



National Officers Academy
Mock Exams CSS-2022
March 2022(Mock-8)
COMPUTER SCIENCE, PAPER-II

TIME ALLOWED: THREE HOURS

PART-I(MCQS): MAXIMUM 30 MINUTES

PART-I (MCQS)

PART-II

MAXIMUM MARKS = 20

MAXIMUM MARKS = 80

NOTE:

- i. **Part-II** is to be attempted on the separate **Answer Book**.
- ii. Attempt **ONLY FOUR** questions from **PART-II**, by selecting **TWO** questions from **EACH SECTION**. **ALL** questions carry **EQUAL** marks.
- iii. All the parts (if any) of each Question must be attempted at one place instead of at different places.
- iv. Write Q. No. in the Answer Book in accordance with Q. No. in the Q. Paper.
- v. No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.

SUBJECTIVE PART — PART-II

SECTION A

Question 2:

- (a) Why is RISC considered a better architecture as compared to CISC? What is parallelism on the instruction set? (8)
- (b) Explain the difference between polling and interrupts. (6)
- (c) List all basic functions of buses in the context of computer architecture. (6)

Question 3:

- (a) Why was IPv6 needed when IPv4 technology already existed? What are the benefits of IPv6 over IPv4? (8)
- (b) Explain in detail the difference between the Application Layer and the Transport Layer in the OSI model. (8)
- (c) How is NAT utilized to overcome the drawbacks of IPv4? (4)

Question 4:

- (a) Define and describe the two types of virtualization (8)
- (b) What is a deadlock? What are the four conditions of deadlock? (6)
- (c) A programmer writing a web server prefers threads over processes. Explain why he prefers writing thread code instead of process code. (6)

Section B

Question 5:

- (a) What is the relationship between a candidate key and a primary key? (4)

(b) What is the difference between physical data independence and logical data independence? (6)

(c) Construct an E-R diagram for a school with a set of students, a set of teachers and a set of courses. Associate with each student a log of the various tests and examinations conducted. (10)

Question 6:

(a) Define the noise models in digital image processing and analyze their differences. (10)

(b) Matrix operations are considered different from array operations. How so? (5)

(c) What is the difference between lossy compression and lossless compression? Which one is preferred for video compression? (5)

Question 7:

(a) A school is considering moving their data to the cloud as opposed to creating more in-house servers. What is the advantage of the cloud over investing in in-house servers? (6)

(b) Describe an appropriate security scheme for a database maintained by a bank. Justify your answer using an example. (6)

(c) What is the difference between validation and verification in software engineering? (8)

Question 8:

(a) Why is software testing important? How does the software testing procedure evolve in terms of testing a module to testing the whole system? (10)

(b) Define functional requirements and give an example of a functional requirement that a customer may demand. (4)

(c) Write short notes on **two** of the following three: (6)

1. Block-Chain
2. XML
3. HTTP

Best of Luck for CSS-2022