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

Total Number of Pages : 02 **B.Tech**

PBC2B102

2nd Semester Back Examination 2018-19

BASICS OF CIVIL ENGINEERING

BRANCH : AEIE, AERO, AUTO, BIOTECH, CHEM, CIVIL, CSE, ECE, EEE, ELECTRICAL, ENV, ETC, IT, MANUTECH, MECH, MINERAL, PE, PLASTIC

Max Marks : 100

Time : 3 Hours

Q.CODE : F714

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 **Only Short Answer Type Questions (Answer All-10)** **(2 x 10)**

a) What is meant by force- couple system?

b) Find out the resultant of two forces having magnitude P act at an angle 'θ'.

c) State the laws of friction.

d) State parallel axis theorem.

e) List out commonly used stones in buildings.

f) What do you understand by grade of concrete?

g) What are the basic components of a building?

h) Suggest the method to overcome an obstacle in chaining, where vision and chaining both are obstructed.

i) What are the raw materials for cement production?

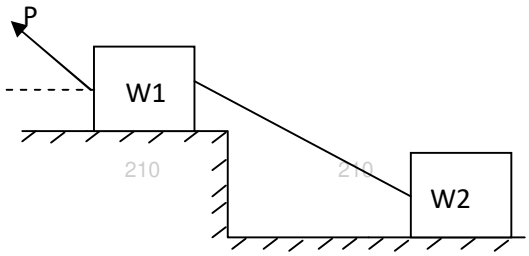
j) Write various transportation modes available.

Part- II

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

a) Distinguish clearly between resolution of forces and composition of forces.

b)



Two blocks of weights W_1 and W_2 connected with a string are at rest as shown in the figure. If the angle of friction of each block be Φ, find the magnitude and direction of least force 'P' necessary for upper block that will induce sliding.

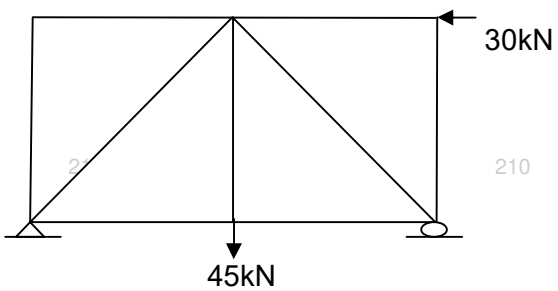
c) State triangle law of forces and polygon law of forces.

d) Calculate the centroid of T-section (flange 100mmx20mm) and web (20mmx150mm) and moment of inertia about centroidal axes x-x of given T-section.

e) Explain the required properties of a good brick.

f) What is workability and why is it important?

g)



Determine the forces in each member of the loaded truss by method of joints.

h) Why concrete should be compacted after placing? Explain different methods of compaction.

i) With neat sketches explain conventional spread footing.

j) A distance of 2000 m was measured with a 30 m chain. After the measurement chain was found to be 80 mm longer. If the length of chain was perfectly correct while starting measurement, what is the true length of the line measured?

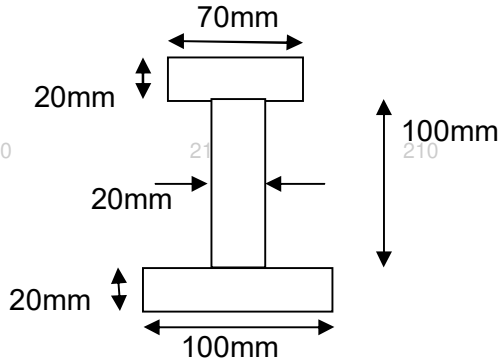
k) Classify EDM instruments.

l) Write the main functions of sleepers in a railway track.

Part-III

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

Q3 **(16)**

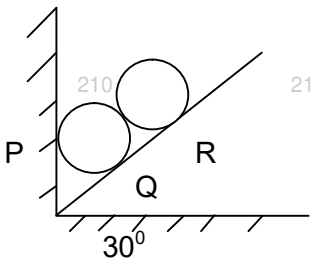


Find the moment of inertia about the centroidal X-X and Y-Y axes of the I - section.

Q4 Explain the following test procedure on cement with neat sketch : **(16)**

a) Soundness test
b) Initial setting and final setting time
c) Standard consistency

Q5 **(16)**



Two identical rollers each of weight 3kN rest in between an inclined wall & vertical wall as shown in figure. Determine the reactions at the points of contact P, Q & R. Assume the wall surfaces to be smooth.

Q6 The following fore and back bearings were observed in traversing with a compass in place where local attraction was suspected. **(16)**

Line	F.B	B.B
AB	38°30’	219°15’
BC	100°45’	278°30’
CD	25°45’	207°15’
DE	325°15’	145°15’

Find the corrected fore and back bearings and the true bearing of each lines given that the magnetic declination was 10°W.