**MODULE. 1 GENERAL MICROBIOLOGY, VIROLOGY AND VIROLOGY**

Which structure is found in all bacteria?

A. Capsular polysaccharide

B. Flagella

C. Pili

D. Outer membrane

E. Cytoplasmic membrane

Answer: E

Cell wall is lacking in:

A. Actinomyces

B. Corynebacterium

C. Brucella

D. Spirocheates

E. Mycoplasma

Answer: E

Cell wall of gram-positive bacteria consist of:

A. thin monolayer peptidoglycan

B. lipoproteins

C. lipopolysaccharides

D. outer membrane

E. polilayer peptidoglycan

Answer: E

Lipopolysaccharide is a major constituent of cell wall in:

A. gram-positive bacteria.

B. fungi

C. protozoa

D. none of the above

E. gram-negative bacteria.

Answer: E

A hydrolytic enzyme found within mucous secretions which has the ability to degrade the peptidoglycan cell wall of gram + bacteria:

A. interferon

B. histamine

C. complement

D. transferrin

E. lysozyme

Answer: E

Bacterial pili are involved in:

A. Motility

B. Resistance to heat

C. Resistance to phagocytosis

D. Endotoxic activity

E. Adherence to host cells.

Answer: E

When flagella are distributed all round the bacterial cell, the arrangement is known as:

A. monotrichous

B. lophotrichous

C. amphitrichous

D. bitrichous

E. peritrichous

Answer: E

What is the value of a hanging-drop preparation?

A. For study sensitivity to antibiotics

B. For examinate biochemical properties

C. For study morphology of bacteria

D. For study cultural properties of bacteria

E. For study motility of bacteria

Answer: E

What is the value of a wet-mount preparation?

A. For study cultural properties of bacteria

B. For study morphology of bacteria

C. For examinate biochemical properties

D. For study sensitivity to antibiotics

E. For study motility of bacteria

Answer: E

Endospores are necessary to bacteria for:

A. Defence from acid in stomack

B. Reproduction

C. Defence from fagocytosis

D. Survival into human and animal’s organism

E. Survival in an external environment

Answer: E

Bacterial genus/genera of medical importance which produce endospores is/are:

A. Bacterium

B. Corynebacterium

C. Mycobacterium

D. Micrococcus

E. Bacillus

Answer: E

Acid fast microbes are resistant to acid because they contain in cell wall:

A. lipopolysaccharides

B. acetylglucosamine

C. diaminopimelic acid

D. polyphosphates

E. fatty waxes, fatty acid

Answer: E

Which of the following transport mechanisms functions without the requirement for energy?

A. Binding protein-dependent

B. Group transiocation

C. Symport

D. Uniport

E. Facilitated diffusion

Answer: E

Choose among listed bacteria whose optimal temperature for growth is 15°C:

A. heterophiles

B. thermophiles

C. mesophiles

D. halophiles

E. psychrophiles

Answer: E

Bacteria whose optimal temperature for growth is 37°C are known as:

A. psychrophiles.

B. thermophiles.

C. heterophiles.

D. halophiles

E. mesophiles.

Answer: E

Which of the following bacteria uses radiant energy as their energy source?

A. Auxotroph

B. Autotroph

C. Heterotroph

D. Lithotroph

E. Phototroph

Answer: E

Peptone water and nutrient broth are:

A. enriched media.

B. selective media.

C. enrichment media

D. differential medium.

E. simple media.

Answer: E

Addition of blood to a culture medium only allows the hemolytic bacteria that grow on the plate to be picked out. This is an example of a:

A. Chemically defined media

B. Complex media

C. Liquid media.

D. Selective media.

E. Differential media.

Answer: E

Endo medium is an example of:

A. transport medium.

B. enrichment medium.

C. enriched medium.

D. selective medium

E. differential medium.

Answer: E

Choose the nutrient medium for obtaining the separate colonies:

A. Meat-pepton broth

B. Sugar broth

C. Kitt-Tarozzi medium

D. Alkaline pepton water

E. Meat-pepton agar

Answer: E

Which of the following procedures can be used to isolate a pure culture of a bacteria from a mixture more frequently?

