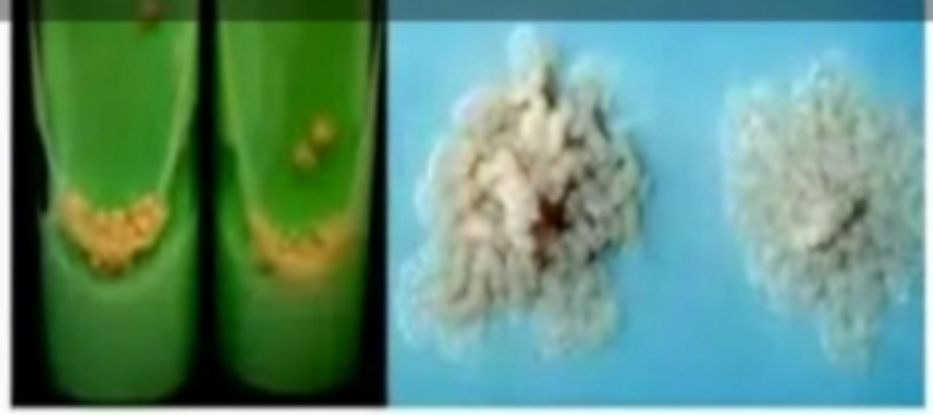
An elderly diabetic woman, who recently began swimming to control her weight, complains of painful discharge from her left ear. Physical exam shows extreme tenderness of the left tragus. A swab culture of the ear reveals blue-green colonies emitting a fruity odor.



For Examiner:

Key:

1. **Lowenstein Jensen media 1**
2. **It is used for the growth of Mycobacterium. 1**
3. **Malachite green 1**
4. **M.kansasii, M.avium-intercellulare, M.fortiutum-chelonae complex etc 1**



TASK:

Carefully examine the medium and answer the following questions:

1. **Identify the given medium** **01**
2. **What is the use of this medium?** **01**
3. **Which dye is added to this medium?** **01**
4. **Name any atypical Mycobacterium?** **01**

KEY:

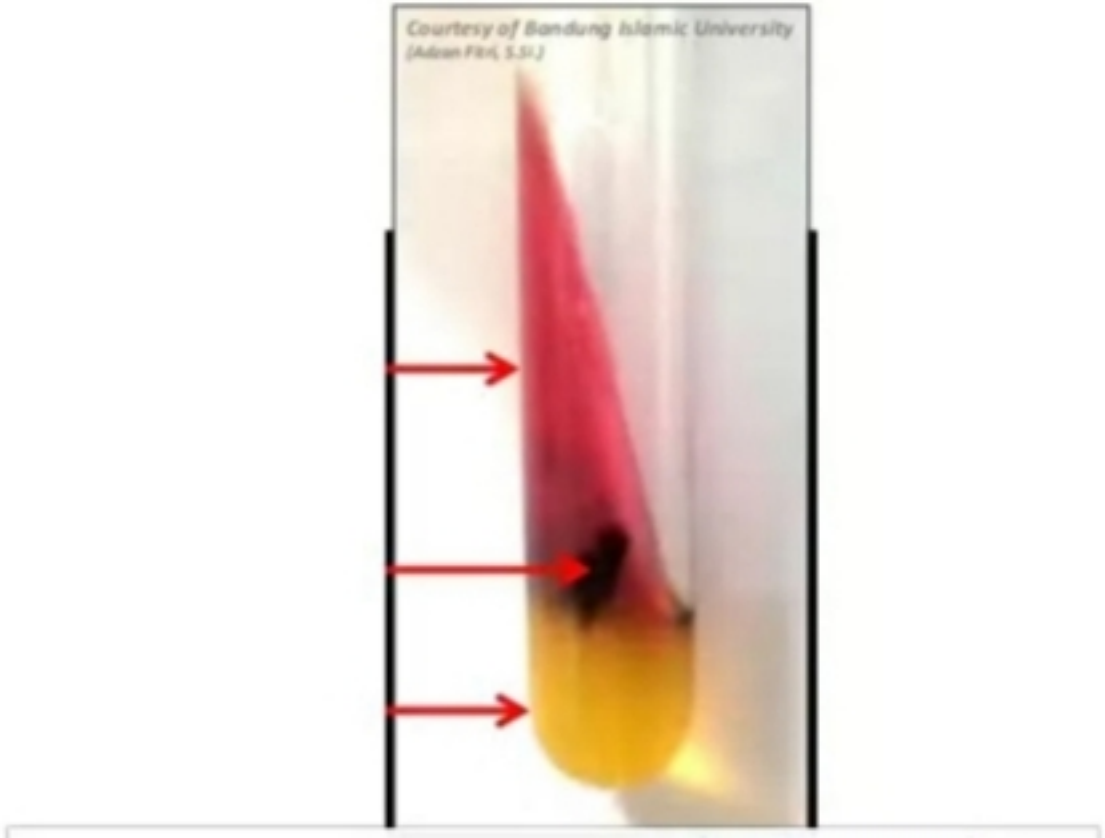
1. Salmonella typhi
2. Blood culture
   Typhi dot
   Widal test
3. Proteus

