



### Instructions

1. Attempt all questions.
2. All question carry equal marks.
3. The SEQ's part is to be submitted within 2 hours, Extra time will not be given.
4. Neat Handwriting use of margin and marker for headlines will increase the presentation of your paper.
5. Do not write your name or disclose your identity in anyway.

1. ✓ What is Gene Mutation? Give its types with common examples and their effect. 05
2. ✓ A 45 years old female presented with painless enlargement of thyroid gland, her serum shows circulating antithyroid antibodies.
  - a) What is your most likely diagnosis? 01
  - b) Enumerate 4 organ specific autoimmune diseases. 04
3. ✓ Anaplasia is considered as hallmark of malignant transformation
  - a) Give three morphological changes characteristic of anplasia 2.5
  - b) Enumerate three pathways for dissemination of cancer 2.5
4. ✓
  - a) Name four opportunistic fungi. 02
  - b) Mention three laboratory methods for diagnosis of fungal diseases 03
5. A 60 Year old male, chronic alcoholic dies in a roadside accident. On Autopsy Liver was found to be moderately enlarged, yellowish, soft and greasy
  - a) Discuss pathogenesis of the lesion 03
  - b) Describe microscopic appearance 02
6. ✓ Scar tissue is formed at the site of healed clean surgical wound.
  - a) Enumerate three processes involved in its formation 03
  - b) Describe fibroblast migration and proliferation during scar formation. 02
7.
  - a) What is an embolus? Enumerate the three primary abnormalities that lead to thrombus formation. 03
  - b) A patient survives the immediate effects of a thrombotic vascular obstruction. What would be the fate of thrombus in the following days to weeks? 02
8. ✓
  - a) What is apoptosis? 02
  - b) Describe cell morphology and biochemical changes in apoptosis? 03
9. Give an account of factors that affect wound healing. 05

10. a) Describe the morphology of the necrotic cell 02  
b) Give a brief account of various morphological patterns of. 03

11. A 10 year old boy is bitten by a wild dog while playing in the street.  
a) What disease is this boy at risk of contracting and which organism is the cause? 01  
b) What are the characteristics of this organism? 02  
c) How is the disease diagnosed? 02

12. After recent flooding in a slum area of Faisalabad there is a large influx of patients in the emergency department of a hospital with specimens sent to lab are classical rice water stools:  
(a) Name the most likely etiological agent 03  
(b) Give the pathogenesis and lab diagnosis of this. 02

13. Enumerate various methods of STERILIZATION, giving examples. 05

14. Women of child bearing age are far more prone to UTIs than men because of shortened urethra  
a) Enlist 2 bacteria in order of frequency which can cause UTI in women of child bearing age 02  
b) Give 4 risk factors predisposing to UTI 03

15. a) Discuss briefly the role of different viruses in cancer development. 02  
b) Enlist different agents responsible for carcinogenesis. 03





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Sent up 2021  
MBBS 3<sup>rd</sup> Year (SEQ)

Time Allowed: 2 hour

Roll No: \_\_\_\_\_

Date: \_\_\_\_\_

Instructions:

- 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.
- Neat hand writing and use of margins will increase the outlook and presentation of your paper.

Attempt all Questions. Each Question carries 5 marks

- A body builder develops his muscle arms by doing exercise.
  - What type of adaptation is this? 2
  - What is the mechanism of this adaptation? 3
- A 65 year old man developed low grade fever with productive cough and lymph node enlargement. His chest X-ray was done and showed multiple opacities. Histological report of these lesions conferred features of chronic granulomatous inflammation with tuberculosis etiology.
  - Enlist six causes of chronic granulomatous inflammation 2
  - What kind of hypersensitivity reaction has occurred in this patient? 1
  - Give its pathogenesis 2
- A 35 year old male presented to the surgical emergency with large excisional wound on his left leg creating a large defect on skin surface.
  - Name the type of healing in above condition. 1
  - Name the factors that can influence the wound healing. 2
  - Enlist four growth factors and cytokines affecting various steps in healing. 2
- A 20 year old hockey player fractured his femur during a game. Over the next few days in hospital, he developed progressive respiratory problems and died 3 days later. On autopsy, oil red-O positive material is seen in the small blood vessels of lungs and brain.
  - Which complication has occurred in him? Give its pathogenesis. 2
  - Enumerate the three primary influences on thrombus formation and name this triad. 3
- A 40 year old female gave birth to a child with flat facial profile oblique palpebral fissures, and epicanthic folds. He grew into a mentally retarded child.
  - What is the expected underlying chromosomal abnormality in this child? 1
  - Describe the mechanism of development of this genetic abnormality 4

6. A 24 year old female with a history of heavy and painful menstrual period has been having difficulty conceiving despite months of trying to become pregnant. Her workup included a bimanual pelvic examination and an ultrasound, which demonstrated a massive uterus that was presumed to be a leiomyoma.
- a) Enlist any four Mesenchymal benign tumors other than leiomyomas? 2
- b) How would you grade a tumor? 3
7. A person develops rashes all over his body after stung by a bee while handling a bee hive to collect honey.
- a) Which type of hypersensitivity is this? 1
- b) What is the mechanism for type four hypersensitivity reactions? 4
8. Define the following:
- i. Transposons 1
- ii. Sterilization 1
- iii. Spore and its medical implication 1
- iv. Name two exotoxin producing bacteria, their mechanism of action and the diseases produced by them. 2
9. A woman who recently returned from a trip to South America complains of a persistent high fever, malaise, and constipation that had lasted for over a week. She recalls that the fever began slowly and climbed its way up to the current  $41^{\circ}\text{C}$ . A physical exam reveals that she has an enlarged spleen and a generally tender abdomen with rose spots on her chest and abdomen. The physician asks for a stool sample to complete the diagnosis:
- a) Which organism is most likely to be identified in her stool? 0.5
- b) What is the pathogenesis of the disease? 1.5
- c) Discuss the laboratory diagnosis. 2
- d) Classify Gram negative rods on the basis of lactose fermentation. 1
10. A 42- year old male presented with a history of productive cough, night sweats, low grade fever and weight loss for the last 3 months. Chest X- ray reveals opacity in the upper zone of the left lung. Histopathology reveals granulomas.
- a) What is the most likely causative agent and the disease? 2
- b) Name the special staining technique used for the diagnosis. 1
- c) Discuss the laboratory diagnosis of this case. 2



11. A 25-year-old woman had a papular rash on her trunk, arms and palms with no itching. Vaginal examination revealed two flat, moist, slightly raised lesions on the labia. Specimen from a labial lesion was examined in a dark field microscope revealing spirochetes.

- a) What is the most likely diagnosis and the causative agent? 1
- b) Explain the term prozone phenomenon. 1
- c) Name the specific and non-specific tests for the diagnosis of the above mentioned case 3

12. You are a physician at medical camp where an outbreak of diarrhea occurred. Patients complained of excessive frequency of watery stools, with no blood. Gram stain of stool show Gram negative curved rods.

- a) What is the most likely diagnosis? 1
- b) Briefly describe its pathogenesis? 2
- c) How it can be further confirmed in laboratory? 2

13. An HIV-Positive patient has progressed from fatigue, rash, nausea and night sweats symptoms to occasional but defined opportunistic infections.

- a) Enlist one opportunistic fungal infection, 1 viral infections and one malignancy associated with AIDS. 3
- b) What are types of HIV virus and what disease it causes? 1
- c) Tabulate the structural proteins and genes of HIV. 1

14. A 40 years old shepherd of sheep presents with upper right quadrant pain and appeared slightly jaundiced. A stool exam was negative for ova and parasites but a CT scan reveals a large 14 cm cyst that appears to contain fluid, in the right lobe of the liver.

- a) What is most likely diagnosis? Name the parasite responsible for this lesion. 1
- b) Draw and label its life cycle. 2
- c) Discuss lab diagnosis. 2

15. A patient with diabetes presents in the medical OPD with an adherent, white flaky substance on the skin under her breast. Another patient who completed a course of antibiotics presents with itching and copious white vaginal discharge, while a third patients with AIDS presents with white exudates on his oral mucosa and soft palate.

- a) What is the likely diagnosis and the causative organism in all the cases? 1
- b) Where is this organism found as a flora in our body? 1
- c) Discuss the laboratory diagnosis. 3