A. dilution in liquid medium.

B. dilution plating

C. enrichment culture

D. sedementation method.

E. streak plating

Answer: E

What is serological identification?

A. Examination of morphological properties

B. Examination of reducing properties

C. Examination of biochemical properties

D. Examination of tinctorial properties

E. Examination of antigenic properties

Answer: E

Peptolytic properties of bacteria we can study by detection in tubes:

A. Carbonic acids and waters

B. Glucose and lactose

C. Carbonic acids and nitrogen

D. Mannitol and metanol

E. Indol and hydrogen sulphide

Answer: E

Bacterial species that must live in an environment devoid of oxygen are called

A. chemotrophs

B. aerobes

C. facultative anaerobes

D. obligate aerobes

E. obligate anaerobes

Answer: E

Choose among these bacteria obligate aerobes.

A. Neisseria gonorrhoeae, Streptococcus pneumoniae

B. Shigella dysenteriae, Salmonella typhi

C. Bacillus anthracis, Brucella melitensis

D. Clostridium tetani, Clostridium botulini

E. Mycobacterium tuberculosis, Micrococcacae

Answer: E

Choose the nutrients media on which it is possible to grow anaerobic microorganisms:

A. Meat - pepton agar, meat - pepton broth

B. The curtailed serum, meat-pepton gelatin

C. Blood agar, serum agar

D. Endo's and Lewin's media

E. Sugar - blood agar Zoessler, Kitt-Tarozzi's medium

Answer: E

What is a plasmid?

A. Self-replicating segment of single stranded RNA

B. A bacterial chromosome

C. Bacterial inclusion

D. Part of the ribosome

E. Self-replicating segment of double stranded DNA

Answer: E

Resistance to many antibiotics is carried on:

A. sex pili.

B. enzymes

C. chromosomes

D. Col factor plasmids.

E. R factor plasmids.

Answer: E

The transfer of a naked fragment of DNA between bacteria is called:

A. conjugation

B. transduction

C. general transduction

D. recombination

E. transformation

Answer: E

Lysozyme can damage bacteria cell because bacteria contain:

A. outer membrane

B. lipopolysaccharides

C. lipoproteins

D. carbohydrates

E. peptidoglycan

Answer: E

Which of the following antibiotics interfere with cell wall synthesis?

A. tetracyclines

B. erythromycins

C. aminoglycosides

D. Polymixins

E. Penicillins

Answer: E

Destruction or inhibition of microorganisms in living tissues is known as:

A. sterilization

B. disinfection

C. asepsis

D. pasteurisation

E. antisepsis

Answer: E

The process of killing all microorganisms and their spores and viruses is known as:

A. antisepsis

B. asepsis

C. disinfection

D. pasteurisation

E. sterilization

Answer: E

Biological control used in an autoclave is:

A. Fungy

B. Ricketsia

C. E. colli

D. Mycobacterium tuberculosis

E. Spores of bacillus

Answer: E

Choose among the listed reservoirs for human infections.

A. food

B. water

C. sick animals, insects

D. fly

E. sick humans, sick animals, carriers

Answer: E

A condition in which toxin circulate in blood is known as:

A. bacteraemia

B. septicaemia

C. pyaemia

D. viraemia

E. toxaemia

Answer: E

Endotoxins have such properties:

A. are founded in both Gram-negative and Gram-positive bacteria.

B. are the part of the Gram-positive cell wall only

C. are heat labile

D. are proteins

E. all of them have the same effect

Answer: E

An example of a nonspecific chemical barrier to infection is:

A. NK cells

B. unbroken skin

C. cilia in trachea

D. all of these

E. lysozyme in saliva

Answer: E

Choose among the following humoral factor of a nonspecific resistance to infection:

A. macrophages

B. unbroken skin

C. cilia in intestine

D. Hydrochloric acid of stomach

E. complement

Answer: E

Natural killer cells are:

A. B cells that can kill bacteria without complement

B. cytotoxic T cells

C. increased by immunization

D. CD4 cells

E. able to kill virus-infected cells without prior sensitization

Answer: E

Which of the following best describes NK cell morphology?

