B. Sc. in EEE **Date: 23 June, 2025**
Winter semester **Time: 02:00 pm – 02:25 pm**

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)

ORGANISATION OF ISLAMIC COOPERATION (OIC)

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

Lab Quiz - 01 (Set-B) **Summer Semester - 2025**
Course Number: EEE 4416 **Full Marks: 30**
Course Title: Simulation Lab **Time: 25 minutes**

1. *For i=1:4*
   For j= 7:-1:4
   *X= i*j;*
   end
   end
   What is the output X?
   Ans:

2. What is the output of ceil*(pi, 2)?*
   Ans:

3. *Y= ['god of war', ':', 'Ragnarok']*
   Y(3)= ?
   Ans:

4. What will be the output of the following code?

```
sum = 0;
for i = 1:2:5
   sum = sum + i;
end
disp(sum)
```

   Ans:

5. n=5;
   A= magic(n).
   Write a code to remove the middle row from the matrix. [don't hardcode]
   Ans:

6. Categorize the following variable names as 'invalid', 'valid', or 'should avoid'.

   i. 12a
   ii. Val
   iii. prod
   iv. FOR
   v. hello
   vi. 1st_val
   vii. Value of a
   viii. i
   ix. j

   Ans:

7. *Given A is a 2D matrix,*
   max (A, 2, 'omitnan'*)* - what will this command return?
   Ans:

8. N = 256
   Write the code to convert the number into a vector but reversed – [6, 5, 2].
   Ans:

9. Write one line of code to calculate the square of each element in the vector *x = [2 4 6]* using vectorization.
   Ans:

10. What is the output of *fix(-pi)* ?
    Ans:

11. Write the code that will take ‘n’ as input and create a matrix representing ‘X’ using 0 and 1.
For odd values of n, say, n=3,

```
[1 0 1
 0 1 0
 1 0 1]
```

For even values of n, say, n=4,

```
[1 0 0 1
 0 1 1 0
 0 1 1 0
 1 0 0 1]
```

Ans:

12. *X= [4, 6, 8; 2, 5, 10]*
Y= [10, 100]

Which of the following is valid?

i. *X*Y*
ii. *X.*Y*
iii. *X*Y’*
iv. *X’ * Y*
v. *X’.*Y*
vi. *X’.*Y’*
vii. *X’*Y’*

Ans:

13. *S= “Kratos”*
Write the code to extract the elements that are vowels.
Ans:

14. *r='rice'*
r(end:-1:1)
what will be the output?

15. **(True/False)** The colon operator syntax `start:step:end` in MATLAB always includes the final value if it fits exactly; otherwise it stops at the last value that does not exceed the endpoint.
Ans:

16. Explain the difference between cell indexing *(C(2))* and content indexing *(C{2})* when accessing elements of a cell array C.
Ans:

17. *A1 = 'MATLAB';*
A2 = "MATLAB";
var=length(A1)-length(A2)
what is the value in var?
Ans:

18. Write a single MATLAB statement using logical indexing to replace all negative entries in a vector x with zero.
Ans:

19. *v = [1, NaN, 3, Inf];*
finiteMask = isfinite(v)
nanIdx = find(isnan(v))
Determine finiteMask and nanIdx

Ans:

20. *Y = 'Simulink';* What is the output of *Y(1:3)?*
Ans:

21. What will *class([1, 2; 3, 4])* return?
Ans:

22. Which of the following notations is used in the structure data type?
    i. ( )
    ii. { }
    iii. [ ]
    iv. ,
    v. .
    vi. Struct
    vii. | |
    viii. #
Ans:

23. What does *strcmp('abc', 'ABC')* return?
Ans:

24. Consider the MATLAB commands below. What is the value of idx after execution?
A = [0 3 0 5; -7 0 1 4];
idx = find(A > 1);
Ans:

25. Which data type allows storing heterogeneous elements in MATLAB?
Ans:

26. Look at the following code:
M = magic(4);
mask = M > 10;
largeVals = M(mask);
[row, col] = find(M > 10);

Given magic(4) is

```
    16     2     3    13
     5    11    10     8
     9     7     6    12
     4    14    15     1
```

Determine `largeVals , row and col values.`
Ans:

27. What will be the out of diag(A,-2) where,
A = [1 2 3; 4 5 6; 7 8 9; 10 11 12]
Ans:

28. A= [10, 10, 20, 20, 30, 30, 30, 40]
[~, z] = max(A)
i. What is the purpose of using the '~' operator?
ii. z=?
Ans:

29. *X= [10, 20, 35, 44, 66, 99]*
What will the following command return?
all(mod(X, 5)==0)
Ans:

30. A matrix is given. Write a code to find the subscripts of the highest element of each row.
Ans: