Department of Pathology
Azra Naheed Medical College
Grand Test-2, January 2018
MBBS 3rd Year (MCQ)
(General Microbiology)

Time Allowed: 30 min

Total Marks: 30

Name: _____

Roll No: _____

Date: _____

Instructions:

1. All objective questions are to be attempted on the paper and returned to the invigilator within specified time after you have received the question paper.
2. Any cuttings or overwriting in answering the objective part will not be accepted and no marks will be given even if the answer is correct.

1. The predominant anaerobic bacterial flora present in feces is:
   a. E.coli
   b. Clostridium
   c. Coliforms
   d. Enterococcus
   e. Bacteriodes fragilis

2. With regard to antibiotics which one of the following statements is correct?
   a. Vancomycin and penicillins inhibit bacterial protein synthesis.
   b. Cephalosporins and penicillins inhibit bacterial cell wall synthesis through the same mechanisms
   c. Vancomycin is a protein synthesis inhibitor
   d. Metronidazole has similar mechanism of action as erythromycin
   e. Chloramphenicol is a cell wall inhibitor

3. Which of the following is an example of selective media?
   a. Chocolate agar
   b. Lowenstein Jensen's medium
   c. Blood agar
   d. MacConkey agar
   e. Nutrient agar

4. A healthy person rarely suffers from bacterial infection in spite of daily inhaling, ingesting and coming in contact with thousands of bacteria. He is protected by normal flora. Which of the following statements is NOT correct regarding normal flora?
   a. Staphylococci are the most common organisms of skin
   b. Escherichia coli is the permanent resident of colon
   c. Bacteroides fragilis is found in colon
   d. Lactobacilli are most common organisms of respiratory tract
   e. Lactobacilli are found in genital tract

Glycocalyx/slimelayer

5. Which component of *Streptococcus mutans* mediates adherence to surface of teeth leading to dental plaque causing dental caries.
   a. Capsule
   b. Protein A
   c. Glycocalyx/slime layer
   d. Granule
   e. Pili

6. The correct temperature and time for pasteurization is:
   a. 121°C for 15 min
   b. 62°C for 30 minutes
   c. 26°C for 30 minutes
   d. 180°C for 2 hours
   e. 100°C for 2 hours

7. Which one of the following groups of antimicrobial agents acts on microorganisms by inhibiting protein synthesis?
   a. Fluoroquinolones
   b. Aminoglycosides
   c. Pencillins
   d. Vancomycin
   e. Cephalosporins

8. The instruments used in operation theatres are sterilized by:
   a. Boiling at 100°C
   b. Pasteurization
   c. Tyndallization
   d. Autoclaving
   e. Hypochlorite or bleach

9. Laboratory results of a clinical specimen from a patient with hospital-acquired pneumonia revealed the presence of methicillin-resistant Staphylococcus aureus (MRSA). Which of the following drugs is the best empiric treatment?
   a. Ceftazidime
   b. Dicloxacillin
   c. Penicillin
   d. Tobramycin
   e. Vancomycin

10. A patient diagnosed with meningitis revealed *Neisseria meningitides* on enriched media. Chocolate agar is an example of enriched medium used for culturing of:
a. Bacteria that grow on simple media
b. Fastidious bacteria
c. Non fastidious bacteria
d. Wall less bacteria
e. Obligate intracellular parasites

11. Media containing sugar had to be sterilized in the laboratory. Regarding the methods of sterilization using moist heat, tyndallization is:
a. Boiling at 100°C
b. Boiling at 121°C
c. Similar to autoclaving
d. Best method of sterilization
e. Intermittent steaming at 100°C for 3 days

12. Which method is used for the sterilization of heart lung machines and prosthetic heart valves?
a. Formaldehyde
b. Ethylene oxide gas
c. Autoclaving
d. Filtration
e. Gamma radiations