A. small TcR- lymphocytes

B. large polymorphonuclear leukocytes

C. large Ig+ lymphocytes

D. small BcR- lymphocytes

E. large granular lymphocytes

Answer: E

What is an opsonin?

A. a chemotactic factor

B. a cytokine

C. a hydrolytic enzyme

D. an antiviral factor

E. a substance that enhances phagocytosis

Answer: E

The classic complement pathway is initiated by interaction of Cl with:

A. antigen

B. factor B

C. bacterial lipopolysaccharides

D. endotoxin

E. antigen-IgG complexes

Answer: E

Complement binding immunoglobulin via the classical pathway is

A. IgG and IgA

B. IgG and IgD

C. IgD and IgE

D. IgM and IgE

E. IgG and IgM

Answer: E

Which one of the following is true regarding the alternative complement pathway?

A. It can be triggered by infectious agents in presence of antibodies

B. It requires C1, C2, or C4

C. C4b2a presents

D. components B and properdin are not necessery

E. C3bBb presents

Answer: E

Which of the following is the end product of the activation of the complement system?

A. properdin

B. cascade reaction

C. complement factor C1

D. complement factor C5

E. membrane attack complex

Answer: E

Complement lyses cells by:

A. enzymatic digestion of the cell membrane

B. activation of adenylate cyclase

C. inhibition of elongation factor 2

D. enzymatic digestion of LPS

E. insertion of complement proteins into the cell membrane

Answer: E

An antigen is:

A. a hapten that combines with an antibody

B. a small molecule that attaches to cells.

C. a carbohydrate

D. a protein that combines with antibodies

E. a substance that incites an antibody respons and can combine

specifically with these antibodies.

Answer: E

Which of the following molecules would be the best antigens?

A. lipids

B. glucose

C. fatty acids

D. sugars

E. proteins

Answer: E

The region of an antigen that binds to specific receptors on lymphocytes is known as an:

A. epitaph

B. epitome

C. epitomy

D. epitop

E. epitope

Answer: E

An epitope is:

A. a T-cell.

B. a B-cell.

C. an antibody.

D. a hapten.

E. the antigen determinant site

Answer: E

Which part of the immunoglobulin binds with the antigen?

A. Fc fragment

B. H chains

C. L chains

D. constant parts of the H and L chains

E. variable parts of the H and L chains

Answer: E

Which type of antibody is MOST effective in activating complement?

A. All of the above

B. IgA

C. IgE

D. IgG3

E. IgM

Answer: E

Choose among the listed secretory immunoglobulins:

A. IgM

B. IgG

C. IgE

D. IgD

E. IgA

Answer: E

Which of the following classes of immunoglobulins can cross the placenta?

A. IgA

B. IgD

C. IgE

D. IgM

E. IgG

Answer: E

Plasma cells are:

A. mature T cells

B. immature macrophages

C. mature macrophages

D. immature T cells

E. antibody-producing cells

Answer: E

Choose antibody production cells:

A. T cells

B. B cells

C. T helpers

D. Macrophages

E. Plasma cells

Answer: E

Choose among the listed central organs of immune system:

A. GALT, spleen

B. lymph nodes, thymus,

C. thyroid gland, tonsil gland

D. bone narrow, spleen, bone narrow

E. thymus, bone marrow

Answer: E

Immunological memory refers to the ability of the immune system to:

A. recognize millions of different antigens

B. migrate from the blood vessels into the tissues

C. react with millions of different antigens

D. activate T cells

E. recall a previous immune response

Answer: E

Which of the following are antigen presenting cells?

A. NK cells and mast cels

B. Th and Tk

C. Plasma cells

D. Cytotoxic cells and nurse cells

E. Macrophages and B cells

Answer: E

T cells which assist in the functions of certain B cells and other T cells are:

A. Sensitized

B. Cytotoxic

C. Natural killer

D. T killer

E. Helper

Answer: E

Helper T cells are characterised by the presence of cell surface

A. CD2

B. CD6

C. CD8

D. CD10

E. CD4

Answer: E

Which of the following types of CD proteins is found only on T cytotoxic lymphocytes?

