



- Q1: Discuss: (80 marks)
- a) Virulence factors of *Pseudomonas aeruginosa* . (20marks)
  - b) Brill-Zinsser disease . (5marks)
  - c) Leptospirosis. (15marks)
  - d) Antifungal chemotherapy (25marks)
  - e) Blastomyces (15marks)

- Q2: Compare between: (57marks)
- a) Chlamydiae species of medical importance (12marks)
  - b) G-ve rods associated with animal sources. (30marks)
  - c) *Vibrio parahaemolyticus* & *Vibrio vulnificus* (15marks)

Q3: Clarify how to diagnose & treat each of the following :(63 marks)

- a) *Helicobacter pylori* gastritis (10marks)
- b) Whooping cough (10marks)
- c) Shigellosis (10marks)
- d) Antibiotic-associated pseudomembranous colitis (15marks)
- e) *Mycoplasma pneumoniae* (8marks)
- f) Mucormycosis (10 marks)

Q4: Explain why the following diseases are preventable: (20 marks)

- a) Enteric fever
- b) Tetanus



**Q5: Mention:** (56 marks)

- a) Definition , objectives & guidelines to develop Antimicrobial Stewardship (26 marks)
- b) Classification of medical wastes (10 marks)
- c) Pathogenesis of bacteroides infection (15 marks)
- d) Pathogenesis of Bacillus cereus food poisoning (5 marks)

**Q6:** (24marks)

A 5- years old boy is brought into the pediatric ward . He has become lethargic after bout of diarrhea with lot of blood in stool. He looks pale & has puffy appearance around his face . He has not passed any urine at all for the least 24 hours.

- a- What is the condition called?
- b- What organism is associated with it?
- c- What is the pathogenesis?
- d- Would you give the patient antibiotics?

Good luck

Chairman of Department:

Prof Dr/ Mohamad Zakaria





**Q1: Compare between:**

- |  |                     |
|--|---------------------|
| a) Cytokines and chemokines produced by activated phagocytes | 20 marks<br>10 each |
| b) B-1 and B-2 B cells                                       |                     |

**Q2: Define:**

- |  |                     |
|--|---------------------|
| a) Different types of vaccines                         | 20 marks<br>10 each |
| b) Cis-trans complementation of MHC class II molecules |                     |

**Q3: Discuss:**

- |                              |                     |
|------------------------------|---------------------|
| a) Isotype switch: mechanism | 30 marks<br>10 each |
| b) Ras -MAP kinase pathway   |                     |
| c) Scavenger receptors       |                     |

**Q4: Clarify:**

- |   |                     |
|---|---------------------|
| a) Steps of alternative complement pathway activation | 20 marks<br>10 each |
| b) Immunogenicity guidelines                          |                     |

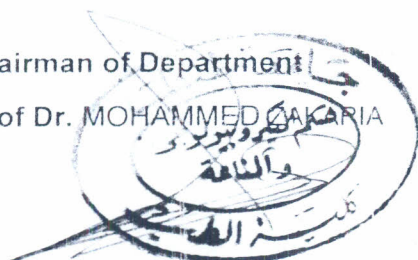
**Q5: Explain:**

- |  |                     |
|--|---------------------|
| a) DNA rearrangement in T cell receptors           | 30 marks<br>10 each |
| b) T-helper 17 cells                               |                     |
| c) Tumor-specific transplantation antigens (TSTAs) |                     |

**Q6: Outline:**

- |   |                     |
|---|---------------------|
| a) Preformed immunological receptors    | 30 marks<br>10 each |
| b) Microbial evasion of immune response |                     |
| c) Treatment of immune deficiencies     |                     |

Chairman of Department  
Prof Dr. MOHAMMED ZAKARIA



**3rd paper for MD /Degree in:**  
Microbiology & Immunology (virology)

**Date :** 12 /6/2021

**Time Allowed:1.5 hours**

**Total Assessment Mark : 150**

**All questions to be answered**

*Tanta University*  
*Faculty of Medicine*

*Department of*  
*Microbiology and*  
*Immunology*

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Q1 ) **Answer the following :** (8 marks each )

- a) Mention 2 different methods used to induce tumor virus replication in transformed cells .
- b) Mention mechanism of action, route of administration and use of **Remdesivir** .
- c) Illustrate with drawing the principle of shell vial technique for tissue culture and mention its advantage .
- d) Enumerate different methods for viral quantification .
- e) Define surfactants and compare between cationic and anionic ones regarding their antiviral mechanism of action, applications and disadvantages .

