

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2023****Subject Code:3161013****Date:10-07-2023****Subject Name:Systems Engineering****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) Define system engineering. Give examples of systems requiring system engineering.	03
(b) Describe the difference between traditional Engineering and SE.	04
(c) Explain in brief Systems Engineering Management.	07
Q.2 (a) Define critical path method (CPM) in project management.	03
(b) Explain complex system hierarchy in brief.	04
(c) Explain principal stages in a system life cycle.	07
OR	
(c) Explain Work breakdown structure (WBS) in detail.	07
Q.3 (a) Define the term “functional allocation”.	03
(b) Differentiate the terms "concept selection" and "concept validation".	04
(c) Write a short note on Model Based Systems Engineering (MBSE).	07
OR	
Q.3 (a) Explain system risk management in brief.	03
(b) Explain functional analysis in brief.	04
(c) Explain concept exploration phase in the system life cycle.	07
Q.4 (a) Explain trade studies.	03
(b) Explain Product Implementation process in brief.	04
(c) Explain the concept of User Interface Design (UID).	07
OR	
Q.4 (a) Define the term Preliminary Design Review (PDR).	03
(b) Explain the concept of risk reduction.	04
(c) Explain importance of system engineering with one example.	07
Q.5 (a) Explain Design synthesis in brief.	03
(b) Discuss hypothesis testing in engineering.	04
(c) Explain Product Verification process in detail.	07
OR	
Q.5 (a) Discuss transition from development to production.	03
(b) Explain the Concepts of reliability and redundancy for a system.	04
(c) Explain the concept of system integration.	07