A. CD2

B. CD3

C. CD4

D. CD5

E. CD8

Answer: E

An attenuated vaccine is composed of:

A. killed microorganisms

B. inactivated bacterial toxins

C. purified macromolecules

D. recombinant vectors

E. living, weakened microorganisms

Answer: E

A toxoid is a(n):

A. type of antibody that combines with a toxin

B. type of enzyme that destroys toxins

C. type of bacterium that resists phagocytosis

D. type of virus

E. inactivated toxin

Answer: E

Which of the following best describes type I hypersensitivities?

A. The reaction of TDTH cells, cytokines, and macrophages

B. The formation of immune complexes that are deposited on basement membranes

C. Complement-dependent lysis of cells

D. Overreaction of the immune system

E. The release of physiological mediators from IgE-bound mast cells and basophils

Answer: E

If a person were rushed to the hospital in anaphylactic shock from a bee sting, which antibodies would be found in the highest amount?

A. IgD

B. IgG

C. IgA

D. IgM

E. IgE

Answer: E

Hemolytic disease of the newborn occurs when an:

A. Rh-positive mother carries an Rh-negative fetus.

B. 0 mother carries an AB fetus

C. AB mother carries an 0 fetus.

D. Two of the above are correct.

E. Rh-negative mother carries an Rh-positive fetus

Answer: E

An example of a type III immune complex disease is:

A. graft rejection

B. contact dermatitis

C. atopy

D. asthma

E. serum sickness

Answer: E

A positive reaction to the tuberculin skin test is a classic example of

A. an anaphylactic reaction

B. degranulation and release of mediators

C. a humoral immune response

D. an IgG-complement mediated reaction

E. a delayed hypersensitivity reaction

Answer: E

Which of the following assays is currently being used for the detection of HIV?

A. Agglutination

B. Complement fixation

C. Immunodiffusion

D. Flow cytometry

E. Enzyme-linked immunosorbent assay

Answer: E

All viruses

A. Contain DNA

B. Contain RNA

C. Contain hemagglutinin

D. Are susceptible to lipid solvents

E. Are intracellular parasites

Answer: E

The following are enveloped viruses

A. Picornaviruses

B. Adenoviruses

C. Rotaviruses

D. Parvoviruses

E. Orthomyxoviruses

Answer: E

The smallest known viruses are:

A. Adenovirus

B. Enterovirus

C. Orthomyxovirus

D. Paramyxovirus

E. Picornavirus

Answer: E

The viral protein coat is also referred to as a(n

A. core

B. cell membrane

C. envelope

D. cell wall

E. capsid

Answer: E

Which virus was the first one to be purposely eradicated from the face of the Earth?

A. chickenpox

B. swinepox

C. cowpox

D. avianpox

E. smallpox

Answer: E

Which of the following is necessary for a virus to reproduce

A. a vaccine

B. a high body temperature

C. sunlight, water, and food

D. a high concentration of protein

E. a living host cell

Answer: E

A phage genome that resides in a bacterial host in a latent state is known as a:

A. prephage

B. prephagenome

C. prophagenome

D. provirus

E. prophage

Answer: E

The clumping of red blood cells by virus particles is known as:

A. haemadsorption

B. haemogglutination

C. hemygglutination

D. hemigglutination

E. haemagglutination

Answer: E

Herpes simplex virus type 1 most commonly causes cold sores. The site of reactivation for this virus is the

A. vagus nerve

B. B lymphocyte

C. epidermal cell

D. eighth cranial nerve

E. trigeminal nerve

Answer: E

Which virus does cause genital herpes?

A. Herpes simplex virus-1

B. cytomegalovirus

C. human herpes virus 6

D. human herpes virus 8

E. Herpes simplex virus-2

Answer: E

The specimen from which varicella-zocter virus is most likely to be recovered is:

A. Swab from ulcer

B. Saliva

C. Spinal fluid

D. Serum

E. Vesicle fluid

Answer: E

What is the reactivation of herpes zoster virus in an adult called?