13. Pathogenesis is a process of disease production which includes the mechanisms depending upon certain sequence of events i.e source of infection, transmission of microorganisms, survival and multiplication, ability to avoid host defense mechanisms and damage to the host. Which of the following options is most appropriate to cause damage and dysfunction to the host?
a. Absence of capsule & surface proteins
b. Damaged Fimbria or pili
c. Enhanced phagocytosis
d. Toxin production
e. Release of lysogenic enzymes by macrophages

14. Alcohol is disinfectant that rapidly kills bacteria when applied in aqueous solution in range of:
a. 10-30%
b. 30-50%
c. 50-60%
d. 70-75%
e. 95-100%

15. Which of the following bacteria does not contain cell wall?

a. *Bacteroids*
b. *Fusobacterium*
c. *Mycoplasmas* mycoplasms)
d. *Ureaplasma*
e. *Chlamydia*

mycoplasm

16. A patient was received in the hospital, 1 week following a road accident. He had locked jaw and spastic paralysis, ending up with diagnosis of spore forming Clostridium tetani. Which of the following is not true of spores?

a. Spores have thick keratin like coat made of dipicolinic acid
b. Spores are metabolically inactive
c. Spores re killed by boiling
d. Spores are highly resistant to chemicals
e. Spores are produced by Bacillus and Clostridium species

(Sendup 2020)

Doubt Spores ... by ...

17. Which of the following disinfectant cannot be used for skin:

a. Hydrogen peroxide
b. Iodophores
c. 70 –90% alcohol
d. Bleach Bleach.
e. Tincture of iodine

18. Nose is mainly colonized by which bacterial flora?

a. Staph epidermidis
b. Staph aureus staphylococcus aureus.
c. Staph pyogens
d. Staph mutans
e. Lactobacilli

19. Which of the following antibiotics inhibits bacterial RNA synthesis?

a. Streptomycin
b. Penicillin
c. Rifampin
d. Sulphonamides (Sulphonamides.)
e. Trimethoprim

20. Bacterial pili may enhance virulence of bacterial pathogens by:

a. Transporting nutrients
b. Providing a means of attachment
c. Increasing the surface area of bacteria.
d. Being an endotoxin
e. By acting as an exotoxin

21. Which of the following is not a characteristic of bacterial capsules?
a. is antigenic
b. is polysaccharide in nature
c. Has an endotoxin like action
d. Can be used in identification of bacteria
e. is anti-phagocytic

22. Which of the following is most effective for sterilizing culture media?
a. Ethylene oxide
b. Glutaraldehyde
c. Autoclave
d. Ultraviolet radiation
e. Pasteurization

23. The predominant bacterial species that is flora of human skin is:
a. *Lactobacillus.*
b. *Candida albicans.*
c. *Streptococcus pneumoniae.*
d. *Staphylococcus epidermidis*
e. *Bacterioides fragilis.*

121 15lb 15min.

24. The temperature, pressure and holding time of autoclave is:
a. 121°C, 15lb/inch for 15 min
b. 110°C, 15lb/inch for 10 min
c. 110°C, 15lb/inch for 10 min
d. 115°C, 16lb/inch for 20 min
e. 116°C, 15lb/inch for 30 min

25. Which of the following is an example of differential media?
a. Chocolate agar
b. L J medium
c. TCBS agar
d. MacConkey agar
e. Nutrient agar

26. Glutaraldehyde is commonly used for the sterilization of:
a. Fiber-optic endoscopes
b. glassware
c. Catheters
d. respiratory ventilators
e. prosthetic heart valves

27. The instruments used in operation theatres are sterilized by;
   a. Boiling at 100°C
   b. Pasteurization
   c. Tyndallization
   d. Autoclaving Autoclaving.
   e. Hypochlorite or bleach

28. Infection that spread rapidly over large areas of the globe
   a. Endemic
   b. Epidemics
   c. Pandemics Pandemics
   d. Opportunistic infection
   e. Sporadic

29. Which of the following is the virulence factor of bacteria?
   a. Capsule
   b. Exotoxin
   c. Endotoxin
   d. Pili
   e. All of the above

in virulence factors all are part

30. Micro organisms that keep vaginal pH low
   a. Staph aureus
   b. Staph epidermidis
   c. Lactobacilli Lactobacilli
   d. Viridians streptococci
   e. Escherichia coli

Azra Naheed Medical College
Grand Test-1, 03 December 2019
MBBS 3rd Year (MCQ)
(Cell Injury & General Microbiology)

Time Allowed: 25 min — Total Marks: 25

Name: M. Rizwan
Roll No: 17-129
Date: _____

Instructions:
1. All objective questions are to be attempted on the paper and returned to the invigilator within specified time after you have received the question paper.
2. Any cuttings or overwriting in answering the objective part will not be accepted and no marks will be given even if the answer is correct.

1. Which of the following bacterial cell component is present only in Gram negative bacteria and causes septic shock in patients?
   a. Lipopolysaccharide (lipopolysaccharides.)
   b. Flagella
   c. Mesosome
   d. Plasmid
   e. Capsule

2. A gram positive non motile prokaryote isolated from the wound swab of a 5 year old child, which of the following is true about prokaryote?
   a. Prokaryotes do not have membrane-bound organelles. (Prokaryotes do not have membrane bound organelles.)
   b. The nucleus has nuclear membrane
   c. Prokaryotes don't have cell wall
   d. Ribosomes larger size (80s)
   e. Bacteria are not prokaryotic

3. A patient was diagnosed with pneumonia. The Gram negative respiratory rods most commonly causing th disease will be?
   a. Mycoplasma pneumoniae
   b. Mycobacterium tuberculosis
   c. Klebsiella pneumonia (Klebsella Pneumonia)
   d. Streptococcus pneumoniae
   e. Mycobacterium leprae

4. After a road traffic accident, Gram positive rod survived in an open wound. Depending upon the O2 requirements of bacteria, where do you put this bacterium?
   a. Strict aerobe (Send up 2020)
   b. Strict anaerobe
   c. Facultative
   d. Carboxyphilic
   e. Microaerophilic

5. Gram staining of CSF sample of a patient suspected to have meningitis revealed Gram positive [illegible]. Which of the following structure is found in the organism is anti-phagocytic and is responsible for the quelling test?
   a. Capsule
   b. Cell wall
   c. Cytoplasmic membrane
   d. Ribosomes
   e. Outer membrane

6. Extra chromosomal double stranded circular DNA molecules that are capable of replication independently of bacterial chromosomes and responsible for the transmitting bacterial resistance genes is:
   a. Mesosomes
   b. Transposons
   c. Nucleoids
   d. Plasmids
   e. Spores

7. Bacterial siderophores may enhance virulence of bacterial pathogens by:
   a. Transporting iron and nutrients
   b. Providing a means of attachment
   c. Increasing the surface area of bacteria.
   d. Being an endotoxin
   e. By acting as an exotoxin

8. Which of the following phases of growth curve would most likely be missing detectable growth, but having vigorous metabolic activity?
   a. Lag phase
   b. Log phase
   c. Stationary phase
   d. Death phase
   e. Decline phase

9. The ability to use compounds and ions other than oxygen as terminal oxidants in respiration is a widespread trait used by facultative bacteria to grow in the absence of oxygen. This capacity is called as:
   a. Photosynthesis
   b. Fermentation
   c. Anaerobic respiration
   d. Substrate phosphorylation
   e. Nitrogen fixation

10. Transfer of a donor chromosome fragment by a temperate bacterial virus is defined as which one of the following?
    a. Competence
    b. Conjugation
    c. Recombination
    d. Transduction
    e. Transformation

A patient after dining outside developed diarrhea after 24 hours. A toxin produced by staph. aureus was suspected to be responsible for his condition. his Which one of the following is the property of exotoxin:

a. Lipo-polysaccharide in nature.
b. Weakly immunogenic.
c. Toxoids can be used as vaccines
d. Stable and withstands heating above 100 degree centigrade for hours.
e. Not secreted from the cell

14. A patient was received in the emergency department having a diabetic foot. Which of the following component of bacteria plays a role in pathogenesis for the process of invasiveness?