Unobserved Station

Marks: 04 **Time Allowed: 04 Minutes**

For candidate:

A 30 year old male suffering from low grade fever in step ladder fashion for the last three days. During the following weak rose spots developed on abdomen. TSI showed Acidic butt & alkaline slant with H2S production.

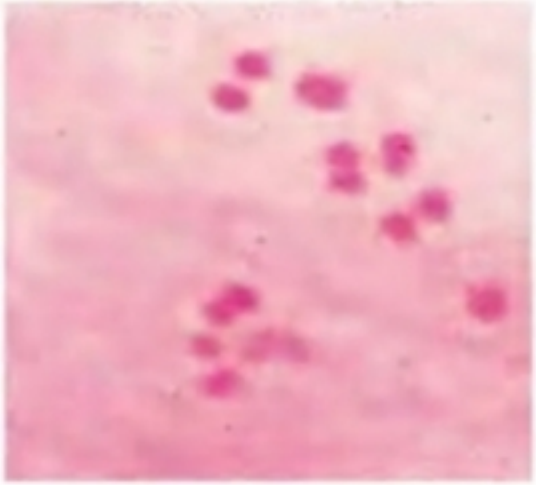


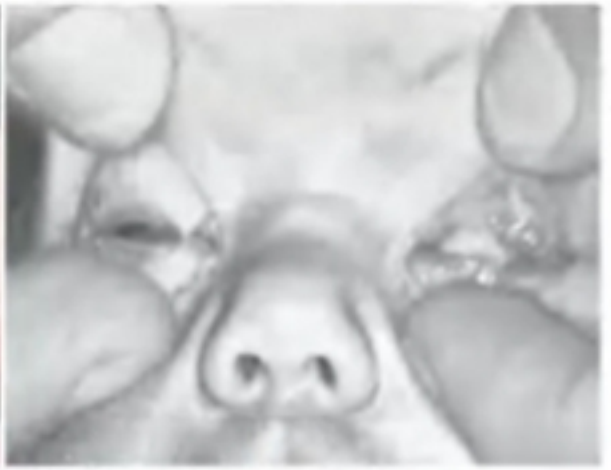
KEY:

1. The patient most likely has **gonococcal conjunctivitis** and **urethritis** caused by ***Neisseria gonorrhoeae***
2. Gram-negative diplococci are shown.
3. The **LOS** (endotoxin) is responsible for the majority of damage to the host.

For Candidate

A 17-year-old male was seen at his primary care physician's office suffering from conjunctivitis. The patient also notes that he has had difficulty urinating and a white urethral discharge for 2–3 days. Conjunctival and urethral swab specimens were examined by Gram stain, revealing bacteria with cell morphology similar to that shown. The urethral swab specimen contained numerous PMNs, some with intracellular bacteria





1. What is the most likely etiology and infection?
2. What is the cell morphology of the bacterium shown?
3. What toxic molecule produced by the bacterium shown causes the majority of damage to the host?

