

Registration No :

B.Tech
RBC2B002

Total Number of Pages : 02

2nd Semester Regular / Back Examination: 2021-22

BASIC CIVIL ENGINEERING
BRANCH(S): AERO, AME, AUTO, BIOMED,
BIOTECH, CHEM, CIVIL, CSE, CSEAI,
CSEAIME, ECE, EEE, EIE, ELECTRICAL,
ELECTRICAL & C.E, ETC, IT, MANUTECH, MECH,
METTA, MINERAL, MINING, MME, PLASTIC, PT

Time : 3 Hour

Max Marks : 100

Q.Code : J718

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.

The figures in the right hand margin indicate marks.

Part-I

Q1 Answer the following questions : (2 × 10)

- a) What are the different disciplines in Civil Engineering?
- b) What are the various types of cement used in construction work?
- c) What is the difference between initial and final setting time of cement?
- d) What do you mean by M30 grade concrete?
- e) What do you mean by mortars and explain its main functions in building works?
- f) Convert the following whole circle bearings to quadrantal bearings: (a) $12^\circ 45'$ (b) $210^\circ 30'$.
- g) What is the difference between direct ranging and indirect ranging?
- h) Why is plastering required for walls?
- i) What do you mean by transportation engineering?
- j) Why is soundness test conducted in cement?

Part-II

Q2 Only Focused-Short Answer Type Questions. (Answer Any Eight out of Twelve) (6 × 8)

- a) What are the qualities of a good brick?
- b) Define irrigation and explain the scope of irrigation. What are the benefits of irrigation?
- c) Define the workability of concrete. Briefly describe the method to determine it.
- d) Discuss the fundamentals of irrigation engineering.
- e) What are the ingredients of concrete and their functions?
- f) Distinguish between the prismatic compass and Surveyor's compass.
- g) How the soil has been classified as per Indian Standards?
- h) Distinguish between shallow and deep foundations.
- i) What are the roles of civil engineers in our society?
- j) Write notes on stone masonry.

k) Briefly discuss traffic engineering.

l) A line was measured with a steel tape which was exactly 30 metres at 20° C at a pull of 100 N, the measured length being 1650.0 metres. The temperature during measurement was 30° C and the pull applied was 150 N. Find the length of the line, if the cross-sectional area of the tape was 0.025 cm². The coefficient of expansion of the material of the tape per 1° C = 3.5×10^{-6} and the modulus of elasticity of the material of the tape = 2.1×10^5 N/mm².

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

- Q3 a) What are the building components? Discuss their basic requirements. (3)
b) Briefly describe weirs and dams. (3)

- Q4 a) Discuss various types of shallow foundations with neat sketches. (3)
b) The following bearings were observed with a compass. Calculate the interior angles. (3)

Line	Fore Bearing
AB	60° 30'
BC	122° 0'
CD	46° 0'
DE	205° 30'
EA	300° 00'

- Q5 a) Define local attraction. Briefly explain the procedure to eliminate local attraction. (3)
b) What is pre-stressed concrete? Under which situation they are preferred? (3)
- Q6 a) Discuss the merits and demerits of highways as compared to railways. (3)
b) Write notes on: (a) Total station, (b) Compaction of concrete (3)