a. Exotoxins
b. Teichoic acid
c. Collagenase enzyme
d. Plasmids
e. Capsule

15. A surgeon has to go for 2 laparoscopies in a day and he has just one laparoscope. Which chemical can be used by him to achieve efficient sterilization in minimum time?

a. Glutaraldehyde
b. Bleach
c. ethylene oxide
d. 70% ethyl alcohol
e. Formaldehyde

16. A patient was received in the hospital, having flaccid paralysis. He was suspected to have infection with spore forming clostridium botilinum. Which of the following is not true about spores?

a. Spores have a thick, keratin-like coat made of dipicolinic acid
b. Spore are metabolically inactive
c. Spore are killed by disinfectants
d. Spore are highly resistant to chemicals
e. Spore are produced by bacillus and clostridium species

17. A staff nurse collects all contaminated sheets, gloves, masks and caps from Operation Theater after laparotomy. She sterilizes all objects to reuse them. Which technique is most appropriate to sterilize the surgical instruments and culture media?

a. Boiling them at 100 degrees C
b. Tyndallization
c. Washing
d. Steaming under pressure
e. Putting in hot air oven

18. With regard to mechanisms of cellular adaptation, which of the following statements is TRUE?

a. Hyperplasia refers to an increase in cell size
b. The myocardium adapts to increased workload by hypertrophy and hyperplasia.

c. Metaplasia is irreversible.
d. Barrett's metaplasia is squamous to columnar epithelium in the distal oesophagus
e. Barrett's metaplasia is Squamous to columnar epithelium with goblet cells in distal

17. A 48-year-old woman has a malignant lymphoma involving lymph nodes in the para-aortic
treated with a chemotherapeutic agent which results in the loss of individual neoplastic
fragmentation of individual cell nuclei and cytoplasm. Over the next 2 months, the lymphoma
size, as documented on abdominal CT scans. By which of the following mechanisms has
primarily responded to therapy?
a. Coagulative necrosis
b. Mitochondrial poisoning
c. Phagocytosis
d. Acute inflammation
e. Apoptosis

18. A 53-year-old man has experienced severe chest pain for the past 20 min. A coronary angiogram
performed emergently and reveals >90% occlusion of the anterior interventricular (left anterior descending)
artery. The chest pain stops after ten minutes. In this setting, reversible injury to myocardial fibers will have
occurred when which of the following cellular changes occurs?
a. Water content decreases
b. Cytoplasmic sodium decreases
c. Nuclei undergo karyorrhexis
d. Unaffected intracellular PH
e. Blebs form on cell membranes

19. A 19-year-old woman gives birth to her first child. She begins breast feeding the infant. She continues breast feeding for almost a year with no difficulties and no complications. Which of the following cellular processes that began in the breast during pregnancy allowed her to nurse the infant for this period of time?
a. Stromal hypertrophy
b. Epithelial dysplasia
c. Steatocyte atrophy
d. Ductal epithelial metaplasia
e. Lobular hyperplasia

20. A 20-year-old woman has blood pressure measurements in the range of 150/90 to 130/110 mm Hg, but does not regularly take medications. A chest x-ray shows an enlarged heart. The size of her heart is most likely to be the result of which of the following processes involving the myocardial fibers?
a. Hypertrophy
b. Fatty infiltration
c. Hyperplasia
d. Fatty degeneration
e. Edema

21. A study is performed to identify predisposing risks for tissue cellular changes. In some persons epithelial metaplasia occurs. In which of the following situations is the process of epithelial metaplasia most likely to take place?
a. Tanning of the skin following sunlight exposure
b. Lactation following pregnancy
c. Vitamin A deficiency
d. Acute myocardial infarction
e. Urinary obstruction from an enlarged prostate

22. A study is performed involving the microscopic analysis of tissues obtained from surgical procedures. Some of these tissues have the microscopic appearance of an increased cell size of multiple cells within the tissue, due to an increase in the amount of cell cytoplasm, with nuclei remaining uniform in size. Which of the following conditions is most likely to have resulted in this finding?
a. Uterine myometrium in pregnancy

Female breast at puberty
b. Liver following partial resection
d. Ovary following menopause
c. Cervix with chronic inflammation

A 71-year-old man has difficulty with urination. His urinary retention leads to numerous trips to the restroom per day. On digital rectal examination is prostate is diffusely enlarged. Which of the following represents a pathologic change leading to this man's problem?

a. Dysplasia
b. Hypertrophy
c. Hyperplasia
d. Metaplasia
e. Neoplasia

24. A 31-year-old primigravida has a difficult delivery of a term infant, with loss of 1500 cc of blood. She has hypotension for 6 hours. Over the next month, her ACTH level decreases. Within the next 3 months, her adrenal glands become decreased in size. This alteration of the adrenals is primarily due to which of the following cellular processes?

a. Metaplasia
b. Gene mutation
c. Apoptosis
d. Autophagocytosis
e. Coagulative necrosis

25. A 50 years old diabetic, alcoholic develops reversible hepatic injury. The hepatocytes are distended with yellow colored substance creating vacuoles in cytoplasm. What kind of substance actually has accumulated.

a. Glycogen
b. Water
c. Fat
d. Mucin
e. Melanin

Department of Pathology
Azra Naheed Medical College
Grand Test-1, 03 December 2019
MBBS 3rd Year (SEQ)
(Cell Injury & General Microbiology)

Total Marks: 30

Time Allowed: 50 min

Name: M. Arslan

Roll No: 063

Date:

Instructions:

1. All subjective questions are to be attempted on the paper and returned to the invigilator within specified time after you have received the question paper.
2. Neat hand writing and use of margins will increase the outlook and presentation of your paper.

Q-1 A young boy after a road traffic accident developed paralysis and locked jaw. A gram positive anaerobic rod was identified.

A. Is this bacterium spore forming or non-spore-forming? Spore forming — 0.5
B. What is the process by which anaerobic bacteria obtain their nutrition? Briefly explain. — 01 Fermentation
C. What are bacterial spore and their medical implications? Book 11+12 — 1.5
D. Which is the best process used for sterilization of surgical instruments? What is its principle and procedure? Autoclaving Temperature 121° Pressure = 15 lb/inch² Holding Time = 15-20 mints — 02

Q-2 What are the differences between Gram positive and Gram negative bacteria? — 02
A. Draw and label the cell wall of Gram positive rods. — 01
B. Make a flow chart to classify Gram positive rods. — 01
C. How the bacteria acquire iron from our cells? — 01
D. Classify bacteria on the basis of their oxygen requirements.

Q-3
A. Draw and label the bacterial growth curve. During which phase of growth curve is the effect of antibiotics maximum? — 1+0.5
B. Define culture media. Name one enriched media and one selective media. — 01
C. What is the principle and procedure of Gram staining? — 1.5
D. What is lipo-polysaccharide? How it causes endotoxin mediated shock? — 01

Q-4 Discuss the following terminologies.
A. What are plasmids and their role? — 01
B. What is the difference between conjugation and transduction? — 01
C. Tabulate the differences between endotoxins and exotoxins. — 02
D. What are biofilms and their role in pathogenesis of dental caries? — 01

QNo:02 (c) The bacteria produce the Iron binding proteins or compounds known as the siderophores. These siderophores are released by the Enterobacter E. coli and secreted by the bacteria capture iron by chelating it and attach to the specific host of the bacterial surface.

QNo:02(d)

Strict aerobic	Strict obligatory Anaerobe	Facultative
grows in the presence of the oxygen.	absence of the oxygen	Aerobic grows in the presence and absence of oxygen.
Pseudomonas aeruginosa	Clostridium species	Staphylococcus species

Heat liable toxins:- causes an increase in the cAMP concentration in the enterocytes. ETEC causes the hypersecretion of Cl and water by the enterocytes. Na reabsorption but becomes fluid and watery diarrhea

Result of the increased production of the cellular proteins by the mechanical stress through the stretch receptors. The RNA synthesis and protein production that cause hypertrophy. Inc in the expression of genes for contractile proteins, activation of the alpha adrenergic receptors.

