



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.													
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End - Term Examinations –MAY / JUNE 2026

Date: 20-05-2026

Time: 09:30am – 12:30pm

School: SOCSE/ SOIS	Program: B. Tech	
Course Code: CIV1200	Course Name: Foundations of integrated Engineering	
Semester: II	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	14	14	24	24	24

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	Name the various methods used to support creative thinking and idea generation.	2 Marks	L1	C01
2.	Define coplanar and concurrent force system.	2 Marks	L1	C01
3.	Define Internal stakeholders and external stakeholders.	2 Marks	L1	C02
4.	Define Planned Value and Earned value in the context of Earned Value Management	2 Marks	L1	C02
5.	Name the three key pillars of sustainability.	2 Marks	L1	C03
6.	List any four Sustainable Development Goals (SDGs) given by United Nations in 2015.	2 Marks	L1	C03
7.	Define carbon footprint and list any four sources of carbon footprint	2 Marks	L1	C04
8.	List the benefits of Life cycle Assessment (LCA).	2 Marks	L1	C04
9.	State any four benefits of automation.	2 Marks	L1	C05
10.	List the four applications of robots.	2 Marks	L1	C05

Part B

Answer the Questions.

Total Marks 80M

11	a.	Discuss the seven steps in problem solving process.	10 Marks	L2	CO1
	b.	A software company is developing a mobile app. The total project budget is ₹1,00,000 and scheduled duration is 10 weeks. At the end of week 4, the project manager wants to evaluate progress and observes the following: i) Actual completed work = 30% of total project ii) Real expenses incurred by week 4 = ₹50,000 Compute: PV, EV, AC, SV, CV, SPI, CPI and comment.	10 Marks	L3	CO2
Or					
12	a.	Explain the steps involved in design thinking problem.	10 Marks	L2	CO1
	b.	A software company is working on a project to develop a mobile app for a client. The total project budget is ₹1,50,000 and scheduled duration is 8 weeks. At the end of week 4, the project manager wants to evaluate progress and observe the following: Actual completed work = 30% of total project. Real expenses incurred by week 4 = ₹60,000 Compute the Performance metrics as per Earned Value Management and comment.	10 Marks	L3	CO2
13	a.	Explain the different steps in systems thinking process.	10 Marks	L2	CO3
	b.	Explain the role of engineers in driving Sustainable Development.	10 Marks	L2	CO3
Or					
14	a.	Explain the step-by-step approach of Life Cycle Assessment (LCA) framework.	10 Marks	L2	CO3
	b.	Explain the Life Cycle Assessment process by illustrating the stages involved in paper manufacturing or any other suitable example.	10 Marks	L2	CO3
15	a.	A student uses a laptop for 3 hours a day. The laptop consumes 45 watts per hour. The emission factor for electricity is 0.85 kg CO ₂ /kWh. Calculate the student's weekly carbon footprint from laptop usage in kg CO ₂ .	10 Marks	L3	CO4
	b.	A Reinforced concrete (RCC) beam has a total volume = 5.0 m³. The design uses steel reinforcement equal to 1.2% of the beam volume. Given: Density of steel = 7850 kg/m³ Density of concrete = 2400 kg/m³	10 Marks	L3	CO4

		Embodied energy of steel = 25 MJ/kg Embodied energy of concrete = 1.2 MJ/kg Calculate the total embodied energy of RCC beam.			
Or					
16	a.	Demonstrate the various factors affecting embodied energy and also discuss the ways to reduce embodied energy.	10 Marks	L3	C04
	b.	Illustrate the sustainable practices to reduce the carbon footprint.	10 Marks	L3	C04

17	a.	Explain with brief note on i) Fixed Automation, ii) Programmable Automation and iii) Flexible Automation.	10 Marks	L2	C05
	b.	Explain the benefits and challenges of smart technologies.	10 Marks	L2	C05
Or					
18	a.	Explain the key components of Internet of Things.	10 Marks	L2	C05
	b.	Explain the components of robotics and applications of robotics.	10 Marks	L2	C05