

**CMR ENGINEERING COLLEGE: : HYDERABAD**  
**UGC AUTONOMOUS**

**IV-B.TECH-I-Semester End Examinations (Supply) - December- 2025**  
**INTRODUCTION TO EMBEDDED SYSTEMS**  
**(IT)**

**[Time: 3 Hours]**

**[Max. Marks: 70]**

**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit.

Each question carries 10 marks and may have a, b, c as sub questions.

**PART-A**

**(20 Marks)**

1. a)	What are the important components of embedded system?	[2M]
b)	List the characteristics of Embedded systems.	[2M]
c)	Summarize the advantages of PLD's in embedded systems.	[2M]
d)	Describe Commercial of the Shelf Components (COTS).	[2M]
e)	What is opcode?	[2M]
f)	What is code reverse Engineering?	[2M]
g)	Analyse different queues associated with process scheduling.	[2M]
h)	Interpret File system management.	[2M]
i)	Define emulator, simulator in IDE.	[2M]
j)	Discuss hardware debugging in real time systems.	[2M]

**PART-B**

**(50 Marks)**

2.a)	Difference between General Computing and Embedded systems.	[5M]
b)	Write short notes on applications of Embedded systems.	[5M]

**OR**

3.a)	Explain the operational quality attributes in embedded system design contest.	[5M]
b)	Mention the important characteristics of embedded systems.	[5M]
4.	Explain in detail about different types of memory in embedded systems.	[10M]

**OR**

5.a)	What is the role of sensors and actuators in embedded systems?	[5M]
b)	How does I2C protocol work with diagram?	[5M]

6.a)	Discuss various steps involved in the assembling of an assembly language program.	[5M]
b)	Design Reset Circuit with neat labelled diagram.	[5M]

**OR**

7.	Discuss the advantages and drawbacks of Assembly Language instructions.	[10M]
----	---	-------

8.	List various activities which are involved in the creation of process and threads with neat sketches.	[10M]
----	---	-------

**OR**

9.a)	Define the following.	[5M]
i)	Semaphore,	
ii)	Mutex.	
b)	Explain about Remote Procedure Calls and Sockets along with neat sketches.	[5M]

10.	Explain various file formats generated during cross compilation.	[10M]
-----	--	-------

**OR**

11.	Explain various hardware and firmware debugging techniques in detail.	[10M]
-----	---	-------

\*\*\*\*\*