For Examiner:

Key:

1. Saddle embolus
2. Sudden death

   Cardiovascular collapse

Carefully examine the given slide / photograph and answer the following questions:

1. What is your diagnosis? 02

2. What could be the consequences of this pathology? 02

Ans:

a) Type IV or cell mediated or delayed hypersensitivity is responsible for producing the lesion of pulmonary tuberculosis

b) In case of pulmonary tuberculosis, prolonged delayed type hypersensitivity against persistent microbes or other stimuli may result in a special morphologic pattern of reaction called granulomatous inflammation.The initial perivascular CD4+ T cell infiltrate is progressively replaced by macrophages over a riod of 2 to 3 weeks. These accumulated macrophages exhibit morphological evidence of activation, that is, they become large, flat and eosinophilic, and are called epitheloid cells. These epitheloid cells occasionally fuse under the influence of cytokines to form multinucleate giant cells. A microscopic aggregate of epitheloid cells, typically surrounded by collar of lymphocytes, is called a granuloma. In the center of granuloma, there is development of abnormal cell death (necrosis) causing characteristic lesion of T.B.

3rd YEAR MBBS

OBJECTIVE STRUCTURED PERFORMANCE EVALUATION (OSPE)

OBSERVERED STATION

Marks: 04 Time allowed: 04 minutes

A patient is suffering from pulmonary tuberculosis. A pathognomic histological lesion is produced in his lungs.

a) Which type of hypersensitivity reaction is responsible for producing this lesion.

b) Describe the mechanism of formation of this lesion.

KEY:

a) Type I hypersensitivity is responsible for child lungs' symptoms.

b) IgE antibody

3rd YEAR MBBS

OBJECTIVE STRUCTURED PERFORMANCE EVALUATION (OSPE)

OBSERVERED STATION

Marks: 04 Time allowed: 04 minutes

A 10 year old child from a village is brought to a basic health unit complaining of shortness of breath, wheezing, and exertional dyspnea and occasional urticarial. History revealed intake of penicillin. He had past history of drug allergy.

a) Name the underlying hypersensitivity reaction. (2)

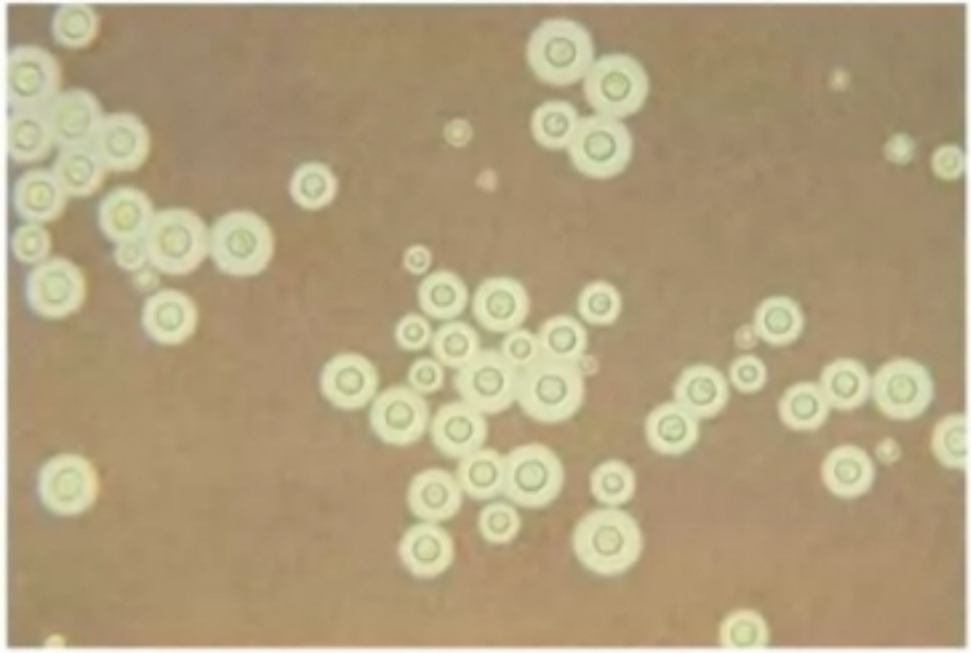
b) Which antibody is raised in this condition? (2)

Cryptococcus neoformans.

mycology

India ink staining of CSF.

For Candidate:



Tasks:

Name the organism

The study of such organisms is called?

Which stain is used in this diagram ?