A. infectious mononucleosis.

B. aphthous stomatitis.

C. chronic fatigue syndrome.

D. neuritis

E. shingles.

Answer: E

Cytomegalovirus (CMV)

A. Primary infection is usually asymptomatic

B. An infectious mononucleosis-like syndrome may occur during primary infection

C. May cause severe infection in immunocompromised individuals

D. May cause congenital infection

E. All are correct

Answer: E

Which virus does cause congenital defects?

A. adenovirus

B. herpes simplex virus

C. measles virus

D. mumps virus

E. rubivirus

Answer: E

Which of the following virus is associated with Kaposi’s sarkoma?

A. Adenovirus

B. Hepatitis A virus

C. Hepatitis B virus

D. Human T cell leukemia virus

E. Human herpesvirus 8

Answer: E

Acyclovir is used against:

A. hepatitis B virus

B. hepatitis C virus

C. HIV

D. influenza virus

E. herpesviruses

Answer: E

An adenovirus contains:

A. a neuraminidase

B. fibrinolysisn

C. a double shelled capsid

D. an envelope

E. a DNA genome

Answer: E

Which protein is predominantly responsible for attachment of the influenza virus to susceptible epithelial cells located in the upper respiratory tract?

A. Neuraminidase

B. Matrix protein

C. Nucleoprotein

D. Fusion protein

E. Hemagglutinin

Answer: E

The following characterizes the genome of the orthomyxoviruses:

A. Nonsegmented RNA genome

B. Nonsegmented DNA genome

C. Segmented DNA genome

D. Supercoiled double stranded DNA genome

E. Segmented RNA genome

Answer: E

Which of the following statements best describes antigenic shift within the orthomyxoviruses?

A. A minor antigenic change of the envelope proteins

B. A medium antigenic change of the envelope proteins

C. A minor lipid change of the envelope proteins

D. A major lipid change of the envelope proteins

E. A major antigenic change of the envelope proteins

Answer: E

Antigenic drift of orthomyxoviruses is best characterized as:

A. A major change in the neuraminidase or hemagglutinin proteins

B. A major change in the matrix protein

C. A minor change in the matrix protein

D. A minor change in envelope

E. A minor change in the neuraminidase or hemagglutinin proteins

Answer: E

If an influenza infection has been diagnosed within a family, which antiviral drug could be administered to other family members as a prophylactic measure?

A. Acyclovir

B. Ganciclovir

C. Cyclosporin A

D. Foscarnet

E. Amantadine

Answer: E

Which proteins of influenza viruses does flu vaccine contain ?

A. Hemagglutinin, neuraminidase and fusion proteins

B. Neuraminidase and fusion proteins

C. Hemagglutinin

D. Neuraminidase

E. Hemagglutinin and neuraminidase

Answer: E

Respiratory syncytial virus (RSV) is most associated with which of the following syndromes:

A. Bronchiolitis of young adults

B. Upper lobe infiltrates of young adults

C. Upper lobe infiltrates of young children

D. Lower lobe infiltrates of young adults

E. Bronchiolitis of young infants

Answer: E

A girl is infected with a paramyxovirus. The cytopathic effect for this virus is

A. major destruction of the tissue culture monolayer

B. intranuclear inclusion formation

C. Negri body formation

D. cellular degranulation

E. syncytia formation

Answer: E

For serological diagnostics of mumps such material is used:

A. saliva

B. blood

C. urine

D. spinal liquid

E. paired serums.

Answer: E

The prophylaxis of mumps is conducted by:

A. immunoglobulin

B. toxoid

C. the killed vaccine

D. antitoxic serum.

E. live vaccine

Answer: E

Select the predominant route of transmission for Hepatitis B, C, and D viruses.

A. airborne

B. fecal-oral

C. contaminated food

D. fomites

E. parenteral

Answer: E

Choose in the listed which hepatitis viruses are transmitted by the fecal-oral route?

A. HBV, HDV, HEV

B. HBV, HCV, HDV

C. HAV, HBV

D. HAV, HBV, HEV

E. HAV, HEV

Answer: E