



**K. K. Wagh Institute of Engineering Education & Research, Nashik**  
(An Autonomous Institute From A.Y. 2022-23)

SUMMER-2024	
Exam Seat No.:	
Academic Year:2023-2024	Semester:IV
Class:SY	Program:B.Tech
Branch Code:COM	Pattern:2022
Name of Course:Computer Architecture	Course Code:COM222014
Max. Marks:60	Duration:2.30 Hrs.

**Instructions:** Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 2 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

**Question No. 1 Attempt following Question**

- 1 Draw a diagram to represent 4-bit Arithmetic Circuit (6) CO1

**Question No. 2 Attempt following Question**

- 2 Draw and explain control unit of basic computer (6) CO2

**Question No. 3 Attempt following Question**

- 3.a) Explain assembly language and rules defined for it (6) CO3

**OR**

- 3.b) Demonstrate with program use of subroutines (6) CO3

- 3.c) With example explain Program loops (5) CO3

**OR**

- 3.d) Demonstrate with program how to input and output character (5) CO3

- 3.e) List and explain steps required for address sequencing (5) CO3

**OR**

- 3.f) With diagram explain computer hardware configuration. (5) CO3

**Question No. 4 Attempt following Question**

- 4.a) Draw a diagram to represent General Register Organisation (6) CO4

**OR**

4.b) Explain encoding of register selection field and ALU operation of Control word. (6) CO4

4.c) What is reverse polish notation? Represent stack operations to evaluate  $4+5*8+6$  (5) CO4

**OR**

4.d) With two address instruction evaluate the expression :  $Z=(A*B)+(C*D)$ . (5) CO4

4.e) With diagram represent Pipeline for floating point addition and subtraction. (5) CO4

**OR**

4.f) Explain instruction Pipeline of four segment CPU (5) CO4

**Question No. 5 Attempt following Question**

5.a) Explain the connection between I/O bus and input output devices (6) CO5

**OR**

5.b) Explain following terms associated with Asynchronous data transfer (6) CO5

i. Strobe

ii. Handshaking

iii. Timing diagram

5.c) Write a short note on Main memory. (5) CO5

**OR**

5.d) Draw block diagram of DMA controller and explain. (5) CO5

5.e) Illustrate memory hierarchy of computer system (5) CO5

**OR**

5.f) Explain in brief modes of transfer. (5) CO5

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