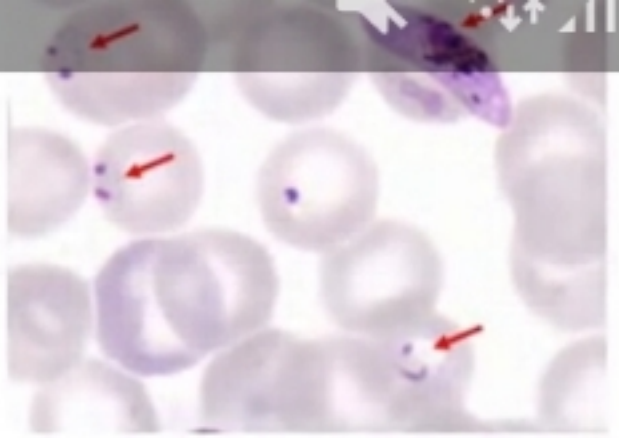
Marks: 04 Time Allowed: 04 Minutes

For Examiner:

Key:

1.Plasmodium falciparum

2. Signet ring that is less than 1/3 of RBC and RBC size is not increased.



A twelve years old patient is presented in emergency with high grade fever and chills. He had history of alternate day fever and generalized weakness. Laboratory diagnosis revealed that he has slight anemia and disturbed liver function tests. A thin smear stained by Giemsa stain showed singated rings and boat like bodies inside RBCs

Tasks:

Carefully examine the given slide / photograph and answer the following questions:

1. What is your diagnosis? 01
2. Differential diagnosis from other species that invade RBCs?

For Examiner:

Key:

1. Ascaris lumbricoides 1

2. Obstruction in the intestine, obstruction of the bile duct, appendicitis, Lofflers pneumonia, nutritional deficiencies etc 2

3. oro fecal route 1

Marks 04 Time Allowed: 04 min

For Candidate:

Task:

A young boy from a rural area presented with severe abdominal pain and was given antihelminthes , the next day he passed out these worms whose photograph is provided.

1. Name the helminthes 1
2. Mention two complications associated with this worm 2
3. What is the route of transmission? 1

Marks: 03 Time allowed: 04 minutes

For Candidate

A child presented with rigid contraction of jaw muscles, preventing mouth from opening, accompanied by rigidity of neck & trunk muscles & arching of back. History revealed circumcision done in a local clinic in unsanitary conditions, a week ago.

1. Identify the disease and the causative agent. (1)
2. What is the

perfect, but 2 weeks later he started having chest pain, and high grade fever. The organism obtained was optochin resistant.

1. Name the pathogen. (1)
2. Is it alpha or beta hemolytic? (1)
3. Where is this organism present as flora? (1)

Nose Pharynx

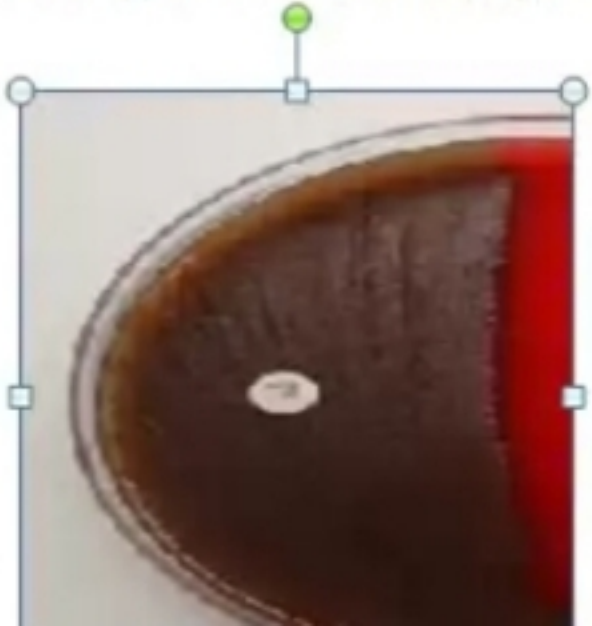
3rd YEAR MBBS
SPECIAL BACTERIOLOGY
OBJECTIVE STRUCTURED PERFORMANCE EVALUATION (OSPE)

OBSERVERED STATION

Marks: 03 Time allowed: 04 minutes

For Candidate

A retired army officer went to the dentist for extraction of his wisdom tooth. The extraction went perfect, but 2 weeks later he started having chest pain, and high grade fever. The organism obtained was optochin resistant.



