


<p>Course No: EAAS5215 Course Title: Energy systems and architecture Date: 25 /05/ 2011 No. of Questions: 6 Question Time: 2 Hours Total Grade: 50</p>	<p>University of Palestine</p>  <p>Final Exam 2^{ed} semester 2010/2011</p>	<p>Student No.: _____ Student Name: _____ Instructor Name: Eng. Emad A. Kandeel College of Applied Engineering- Architecture Department</p>
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Answer the following question:

First Question: (10 marks)

Put (T) or (F) for each of the following:

1. () CO₂ considered as essential production in an urban area.
2. () 50% of water used globally for sanitation and other uses in buildings.
3. () We should use a material with low thermal resistance, to reduce thermal transfer through the external walls of a building.
4. () Thermal balance occurs when the sum of $[Q_c + Q_v + Q_s + Q_i + Q_e] = \text{zero}$.
5. () Day lighting reduce (2/3) of total building energy costs.
6. () Global warming means more global rain but it falls in the wrong place.
7. () Light color (white) reflect light and distributed regularly within the space.
8. () Heliostat System is considered one the negative systems in the natural lighting.
9. () In arid zone, the preferred length (x:y) of the sides of the building equal 1:3.
10. () Air leakage and heat transfer one of the most important problems in the external walls.

Second Question: (5 marks)

Choose the correct answer:

1. [60% - 70% - 80%] of global timber products end up in building construction.
2. [Wind Effect - Stack Effect - Wind Pressure] can be used effectively, When there are significant differences between the internal and external temperatures.
3. The ratio of water shortage in the aquifer in Gaza Strip more than [60 - 80 - 100] million cubic meters per year.
4. Thermal Transmittance mean [Coefficient of heat transmission - (U-Value) - All the above].
5. The most economically ceiling height in residential building is [270 - 280 - 290] cm.

Third Question: (10 marks)

Clarify / Identify the following items:

1. Passive design. (2.5/10)

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2. Principles of water conservation. (2.5/10)

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3. Methods of thermal insulation of the concrete slabs (Using polystyrene). (2.5/10)

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4. Methods of Excluding Heat Gains from Solar Radiation. (2.5/10)

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Fourth Question: (5 marks)

give a reason:

1. Water is more difficult to achieve than energy conservation. (2.5/5)

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2. In hot climates, the main streets should be oriented north–south, and the axis of the building should be parallel to the axis of street. (2.5/5)

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Fifth Question: (10 marks)

Explain by drawing (make sketch) :

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1. Effect of thermal mass on the transmission of heat through the materials. (5/10)

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2. Solar Chimney system. (5/10)

Fifth Question: (10 marks)

1. Through your study course "energy systems and architecture".

What is the suitable proposals to sustainability of buildings in Gaza Strip. (5/10)

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2. Mention briefly about the most important points which addressed in your research in this course. (5/10)

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Good luck