Q2 ) Regarding antiviral vaccines : discuss briefly the **advantages and disadvantages of using viral antigens as vaccins.**

(10 marks )

Q3) Regarding DNA viruses , **Answer the following :**

- a) Define alfa ,beta and gamma types of *Herpetoviruses* and enumerate different methods to differentiate between HS1 and HS2. (9 marks)
- b) What is the only virus which has fiber protrusion from its capsid ,describe the significance of these fibers and what are the clinical conditions associated with different serotypes (8 marks)
- c) Compare between the 2 different vaccins used for HPV (8 marks)

Q4) Answer the following :

(15 marks each )

- a) Name the **Picornavirus** of medical importance.  
Write in detail the important properties of **poliomyelitis** and discuss the recent advances in **poliomyelitis vaccine**.
  
- b) Enumerate **hepatotropic** viruses . Discuss in brief replicative cycle of **Hepatitis C viruses**. Add a note on recent concepts in treatment of **chronic HCV** infection.

Q5) Answer the following :

(10 marks each )

- a) Describe the **Antigenic structure** of HIV
- b) Pathogenesis and clinical findings of **Coxsackie** viruses.
- c) Dengue haemorrhagic fever or **Dengue Shock**

Q6) Answer the following :

(15 marks)

- a) Illustrate the structure of **SARS Cov- 2** ,and clarify relation between structure and cell surface receptors. (7 marks)
- b) Write in brief about the laboratory diagnosis and strategies for containment of **SARS-CoV-2**.(8 marks)

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Good luck



1<sup>st</sup> paper for MD /Degree in:Microbiology & immunology

General & systemic bacteriology

Date: 1/6/2021

Time Allowed: 3 hours

Total Assessment Mark : 300

*Tanta University*

*Faculty of Medicine*

*Department of Microbiology*

*and Immunology*

All questions to be answered.

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Q1 ) Answer the following ( 125 marks , 25 for each ) :

- a) Compare between alcohol and iodine as antiseptics . .
- b) Sulfhydryl group has a role in the inability of anaerobic bacteria to live in presence of O<sub>2</sub> ,explain .
- c) Define the characters of pathogenicity island (PAI) and illustrate it in *E.coli* .
- d) Enumerate prophylactic use of ciprofloxacin and applications of Telithromycin .
- e) Compare between *Eikengela* corrodens and anaerobic bacteria regarding their significance as bacterial oral flora .

Q2) Give a short account on (25 marks , 12.5 for each ) :

- a) Examples for non PCR-based amplification tests and describe one of them .
- b) Enzymatic digestion and electrophoresis of nucleic acid and its application in strain typing

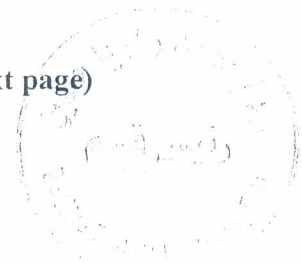
Q3) Answer the following (60 marks , 20 for each ):

- a) Mention the mechanism of resistance to *vancomycin* and treatment for : *VISA*, *VRSA* and *VRE* .
- b) What are indications for **booster dose** for *pneumococcal* vaccin ?
- c) Enumerate virulence factors and main host defence against *N.gonorrhoea*

Q4) A patient has developed watery diarrhea ,abdominal cramps ,fever,myalgia with little vomiting after eating a meal of hot dog and coleslaw . A motile gram +ve bacteria was isolated from stool .Discuss the following (25 marks, 5 for each ):

- a) The most expected causative bacterium
- b) The most common site of colonization of this organism (see next page)

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- c) Other clinical conditions caused by it
- d) The main host defense mechanism against it
- e) Treatment of this case

Q5) Regarding *Mycobacterium tuberculosis* , answer the following (25 marks ,12.5 for each ):

- a) Mention the most common cause that induce INH resistance , MDR and XDR in tuberculosis and how to manage this .
- b) Discuss Luciferase assay and its significance . .

Q6) Answer the following cases (40 marks , 20 for each ):

- a) **A premature neonate has developed meningitis .It was noticed that the isolated bacteria was sensitive to vancomycin although it was gram negative rods .**

- \*what is the most expected causative bacterium ?
- \*what are other clinical conditions caused by it ?
- \*what is its sensitivity to other antibiotics ?
- \*what is its alternative name ?

**b)A patient suffering from pneumonia with cavitation . Isolation of gram positive bacteria with club shape was done . It could be grown on agar and was also acid fast .**

- \* mention 2 alternative names for the most expected causative bacterium?
- \*what is the differential diagnosis ,why , and how you could differentiate ?
- \* what is the predisposing factor (s) for infection?
- \* what is treatment ?

Good luck

موعد الإمتحان العملى من ٢٠ الى ٢٣ يونية – الشفوى ٢٣ يونية ٢٠٢١

Head of the department : Prof .dr Mohammed Zakaria