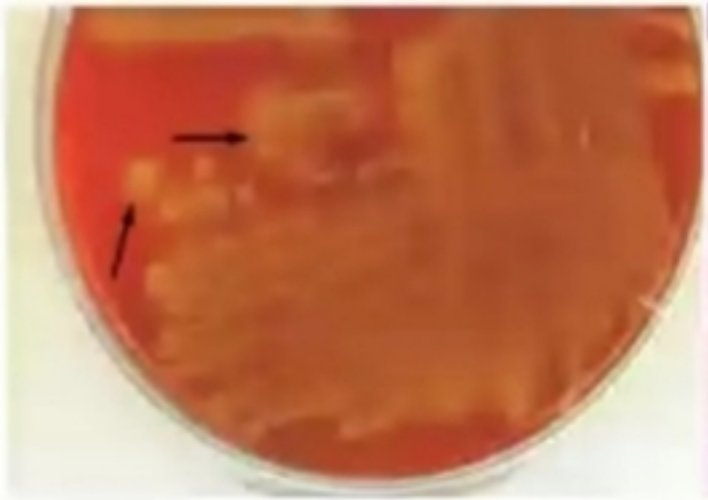
KEY

1) Toxic shock syndrome, Staphylococcus aureus
2) Due to carotenoid pigment Staphyloxanthin
3) Toxic shock syndrome toxin

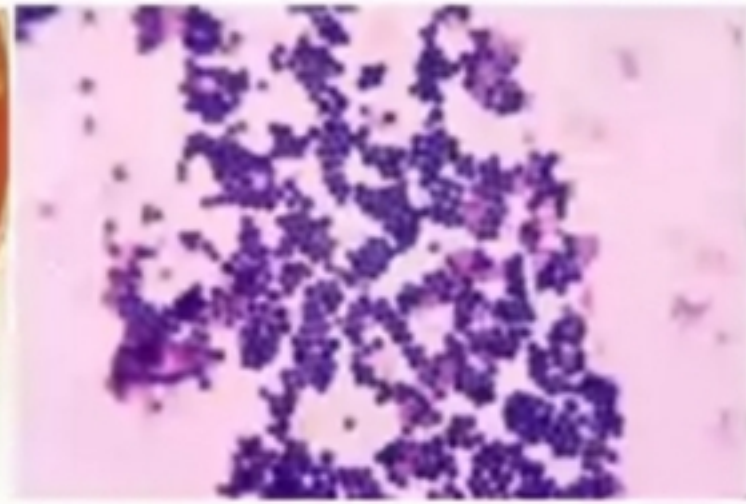
Marks: 03 Time allowed: 04 minutes

For Candidate

A young female using tampons developed signs and symptoms of shock. Her blood culture and Gram stain revealed the following results:



