Registration No : | | | | | | | | | | |

Total Number of Pages : 02

B.Tech
RBC1B002

1st Semester Regular / Back Examination: 2021-22
BASIC CIVIL ENGINEERING
BRANCH(S): AEIE, AG, BIOMED, BIOTECH, CHEM, CIVIL, CSE, CSEAI, CSEAIME, CST, ECE, EEE, ELECTRICAL, ELECTRICAL & C.E, ENV, ETC, IT, MECH, METTA, MINING, MME
Time : 3 Hour
Max Marks : 100
Q.Code : OF732

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)**

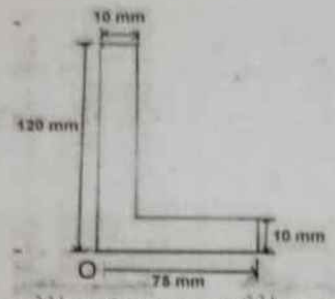
a) Write the function of gypsum in cement.
b) What is the ratio of magnitude of two forces when the forces are like or unlike parallel unequal forces?
c) What is the actual size and nominal size of brick?
d) In which situation, pile foundation is provided?
e) State the types of steels used in civil engineering works.
f) State Varignon's theorem.
g) Define magnification factor.
h) What is Irrigation Engineering?
i) Classify the chains used in survey field.
j) Write the basic objective of traffic engineering.

Part-II

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

a) Justify the importance of Civil Engineering.
b) Two concurrent forces F1 and F2 have the resultant of amount 30 N acting along negative y-axis. If the vector F1 = 10i-9j+15k, determine F2.
c) Define water-cement ratio. Explain the importance of water cement ratio in preparing concrete.
d) Describe the classification of soil as per Indian standard.
e) State local attraction. How it is detected and adjusted?
f) List the main operations involved in manufacturing of cement.
g) How does the surveyor compass differ from prismatic compass?
h) Develop a typical layout of an irrigation canal system.
i) Compare English and Flemish bond.

j) Locate the centroid of the angle section shown in figure.



k) Briefly describe about planning of transportation engineering.

l) Mention the railway gauges used in India.

Part-III

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

Q3 a) Enumerate the laboratory test for cement and describe any two of them. **(8)**

b) What are the qualities of a good building stone? Discuss them. **(8)**

Q4 Write short notes on: **(16)**

(a) Pile foundation
(b) D'Álemberts principle
(c) Total station
(d) EDM

Q5 a) The following bearing were observed in running a closed traverse. At station do you suspect the local attraction? Determine the correct magnetic bearings. **(10)**

Line	Fore Bearing	Back Bearing
AB	75^0 5'	254^0 20'
BC	115^0 20'	296^0 35'
CD	165^0 35'	345^0 35'
DE	224^0 50'	44^0 5'
EA	304^0 50'	125^0 5'

b) Describe with a sketch how you will measure the distance on sloping ground. **(6)**

Q6 a) Determine the moment of inertia of a T- Section 160 mm × 120 mm × 8 mm with respect to its centroidal X-axis. **(10)**

b) Locate the centroid of the shaded portion obtained by cutting a semicircle of diameter 'a' from the quadrant of a circle of radius 'a'. **(6)**