

University of Palestine
Faculty of Applied Engineering and Urban Planning

Course Name	Special topics in Biomedical Engineering			Course No.	EQUP 3319
Academic Year	2018/2019	Semester	2 st	Exam Type	Final
Exam Date	22/05/2019			Exam Time	09:00 pm– 11:00 pm

الرقم الجامعي:		اسم الطالب (بالعربي):			
الرقم المتسلسل:	وقت المحاضرة: السبت 8:00 – 9:00 الاثنين 8:00 – 9:00	رقم الشعبة: 101	اسم المدرس: م. سمير أبوندى		

Important Instructions

- *This is a closed-book exam; all related material must be placed away from your desk.*
- *Cell phone use is prohibited for any purpose: Your cell phone must be turned off and placed off of the desk. Cell phones may not be accessed during the exam. Failure to comply may be treated as a violation of the Honor Code.*
- *Headphones of any kind are not permitted.*
- *This exam is 120 minutes long.*
- *Make sure that you have 8 pages including this page.*
- *This exam has 8 essay questions. Read each question carefully before answering.*
- *Calculators can be used but cannot be shared.*
- *When you finish, you must:*
 - *Check that you have written your information in the spaces provided.*
 - *Give the exam package (all papers) to the proctor before you leave.*

For Teacher's Use Only For Proctor's Remarks

QN	KPI/ILO	SO	DL	Mark	Weight
1	B1	g	4		10
2	B1	j	2		4
3	B1	c	2		5
4	B2	b	3		6
5	B2	i	3		6
6	B3	b	3		6
7	B3	i	4		7
8	B3	g	3		6
Total					50

KPI: Key Performance Indicator, ILO: Intended Learning Outcomes, SO: ABET Student Objectives, DL: Difficulty Level (1. Very easy, 2. Easy, 3. Moderate, 4. Somewhat hard, 5. Hard, 6. Very Hard)

Q1 Mark the right ($\sqrt{\quad}$) and the flash (X) sentence (10 marks).

- 1- (☐) By Ozone sterilizer the H₂O is subjected to an electrical discharge in an enclosed to produce O₃.
- 2- (☐) Kerma is acronym of Kinescopes' energy released per unit mass
- 3- (☐) Hot Oven used to sterilize material in sealed container as oil and powder at temperature lower than 160 for one hour
- 4- (☐) HEPA filtration is sterilization technique for liquid ,it is possible to remove bacteria from liquid by passing them through filters with pores smaller than bacteria.
- 5- (☐) The cosmic radiations will be reached around 0,1 mSv per hour at height of 1 Kilometer
- 5- (☐) The spore indicators are suitable for monitoring Per acetic acid sterilization.
- 6- (☐) Chemical germicides are classified by their activity level.
- 7- (☐) The CT room shielding should be provided for the front and rear reference point is 162 mm of concrete to reduce the dose to 1 mgy/year.
- 8- (☐) In dental clinic the infection control should be considered after installing the building service.
- 9- (☐) According to CDC recommendations, the total count of CFU (colony forming unit of heterotrophic bacteria /millimeter of water should be more than 900.
- 10- (☐) by SAL, each log reduction 10⁻¹ will reduce a million organism very close to zero.

Q2: Describe in details the Quality requirement of Compressed air and Vacuum system in modern Dental clinic?

(4marks).

Q3: i) Explain six advantage of using hydrogen peroxide gas plasma Sterilization ? (2 marks)

ii) Explain 5 Disadvantages of steam sterilization. (1.5 marks)

ii) Explain the four Method of steam sterilization. (1.5 marks)

(Total 5 marks)

Q4: List five factors Affecting X-ray beam and explain in details two of this effects? (6 marks).

Q5: i) What is the factors effecting Ozone sterilization? (2marks).

ii) Calculate the following

1.379 bar topsi and atm (how any psi and how many atm) (2 marks)

iii) Draw the schematic of steam Generator in large autoclave and explain the principle of operation? (2 marks)

(Total 6 marks).

Q6)

i) List seven factors that vary in the level of effectiveness and influence of Chemical Disinfection (3 marks)

ii) Explain in details the 3 classifications of Instruments and devices (3 marks).

(Total 6 marks)

**Q7) Describe in details all CT Dose optimization technique?
(7marks).**

Q8. For Dental clinic,

- i) List the checklist of the builders work and explain in details three of them ? (3 marks)**
 - ii) Explain in details the term, sterilization room and the central Processing area (3 marks)**
- (Total 6 marks).**