Bt102 Current Final 2023 Prepared By Asra#03166424535

1) First to publish extensive and accurate observations of microbes was given by **Antony van Leeuwenhoek**
💫2) Boiled extracts of hay or meat can give rise to microorganisms : John Needham
💫3) Resolution of microscope is_ 0.2um
💫4) Which is not belong to ELISA _Probe
💫5) .In Persistent infection _Viruses Replicate Slowly
💫6)Algal body is... Thallus
💫7) Fungi get CO2 from Organic Matter
💫8) .Spores formed by rounding and enlargement within a hyphal segment _Chlamydoconidium
💫9)Which is not lymphocyte Monocytes
💫10) .Sight of entry through which microorganisms gain access into body mucosal membrane
💫 11) Kuru in humans IS caused by Prions
💫12) Rabies virus is the example of Helical Viruses
💫13) blood transfusion reaction is the example of Hypersensitivity-II
💫14) Metronidazole is used for _ Giardiasis, Amebiasis, Trichomoniasis (All)
💫15) Protein bands are blotted onto a nitrocellulose membrane.
💫16) Morbidity rate: Number of people affected in relation to the total population in a given time period
💫17) Living together is symbiosis
💫18) Convalescent period : patient returns to normal
💫19) which statement is correct for innate immune system Have no memory
💫20) which statement is incorrect for flagella staining.....
💫22)Mycobacterium have mycolic acid
💫23)Thickness of the capsule depends upon the culture conditions
💫.24) Hypersensitivity I Mast cells degranulate and secretes mediators of inflammation.involves IgE antibodies.
💫25) Prokaryotes have no .....
💫26) Exponential phase is also called log phase
💫27) Metachromatic Granules Also called volutin ,
💫28) Some algae float by gas-filled bladders called pneumatocysts
💫29) Which is an obligate aerobe.Mycobacterium tuberculosis.....
💫30) which are used for indirect microbial count except.. membrane filter techniques

31.**lyme disease is caused by?**Borrelia burgdorferi

32.primary stain of gram method?Crystal violet

33.**tetracycline is ….. broad spectrum?** Wide

34.Eastern blotting is used for ?Protein

35.ELISA is used for ?Antigen and antibody

36.Mycobiont is ??Fungi

37.infectious circular RNA of plants ?Viroid

38.which is not lymphocytes?Monocytes

39.consistently present but with low incidence?Endemic

40.penicillin attack???Cell wall

41.primary immune response produces mainly?Antibodies

42.mycobacterium is stained by?Acid fast staining

**.not true for virusoid? **Ds circular DNA

44.Rat bite fever caused by???Spirilium minus

45.Autoclaving at???121°c 15 psi 120 min

46.Alpha hemolysis gives??Greenish halo color

47……transfer dna from one bacterium to other ????Pilli

48.prokaryotes are divided by ???Mitosis

49.antigens antibody reaction is a …. Method of antimicrobial identification?Serological

50..Asexual spore is formed by ??Mitosis

51.study of virus?Virology

52.persistent infection ….?Viruses replicate slowly

53. Staining of fungi is done by?Lactophenol cotton blue

54.sight of entry through which micro organism enter body?Portals of entry

55.route of entry effects ?ID50

56.lactoferrin is iron containing protein present in?Blood

57.which antibody involve in type – 1 hypersensitivity or anaphylaxis ?1gE

58.The made of action of control chemicals to micro organism is the?Phenol and phenolic

59.endospores is stained with?Malachite green

60.Corticosteroids is use in ?Hyper sensitivity 111

61.Spectrum of drug is?Tetracycline

62.Acellular organisms?Virsus

63.who reported that microbes can arise spontaneously from heated?John **needham?**

64.PH of mold?5 to 6

65. Which statement is incorrect about staining of endospores…….? Use safranin as primary stain and malachite green as secondary stain

66.What is the fourth generation of cephixime?Cefepime (Maxipime)

Questions

💫 **Germination of spore**

Exosporium:
A thin delicate outermost covering of the spore
Spore Coat:
2nd layer underneath the exosporium. It is thick and composed of several protein layers. Resistant to chemicals It contains enzymes for germination. Germination of spores into vegetative form occurs when the environment becomes favorable for their growth.
Cortex:
It is the 3rd layer from outside in. It has peptidoglycan in it.
Spore Cell Wall or Core Wall
Surrounds the protoplast or spore core
Spore Core:
Contains nucleoid and ribosomes

💫 **Epidemiology and it's methods**

The study of where and when diseases occur and how they are transmitted in a population
Descriptive Epidemiology
It includes location and time of cases of disease, gender, health, age of patients etc. (Basically, frequency and distribution of risk factors in population are recorded).
Analytical Epidemiology:
It relates to determining the cause of the disease. Analysis of data, mode of transmission of diseases and means to prevent diseases also come in this discipline. Such studies can be done with case control methods in which factors that have preceded the disease are determined.
Experimental Epidemiology:

A hypothesis relating to a disease is tested in this approach. For example, smoking causes cancer can be tested by designing an experiment in mice in which they are exposed to certain levels of smoke over time and then the outcome is observed. Another example will be testing of a drug

💫 Name 5 antigen presenting cells

These cells are able to present antigens to B cells for making antibodies by B cells
. There are three cells that fall into this category:

- Dendritic cells,
- macrophages,
- and B cells

💫3 use of growth curve

1. Growth dynamic of any bacteria can be studied
2. • Exponential phase is ensured for mass production of microbes
3. – Vaccine production – Seed for bacteria – Culture preservation

💫 Name 5 type of bacteria according to optimum temperature

Organisms are basically classified into three groups based on the temp requirements:
Psychrophiles: Psychrophiles: – Cold loving: 15 0C
Psychrotrophs: Grow best at 20 – 30 0C
• Can grow at refrigeration temp
• Spoil foods
Mesophiles: 25 – 40 0C
– Moderate temp loving
– Optimum: 37 0C
Thermophiles: 50 – 60 0C
– Heat loving –
Important in organic compost piles
Hyperthermophiles
• Optimum temp: 80 0C
• Archaea in nature
• Live in hot springs
😐

💫PCr denaturing annealing and extended stage note (5marks)

PCR goes through 3 step cycles for about 30 to 35 times. Each cycle consists of a denaturing stage (about 95oC), primer annealing (50 to 56oC) and extending stage (72oC

💫 Anaphylaxis cause, diagnoses, treatment

The patient also experiences difficulty in breathing. It is an emergency as it may kill the person. Anaphylaxis may be local or systemic. Shock from drug reactions, venoms, and common allergens causing asthma are some examples of type I hypersensitivity.
Diagnosed

Diagnosed by demonstration of IgE by intradermal injections of allergens one by one. If specific IgE are present in the serum, a reaction will be visible on the skin locally in the form of a wheel of inflammation

Treatment

Rx: Epinephrine & antihistaminic drugs

Histamine and other mediators mediate the reaction

💫 Method of transmission of infection

By contact , vector, vehicle

Contact Transmission

- **Direct:** person to person
- Physical contact
- Influenza
- **Indirect**: A nonliving object is involved
- Fomite: any nonliving object (towel, bedding)
- **Droplet**: mucus droplets

Vehicle Transmission

- Transmission by a medium
- Waterborne
- Foodborne
- Airborne
- Blood,
- other body secretion

Vectors

- Arthropods:
- **Mechanical transmission** (Passive)
- **Biological transmission** (Active)

💫 Antivirus drugs for nucleotides and nucleoside and uses

Nucleoside and nucleotide analogs

- Acyclovir
- Ganciclovir
- Ribavirin

Used mostly for herpesviruses

The catalase test

is a particularly important test used to **determine whether a gram-positive cocci is a staphylococci or a streptococci**. Catalase is an enzyme that converts hydrogen peroxide to water and oxygen gas. The test is easy to perform; bacteria are simply mixed with H_2O_2.

• Western blotting

Proteins from microbes are separated by electrophoresis

5 types of microscope

1. Darkfield microscopy
2. Phase contrast microscopy
3. Fluorescent microscopy
4. Transmission electron microscopy
5. Scanning electron microscopy

Immunity and its types

Immunity: Ability of the body to protect itself from harmful effects of diseases.

Types of Immunity

Innate: Present at birth

Adaptive: Acquired by experience

Innate Immunity

Present at birth

Rapid to respond

Nonspecific

Do not increase in response with repeated exposures to the same agent

Have no memory

First line of defense: Physical barriers (skin, mucus membrane)

Second line of defense: Phagocytic cells and their secretions

Adaptive Immunity

Specific

Have memory

Increase with repeated exposure

Slower to respond

Humoral immune response

Cellular immune response

Symbiosis and types

Living together is symbiosis

Mutualism: both are benefited

Parasitism: one is harmed

Commensalism: One is benefited, other is unharmed

What is Endemic, Epidemic and pandemic.

Endemic: consistently present, but with low incidence infected ones are reservoir of infection. Common cold is a typical example.

Epidemic: within an area, unusually high incidence of a disease. Influenza is a good example

Pandemic: Worldwide epidemic Example Covid

Define Conidia and Arthroconidia

Conidia: Chain of spores at the end of a conidiophore e.g. Aspergillus

Arthroconidia: spores formed by fragmentation of septate hypha e.g. Coccidioides immitus

Blastoconidia: spores as budding of the parent cells

What is PAMS.

Pathogen associated molecular patterns (PAMPs):
Formed by LPS,
flagellin,
Peptidoglycan,
DNA,
RNA

Write antibiotics which inhibit the cell wall.

Penicillins and cephalosporins are the major antibiotics that inhibit bacterial cell wall synthesis.

Gram Staining step

- Crystal violet is added. — **Primary stain**
- Crystal violet is washed off.
- Iodine is added to enhance binding. — **Mordant**.
- The slide is washed off with alcohol. — **Decolorizing agent**
- Gram positive bacteria retain crystal violet
- Gram negative bacteria appear colorless.
- * Crystal violet and iodine make a complex in the cytoplasm
- Peptidoglycan layer is thicker in Gram positive bacteria and CV-I is retained.
- Alcohol is rinsed off and stained with safranin. — **Counterstain** T
- the smear is washed again.
- Blotted dry and examined microscopically.

Inflammation and Write Its Consequence?

Inflammation Damage to body tissues triggers a local defensive response which is called inflammation. It causes:

- Redness
- Pain
- Swelling
- Heat During inflammation,
- various mediators of inflammation are released,
- some of which include: Histamine Kinins
- Prostaglandins by damaged cells
- Leukotrienes by mast cells
- Cytokines are released (TNF-alpha)
- o Cause’s release of acute phase proteins from the liver.