



Computer in Architecture (Elective course 1)

- The exam includes the following ILOS: A.20, A.23, B.1, B.12, D.7
- Use only pencils and Blue/black pens
- Answer only in the assigned spaces for the answers

First Question (ILOS A.20, A.23, B.1, B.12, D.7 – 20 credit):

Choose the most correct answer between a, b and c to complete the following sentences:

- 1- are currently essential tools to predict and analyze urban microclimates
(a. Theoretical language - b. Numerical methods - c. Qualitative methods)
- 2- Parametric software is used to facilitate the implementation of complex forms and relations through.....
(a. Programing language - b. Geometric alphabets - c. Additive processes)
- 3-Plugin for grasshopper could generate contextual and environmental simulations for 3D models.
(a. Kangaroo - b. Ladybug - c. Lunchbox)
- 4-tool in Rhino is used for both Movement and rotation.
(a. Osnap - b. Gumball - c. Ortho)
- 5- In list item command the defaulted value of the (i) item index is
(a. 0 b. 1 c. 2)
- 6- The default domain of grasshopper is from
(a. 0 to 100 - b. 0 to 10- c. 0 to 1)
- 7- Grasshopper users can duplicate the length of a vector through a process
(a. Summation- b. Addition - c. Multiplication)
- 8- CAD software's improved performing tasks which was difficult in traditional drawings.
(a. Additive - b. Repetitive – c. Overlapped)
- 9- commands generates a zero twisting perpendicular frame along a specific curve.
(a. Perptwist - b. PerpFrame - c. Perpcurve)
- 10- Command loft for simple 3 curves generates a list.
(a. Grafted - b. Flattened - c. Simplified)
- 11- Command in grasshopper matches each item of the first list with all the items of the second list.
(a. Length list – b. Cross reference - c. List Item).
- 12- In order to change the loft style from normal to straight..... can be used.
(a. Loft plane– b. Loft surface - c. Loft options).

- 13- Using button in Rhino activates the orthogonal directions in drawings
(a. Alt. - b. Ctrl. - c. shift)
- 14- Python programming language is considered editor
(a. Dependent - b. embedded - c. Standalone)
- 15- Vector display command enables users to a vector
(a. Draw - b. View - c. Move)
- 16- Parametric tools are used to calculate the in order to decrease the thermal effects
(a. Circulation analysis - b. View analysis - c. solar radiation analysis)
- 17- is a line segment defined by a start point, target and length
(a. Line point - b. Line - c. Line SDL)
- 18- command enables users to type mathematical functions.
(a. Evaluate b. Function c. construct function)
- 19- Curve|Curve (CCX) command solves the between two curves
(a. Difference - b. Intersection - c. Union)
- 20- Rhino Curves could be modified after drawing through command.
(a. Curve through points - b. Curve Control points- c. curve interpolate)

Second Question (ILOS A.20, A.23, B.1, B.12, D.7 – 20 credit):

Put ✓ or × in front of the following sentences:

1. Algorithms are instructions expressed through step-by-step procedures.
2. Rhinoceros provides standalone editors, which enable writing instructions directly.
3. In ladybug plugin a maximum distance from base is required to generate an accurate solar radiation analysis.
4. Algorithms are smart enough to generate correct results even if the instructions are not well defined.
5. Boolean intersect is created by merging more than 1 breps with each other.
6. In traditional drawings geometric alphabets are the way to translate ideas and signs.
7. Users can split one surface through selecting the surface and the curve splitting it.
8. Command series on grasshopper generates a specific numerical sequence only through identifying the step size (N).
9. In order to calculate the solar radiation analysis users are asked only to identify the solar radiation values, the geometry and finally the shadows.
10. CAD software performed the additive logic of traditional drawings within a digital realm.
11. The multiplication of a vector to (-1) on grasshopper, generates a vector with the same length but in the opposite direction.
12. CAD software's final output is an interactive model.
13. An algorithmic class which leads to a number is called a decision procedure.
14. In traditional drawings it is difficult to manage associative relations.
15. Algorithmic software's enable users to design single signs rather than a process.
16. An efficient calculation for air flow is obtainable through computational fluid design softwares.
17. Loft command makes a surface from a group of Breps.
18. In Grasshopper an error status in red is generated when the user did not fulfill the input requirements.
19. Deconstruct Brep command break the object into its basic parts, which are Faces/edges /Lines.
20. In ladybug a selected sky matrix is generated to calculate the total sky radiation in each hour in the year.

Third Question (LOS A.20, A.23, B.1, B.12, D.7 – 10 credit):

Fill-In the missing spaces with the correct words:

- 1- Algorithmic thinking follow the human aptitude to split a problem into a
- 2- Parametric design using rhino-grasshopper consists of two working environments and.....
- 3- Algorithms is a set of properly defined in order to generate a well defined
- 4- Before performing any environmental simulations using ladybug, a file shall be downloaded
- 5- An algorithm class which generate a yes or no is called aprocedure.
- 6- Anis an urban area where the climate differs from the surrounding context.
- 7- Grasshopper is an algorithmic modeling used for form and form

**All My Best wishes,
Dr. Doaa Salaheldin Ismail Elsayed**