

No. of Printed Pages : 7

Sl. No.

Question Booklet Code

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M.Sc. I Semester Degree Examination, April/May - 2023

Skill Enhancement Courses (SEC)

INDUSTRIAL CHEMISTRY

SEC 1 : Computational Chemistry

(CBCS)

Time : 1 Hour

Maximum Marks : 30

INSTRUCTIONS TO CANDIDATES

1. The Question Paper will be given in the form of a Question Booklet. There will be four/two/one versions of Question Booklets with Question Booklet Code viz. **A, B, C & D / A & B / A**.
2. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your Question Booklet is un-numbered, please get it replaced by new Question Booklet with same Code.
3. Immediately after the commencement of the examination, the candidate should check that the Question Booklet supplied to him contains all the 30 questions in serial order. The Question Booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same Code. This is most important.
4. A blank sheet of paper is attached to the Question Booklet. This may be used for Rough Work.
5. **Please read carefully all the instructions on the top of the Answer Sheet before marking your answers.**
6. Each question is provided with four choices **(A), (B), (C)** and **(D)** having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using **Black Ball-Point Pen** in the OMR Answer Sheet.
7. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator.
8. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.
9. First fifteen minutes is provided to fill the general information of the Student. Eg. Student Name, Student ID, etc. in the OMR Answer Sheet.
10. Without the instruction of the Invigilator do not open the Question Paper Booklet Seal.

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P.T.O.

1. `>>u=[0, 13, 24, 100]; min(u)`
(A) 0 (B) 3 (C) 5 (D) 4
2. Output of the statement :
`D=[1,2,3;4,5,6]; D(1,1) D(2, 2)`
(A) 6 (B) 7 (C) 8 (D) 9
3. Output of the statement `>>V=[1, 2, 3, 4]; Prod(V)`
(A) 4 (B) 123 (C) 22 (D) 24
4. Output of the statement : `symsx; z=sin(x); diff(int(z))`
(A) $\sin(5x)$ (B) $2 \sin(x)$ (C) $\cos(x)$ (D) $\sin(x)$
5. Output of the statement : `syms x; f=x^15; int(f)`
(A) $x^{16}/16$ (B) $x^{16}/11$ (C) $x^{16}/12$ (D) $x^{13}/16$
6. Output of the following statement : `Symsx; f=x^2-12*x+20; solve(f)`
(A) 2, 3 (B) 2, 10 (C) 4, 10 (D) 2, 8
7. `>>A=[2,3;4,5]; A*A`
(A) [16,21;28,37] (B) [16,37;28,21]
(C) [21,16;28,37] (D) [16,21;37,28]



8. In the statement $d = 119$, d is called :
- (A) Variable type (B) Variable name
(C) Character name (D) None of these
9. Output of the statement : $\text{sqrt}(2)$
- (A) 2 (B) 3 (C) 1.4142 (D) 1.5142
10. Output of the statement :
- $F = [1, 2, 3; 6, 7, 8]; D(2,1)$
- (A) 6
(B) 6.0
(C) 1
(D) Undefined function or variable 'D'
11. $\gg A = [1,2,3;4,5,6;7,8,9]; \text{size}(A)$
- (A) 3 4 (B) 3 3 (C) 4 3 (D) 4 5
12. $\gg A = [1,0;3,4]; \text{sum}(\text{eig}(A))$
- (A) 5.5 (B) 6 (C) 7 (D) 5
13. $A = [1, 2, 3; 4, 5, 6]; B = [2, 3; 4, 5]; A + B$
- (A) 33
(B) 35
(C) Matrix dimensions must agree
(D) None of the above



14. Output of the statement : `syms x; f=x^12; diff(f)`
- (A) $11*x^9$ (B) $12*x^{11}$ (C) $10*x^{10}$ (D) $10*x^8$
15. Output of the statement : `syms x; f=x^2+1; subs(f,3)`
- (A) 10 (B) 6 (C) 4 (D) 7
16. Output of the statement `A=[1,0;3,8]; Prod(eig(A))`
- (A) 9 (B) 8 (C) 19 (D) 10
17. Output of the statement : `a=[1,2];a.^2`
- (A) 14 (B) 41 (C) 1 5 (D) 1 3
18. Which code do you use to find the value of $f(x) = \sin(x) + \cos(x) + \tan(x)$ at $x = \pi/4$ function f ?
- (A) `sin(45) + cos(45) + tan(45)`
- (B) `sin(pi/4) + cos(pi/4) + tan(pi/4)`
- (C) `sind(45) + cosd(45) + tand(45)`
- (D) `sin(45®) + cos(45®) + tan(45®)`
19. `>>C=[4 2 3;5 4 2;1 2 3]; Sum (C)`
- (A) 7 9 10 (B) 10 7 9
- (C) 10 9 7 (D) None of the above



20. What does the following symbol “*” represents ?

- (A) Used for Multiplication purpose
- (B) Used to donated not equal the operator
- (C) Used to raise the power of a variable
- (D) None of the above

21. `>>u=[0, 3, 4]; norm(u)`

- (A) 6
- (B) 5
- (C) 4
- (D) 7

22. `>>v=[12, 6, 7, 8]; sum(v)=_____.`

- (A) 11
- (B) 22.1
- (C) 33
- (D) 32

23. Output of the statement `A=[1,2,3;4,5,6]; inv(A)`

- (A) 12
- (B) 13
- (C) 14
- (D) Matrix must be square

24. `>>a=sym[2/3]; b=sym[1/5]; c=a+b;c`

- (A) 13/15
- (B) 13/14
- (C) 13/12
- (D) 12/15

25. Output of the statement : `symsx; f=exp(x); diff(f)+int(f)`

- (A) $2*\exp(2*x)$
- (B) $2*\exp(3*x)$
- (C) $2*\exp(x)$
- (D) $\exp(x)$



26. `>>A=[3, 2;7, 7]; det(A)`

- (A) 7.0000 (B) 9.0000 (C) 3.0000 (D) 2.000

27. Output of the statement: `d=[1, 2, 3]; e=[4, 6]; d+e`

- (A) Matrix dimensions must agree
(B) 5 8 3
(C) 5 8 7
(D) 5 8 8

28. Output of the statement :

`A=[1, 2, 3; 4, 5, 6; 7, 8, 9]; trace(A)`

- (A) 6 (B) 13 (C) 15 (D) 22

29. All matrices are vectors but all vectors are not matrices in MATLAB.

- (A) True (B) False
(C) Error (D) None of the above

30. Output of the following statement

`F=[1,2,3;6,7,8]; F(2,1) :`

- (A) 6 (B) 5 (C) 7 (D) 1

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SPACE FOR ROUGH WORK

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