Total No. of printed pages = 4

CE 181801

Roll No. of candidate

2022

B.Tech. 8th Semester End-Term Examination

CE

CONSTRUCTION ENGINEERING AND MANAGEMENT

(New Regulation 2017–2018 & New Syllabus 2018–2019)

Full Marks – 70   Time – Three hours

The figures in the margin indicate full marks
for the questions.

Answer question No. 1 and any *four* from the rest.

1.   Choose the correct option : $(10 \times 1 = 10)$

   (i)   The first stage of construction is

   (a)   Preparation of estimate

   (b)   Survey of the site

   (c)   Initiation of proposal

   (d)   Preparation of Tender

   (ii)   For the execution of a project, a contractor is

   (a)   An individual   (b)   A firm

   (c)   An agency   (d)   All the above

   (iii)   The most suitable type of equipment for compaction of cohesive soil is

   (a)   Smooth-wheeled rollers

   (b)   Vibratory rollers

   (c)   Sheep foot rollers

   (d)   Tampers

[Turn over

(iv) The excavator which is most suitable for digging under water is

    (a) Drag line   (b) Hoe

    (c) Clam shell   (d) Dipper shovel

(v) The residential buildings are treated as

    (a) Heavy construction

    (b) Light construction

    (c) Industrial construction

    (d) None the above

(vi) The various activities of a project are shown in a chart of

    (a) Horizontal lines   (b) Vertical lines

    (c) Dots   (d) Crosses

(vii) A dummy activity is

    (a) Artificially introduced

    (b) Represented by straight line

    (c) Well defined activity

    (d) None of the above

(viii) Critical Path Method (CPM) is

    (a) Synthesised in concept

    (b) Built of activities-oriented programme

    (c) Based on time estimate

    (d) All the above

(ix) The correct event representing PERT is

    (a) Digging of foundation started

    (b) Laying of concrete completed

    (c) Only (a)

    (d) Both (a) and (b) .

CE 181801   2

(x) In the given figure 1, the network of a project represents an activity as
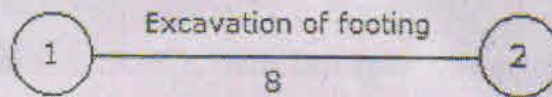
Figure 1

    (a)   An excavation of footing

    (b)   An excavation which starts at event No.1 and ends at event No.2

    (c)   An excavation which takes 8 units of time

    (d)   None of the above

2.   (a)   Describe in brief the role of construction industries.   (5)

    (b)   "Construction industry sector has ample opportunities in India" Justify your answer.   (5)

    (c)   Describe in brief the unique characteristics of a construction project.   (5)

3.   (a)   List out the equipments used for handling of construction materials. Illustrate the factors behind selection of construction equipments. $(3 + 4 = 7)$

    (b)   What phases would you consider while managing a construction project site? Describe each of them in brief. $(3 + 5 = 8)$

4.   (a)   Explain about the system approach for managing quality in construction projects.   (7)

    (b)   What is the difference between direct and indirect cost? Also discuss the factors affecting the cost variability. $(3 + 5 = 8)$

5.   (a)   Define free float, total float and independent float. Also differentiate between CPM and PERT. $(3 + 4 = 7)$

    (b)   Identify the critical path in the network shown in figure 2. Also determine the project completion time.   (8)
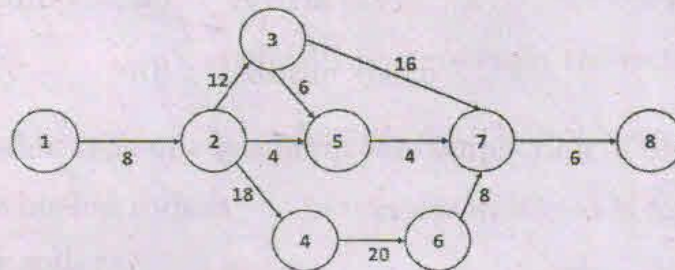

Figure 2

Duration in days

6. (a) Describe the processes involved in project procurement management. (5)

(b) The following table provides information about various activities of the given network. (10)

Activity	Normal duration (days)	Normal cost (Rs.)	Crash duration (days)	Crash cost (Rs.)
1 – 2	9	80000.00	6	95,000.00
2 – 3	5	50000.00	3	55,000.00

The project overhead costs are @ Rs 3000 per day. Determine

(i) Direct cost-duration relationship

(ii) Total cost-duration relationship

(iii) Corresponding least cost plan (Network)

7. Write short notes on (Any *three*) : (3 × 5 = 15)

(a) Gantt chart

(b) Methods of underwater construction

(c) Job safety analysis

(d) Causes of project delay

(e) Phase hazard analysis

———————