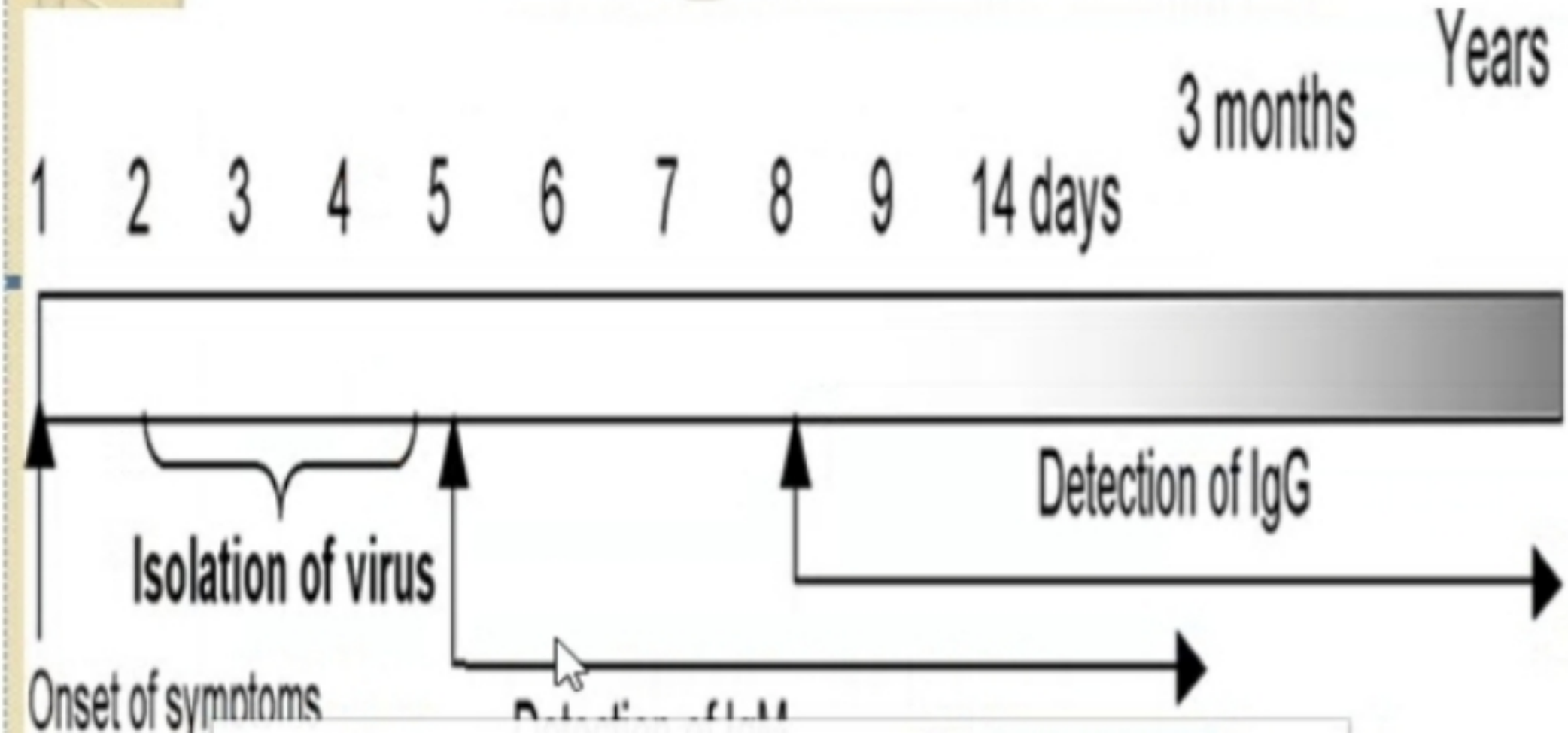
Blood Culture



Gram Stain

1. Name the disease and the pathogen causing it. (1)
2. Why are these colonies on blood agar yellow? (1)
3. Which virulence factor of bacteria is responsible for her condition? (1)

Time line of Symptoms---
Diagnostics tests

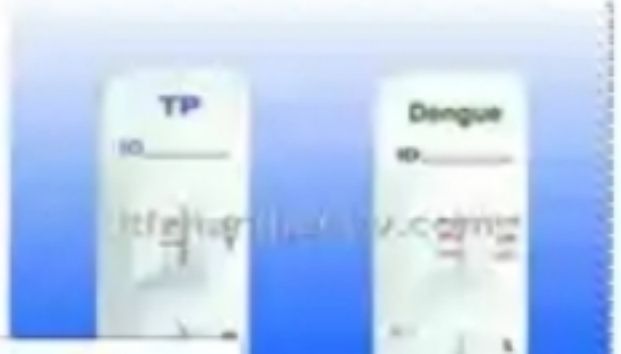


a. Dengue virus causing dengue hemorrhagic fever.

b.

Laboratory Tests in Dengue Fever

- Clinical laboratory tests
  - CBC—WBC, platelets, hematocrit
  - Albumin
  - Liver function tests
  - Urine—check for microscopic hematuria
- Dengue-specific tests
  - Virus isolation
  - Serology



Marks: 04 Time allowed: 04 minutes

For Candidate:

A young male suddenly developed influenza like syndrome (break bone fever) characterized by fever, malaise, retro-orbital pain, myalgias and arthralgias, associated with facial flushing and macula-papular. A Flavivirus was found out to be the cause of the disease.

a) Name the causative agent and the disease. 2

d) How will you confirm diagnosis in laboratory? 2

1. What is the most likely etiology and infection?
2. What is the route of transmission of this virus?
3. What is the incubation period and the clinical presentation of the disease?

KEY:

1. The patient most likely has **hepatitis** caused by **hepatitis A virus.**
2. Faeco-oral route.
3. 3-4 weeks. Nausea, loss of appetite, fever, fatigue, vomiting, dark urine, pale stool, jaundice, stomach pain.

