

Subjective Entrance Examination	
School: Institute of Basic and Applied Sciences	
Duration: 1 Hour	Date: 29 November , 2018
Course Title: Nanoscience Program	
No. of Questions: 15	Max. Marks: 100
Instructor: Nanoscience Program Faculty Members	
Allowed Equipment	Calculator, Drawing kit

Name:

ID No.

Instructions to Students

غير مسموح للطلاب دخول الامتحان بالهواتف النقالة

Mobile Phones are **Not Allowed** during the Exam

- *You should attempt all questions.*
- *Assume any missing data.*
- *Number of questions 15.*
- *The exam papers are 7 pages, including this page.*
- *Select the right answers and mark it in this answer sheet page 8.*

PART 1

Choose the correct answer and fill in the given table by the letter preceding the correct answer (40 Marks)

- Which metal reacts most vigorously with water at 25 °C?
 - Na
 - Mg
 - K
 - Ca
- Which of the following is NOT classified as a biodegradable?
 - Collagen
 - Glucose
 - Cellulose
 - Chitin
- Which of the following is a nonpolar molecule with one or more polar bonds?
 - SO₃
 - SO₂
 - H₂O₂
 - NH₃
- Which is the most basic solution?
 - pH=11
 - pOH=12
 - pOH=2
 - [OH⁻]=10⁻⁴ mol/L
- The reactions catalyzed by sunlight are called..... reactions
 - Exothermic
 - Photochemical
 - Endothermic
 - Physical
- 500 nm electromagnetic radiation is in what region of the electromagnetic spectrum?
 - Ultraviolet
 - Visible
 - Infrared
 - Microwave

PART 2

Answer the following questions (60 Marks)

1. Mention some possible applications of nanotechnology in water treatment and Energy?

2. What are the differences in the properties between bulk course materials and nanostructure materials?

3. Define the following:

- a) Inductive effect
- b) Addition reaction
- c) Oxidation-reduction reactions

4. Explain what is meant by the photoelectric effect

5. What are the common techniques used to characterize nanomaterials?

***** End of Questions *****

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Spring 2018 (Answer sheet)

Question No.	Answer
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	