Q-5 04

A. Define different kind of adaptations 02

B. Give Mechanism of Hypertrophy (S G D) 02

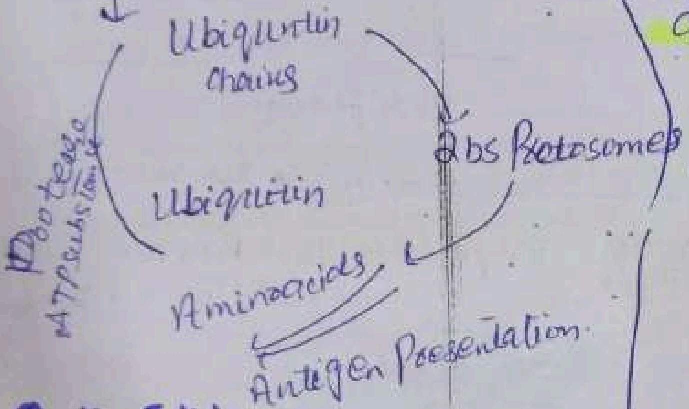
C. What is the role of stem cells in metaplasia and hyperplasia. 51 Robins 02

D. What is Ubiquiten proteosome pathway. Explain with the help of flow diagram. 02

Q-6 Hypoxia being the major cause of cell injury can cause tremendous changes in normal cell.

A. Draw a normal cell and cell affected by hypoxic cell. 43 Robins 2.5

B. What is the role of declining ATP in cell injury, what changes can be expected to be seen. 2.5



- Stem cells have the regenerative ability to restore the endometrium during the menstrual cycle. These cells can participate in the development of diseases such as the endometriosis, endometrial cancer and provides the cell therapy.

Q NO: 06

- Ischemia
- ↓
- Mitochondria
- ↓
- Oxidative phosphorylation
- ↓ ATP
  - ↓ Na Pump — Influx of Na^+, H_2O, Ca^+; ↑ Efflux of K^+ → ER swelling, Cellular swelling, Loss of microvilli, blebs
  - ↑ Anaerobic Glycolysis — ↑ Glycogen, ↓ pH, ↑ Lactic acid
  - Detachment of Proteins — ↓ Protein Synthesis

Q NO: 05 (A) Hyperplasia:
The increase in the number of the cells resulting increase in the size of the organ is called as the hyperplasia.
~~Breast, liver, prostate~~

Hypertrophy:
The increase in the size of the cells resulting inc in the size of organ is known as the hypertrophy.

Example:- Heart, skeletal & smooth muscles.

Atrophy:- Reduce in the size of the organ or shrinkage of a cell by the loss of substance.

Metaplasia:-
The phenomenon in which one adult cell type epithelium is replaced by another cell type epithelium metaplasia.

Example:-
Barrett's esophagus
In the habitual smoker the normal ciliated columnar epithelium is replaced by the squamous cell epithelium.

ER swelling
Cell swelling

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(Cell Injury & General Microbiology)

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Name: M Rizwan
Roll No: F17-129
Date: _____

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B. What is the process by which anaerobic bacteria obtain their nutrition? Briefly explain. 01
C. What are bacterial spore and their medical implications? 1.5
D. Which is the best process used for sterilization of surgical instruments? What is its principle and procedure? 02

Q-2

A. Draw and label the cell wall of Gram positive and Gram negative bacteria? 02
B. Make a flow chart to classify Gram positive rods. 01
C. How the bacteria acquire iron from our cells? 01
D. Classify bacteria on the basis of their oxygen requirements. 01

Q-3

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Q-5

A. Define different kind of adaptations 04
B. Give Mechanism of Hypertrophy 02
C. What is the role of stem cells in metaplasia and hyperplasia. 02
D. What is Ubiquiten proteosome pathway. Explain with the help of flow diagram. 02

Q-6 Hypoxia being the major cause of cell injury can cause tremendous changes in normal cell.

A. Draw a normal cell and cell affected by hypoxic cell. 2.5
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