For Candidate:

A 30-year-old male presents at his primary care physician's office with jaundice and upper quadrant pain. Preceding onset of these symptoms, the patient had suffered from fever, nausea, myalgia, and headache. The patient had recently returned from an extensive trip throughout Southeast Asia, and he had not been vaccinated against endemic infections prior to travel. The physician confirms her suspicions by conducting liver enzyme and serum IgM tests. AST and ALT levels were elevated; IgM specific for the virus was detectable. The physician informs the patient that vaccination would have prevented this food-borne infection, but that the prognosis for his recovery was good.

KEY

1) Hypertrophy
2) Definition
3) Exercise, stress, hormones

UNOBSERVERED STATION

For Candidate:

Marks 04 Time Allowed 04 min

a- What is the diagnosis 1

b- Define it 1

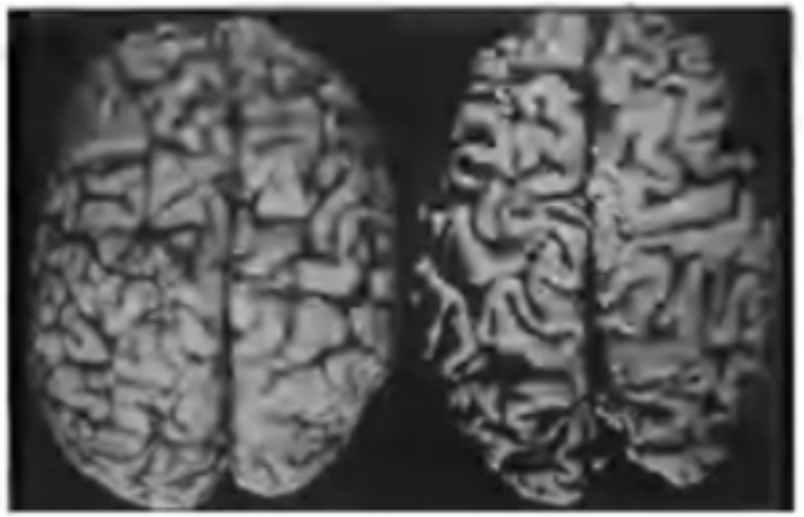
c- What are the factors causing this condition. 2

KEY

1) Atrophy
2) Alzhiemer's disease, definition
3) Metabolic disorder, Disuse atrophy, Denervation, Decreased blood supply

For Candidate:

Marks 04 Time Allowed 04 min



Task:

1) You are shown a specimen of brain, identify the lesion(1)
2) What is the name of disease in which this specific change can occur and define the p
3) Name other

KEY:

1. Incubator. 20-40^{0}C (33-37^{0}C) (1+1)
2. Ferric ion required for growth of bacteria (essential component of cytochromes & enzymes). Bacteria produce iron-binding compounds **siderophores** (Enterobactin of *E. coli*, capture iron by chelating it, then attach to specific receptors on bacterial surface & actively transported into cell where the iron becomes available for use). (1)
3. Liquid media: Brain Heart Infusion used for blood culture. (1)
   Semisolid media: Transport media
   Solid media: blood agar

GENERAL BACTERIOLOGY
OBJECTIVE STRUCTURED PERFORMANCE EVALUATION (OSPE)

UNOBSERVERED STATION

Marks: 04 Time allowed: 04 minutes

For Candidate:

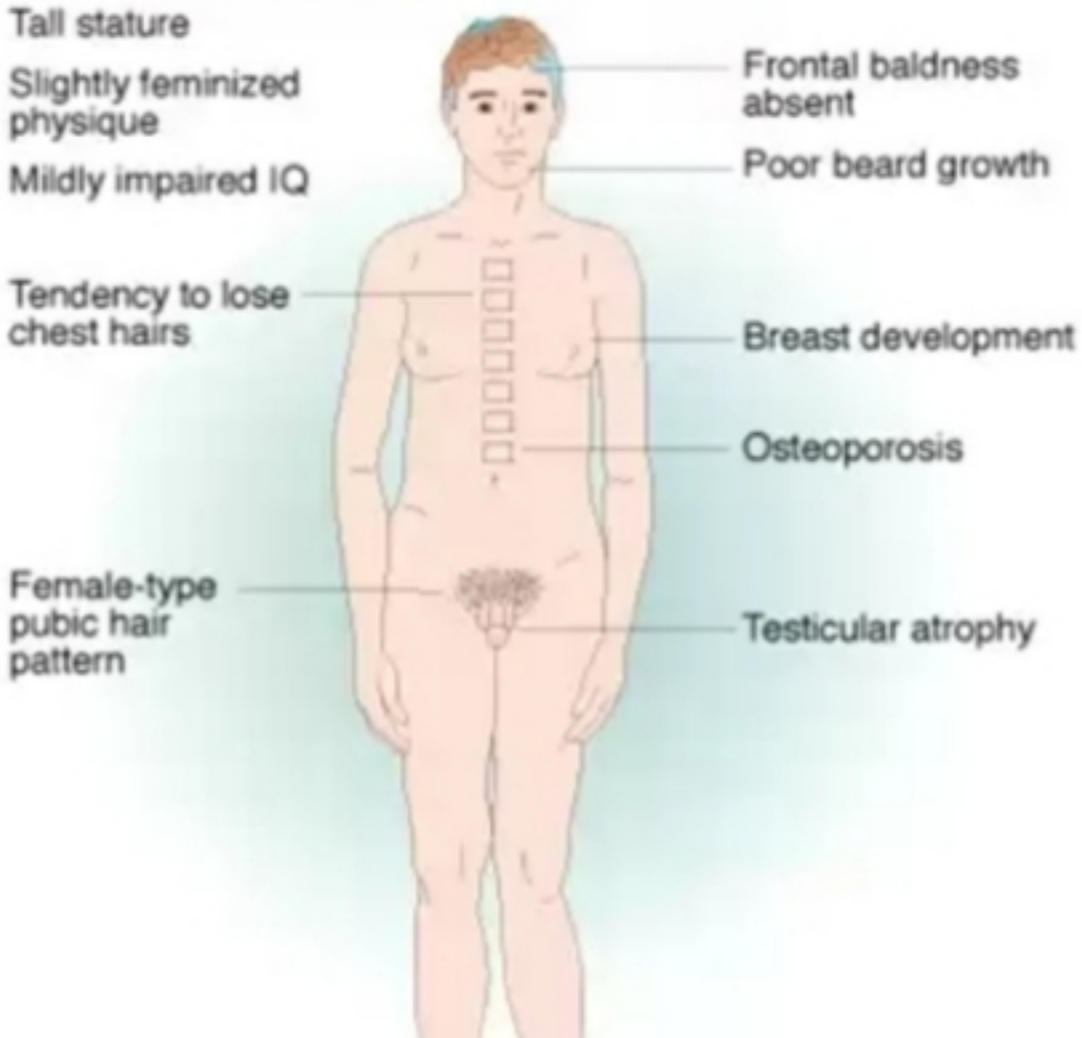
Task:

1. Identify the object. What is the optimal temperature for the growth of bacteria? (2)
2. What is the role of iron in the growth of bacteria? (1)
3. Classify culture media on the basis of consistency. (1)

KEY

1. Klinefelter syndrome
2. 47XXY
   a. Non-disjunction of sex chromosomes during meiosis. The extra X may be of maternal or paternal origin. Advanced maternal age and history of irradiation in either parent may contribute.
   b. 15% may show mosaic patterns, including 46XY/47XXY 47 XXY/48XXXY
   Estrogen level estimation may be of great help in diagnosis as high estrogen can cause similar symptoms.
3. Lyon hypothesis. It states that *(1)only one of the X chromosomes is genetically active, (2) the otherX of either maternal or paternal origin undergoes heteropyknosisand is rendered inactive, (3) inactivation of either the maternal or paternal X occurs at random among all the cells of the blastocyst on or about day 5.5 of embryonic life, and (4) inactivation of the same X chromosome persists in all the cells derived fromeach precursor cell*

A male patient comes to genetics OPD as he has a distinctive body habitue, with increase in length between soles and pubic bones. There is reduced facial, body and pubic hair. The patient has hypogonadism and gynecomastia and infertility.



KEY

1. Down syndrome/ Trisomy 21
2. ASD
   VSD
   Atriventricular valve malformation
   Esophageal atresia
   Atresia of small bowel
   Increased risk of acute leukemias
   Neuropathologic changes
   Abnormal immune responses

A child brought to a paediatrician is mentally retarded, flat facial profile with broad epicanthal fold, simian creases, abundant neck skin, umblical hernia, hypotonia with increased gap between 1st and 2nd toe.

1. What genetic disorder does this child have? (2)
2. Briefly discuss the clinical problems associated with Down syndrome. (2)