PRESIDENCY UNIVERSITY
BENGALURU

SET-A

SCHOOL OF ENGINEERING
END TERM EXAMINATION – MAY/JUNE 2024

Semester : Semester IV - 2022

Course Code : CIV2004

Course Name : Integrated Project Management

Program : B.Tech. Civil Engineering

Date : Jun 10, 2024

Time : 9.30 AM - 12:30 PM

Max Marks : 100

Weightage : 50%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

Answer any 4   4*5=20

1. A quality procedure, also known as a standard operating procedure (SOP), is a set of step-by-step instructions that help employees perform routine tasks. Write the differences between QA and QC.

   (CO1) [Knowledge]

2. If an estimate is more than the actual amount, then it is called an overestimate. If the estimate was less than the actual result, then it is called an underestimate. This is different from a prediction. Explain the key points to be considered in detailed estimation.

   (CO1) [Knowledge]

3. Quality assurance (QA) and quality control (QC) are two terms that are often used interchangeably. Although similar, there are distinct differences between the two concepts. Discuss with suitable example the industry perspectives on QA and QC.

   (CO1) [Knowledge]

4. Draw a Gantt chart for the below project:

Activity	A	B	C	D	E	F	G	H
Predecessor	-	A	A,B	B	C	D	D,E	F,G
Duration	2	1	1	2	3	2	1	1

   (CO2) [Knowledge]

5. Write the full forms of CPM, PERT and GERT. How is GERT different from PERT?

   (CO2) [Knowledge]

6. Construct a rough network diagram using nodes and arrows for the below project:

Activity	A	B	C	D	E	F	G	H	I	J
Predecessor	-	-	A	B	A	C,D	E	E	F,G	H,I
Duration	3	8	6	4	9	2	8	5	9	1

   (CO2) [Knowledge]

7. Total quality management tools under a single platform can dramatically streamline a company's processes and increase profitability. Pareto analysis and Fish bone diagram are two types of TQM tools. Compare and contrast these two.

(CO3) [Knowledge]

8. In many situations resource levelling and smoothing may be required for Resource Optimization. Explain the differences between resource levelling and resource smoothing.

(CO3) [Knowledge]

PART B

Answer any 4   4*10=40

9. Managers should be able to make informed decisions that align with the team's vision and the organization's goals. Elaborate on the competencies of a Project management.

(CO1) [Comprehension]

10. Draw the Gantt chart for the following activities to find the duration of project.

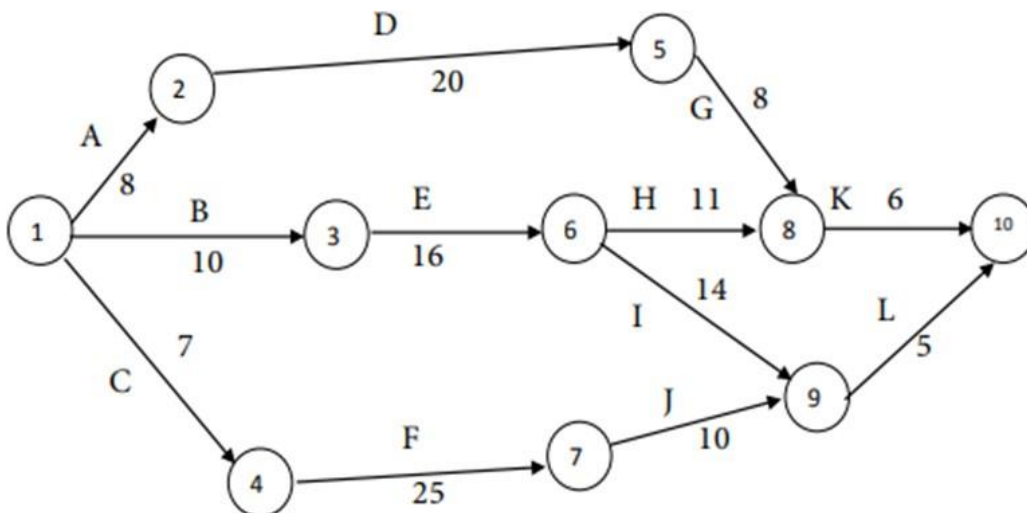| Activity	Predecessor activity	Duration (in days)
P	~	3
Q	P	3
R	Q, T	3
S	R	4
T	P	3
U	Q, R	2
V	U,S	3

(CO1) [Comprehension]

11. Determine the project duration for the project shown below, also draw the schedule table with total float and free float for all the activities.

Activity	A	B	C	D	E	F	G	H	K	L
Predecessor Activity	-	A	A	B	C	C	D,E	F,G	B	G,K
Duration (days)	6	10	14	8	12	8	16	8	2	5

(CO2) [Comprehension]

12. A continuous sequence, consisting of nodes and activities alternatively, beginning with the start event and stopping at the end event of a network is called a path in the network. Find out the completion time and the critical activities for the following project:

(CO2) [Comprehension]

13. A core definition of total quality management describes a management approach to long-term success through customer satisfaction. In a TQM effort, all members of an organization participate in improving processes, products, services, and the culture in which they work. Explain with proper example TQM philosophies.

(CO3) [Comprehension]

14. Quality means different to different people. Based on the corporate philosophy of 'customer first' and 'quality first' since its founding, Toyota Motor Co., Ltd. won the Deming Application Prize in 1965 and the Japan Quality Control Award in 1970. Explain how Total Quality Management has helped Toyota achieving these recognitions.

(CO3) [Comprehension]

PART C

Answer any 2   **2*20=40**

15. A Product manager has planned a list of activities culminating in the inaugurate launch of the new products. Perform PERT analysis to find the probability that product manager will be able to complete the language launch within 80 days-time?

Activity	pert 3 time estimates days			Immediate Predecessor (s)
	P	M	O	
a	20	10	5	—
b	12	7	5	—
c	12	10	8	a
d	40	20	6	c
e	90	60	30	d
f	14	10	7	d
g	50	30	20	c
h	12	10	8	e, f, g
i	6	4	3	b
j	1	1	1	h,i

(CO1) [Application]

16. The following details are available regarding a project:

Activity	Predecessor Activity	Optimistic time estimate (to days)	Most likely time estimate (tm days)	Pessimistic time estimate (tp days)
A	-	2	5	8
B	A	2	3	4
C	A	6	8	10
D	A	2	4	6
E	B	2	6	10
F	C	6	7	8
G	D, E, F	6	8	10

(i)   Determine the Critical Path of the Project
(ii)   Calculate the variance and standard deviation of the project.
(iii)   What is the probability of completing the project in 30 days?
(iv)   Also find the Free Float and Total Float for the activity.

(CO2) [Application]

17. A quality management system (QMS) is defined as a formalized system that documents processes, procedures, and responsibilities for achieving quality policies and objectives. A QMS helps coordinate and direct an organization's activities to meet customer and regulatory requirements and improve its effectiveness and efficiency on a continuous basis. Explain with proper example Quality characteristics, Quality of design and Quality of conformance.

(CO3) [Application]

18. In a project after 6 months of starting the project, cost incurred to complete 50% of the work was Rs. 2,00,000. But according to budget, the allocated cost was Rs. 1,80,000. As per the schedule, in 6 months, 65% of the project was supposed to be completed which was budgeted at 1,90,000. Calculate SV, SPI, CV, CPI and comment on the values.

(CO3) [Application]