Registration No :

| 2 | 2 | 0 | 1 | 2 | 1 | 4 | 0 | 6 | 5 |

Total Number of Pages : 02

1st Semester Regular/Back Examination: 2022-23
Basic Civil Engineering
BRANCH(S): AEIE, AERO, AUTO, BIOTECH, CHEM, CIVIL, CSE, CSEAI, CSEAIME, CSEDS, CST, ECE, EEE, EIE, ELECTRICAL, ELECTRICAL & C.E, ELECTRONICS & C.E, ETC, IT, MECH, METTA, MINERAL, MME, CE, CSE, EE
Time : 3 Hour
Max Marks : 100
Q.Code : L628

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 x 10)

a)   Write two methods adopted in direct measurement.
b)   Define bearing of line.
c)   List out the different modes of transportations.
d)   Write the relationship between fore bearing and back bearing of line.
e)   Name different building components.
f)   Differentiate between Rubble masonry and Ashlar masonry
g)   Define gravity dam.
h)   What should be the Quality of mixing water as BIS.
i)   State the importance of Civil Engineering.
j)   Write the standard size of bricks as per BIS.

Part-II

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

a)   Summarize about the different broad disciplines of Civil Engineering.
b)   Describe in detail about different types of cement used in construction sector.
c)   Differentiate between direct and indirect ranging with neat sketches.
d)   Define Workability of concrete. Write the tests for determination of workability of concrete.
e)   Write various advantages of Using Total Stations in surveying work.
f)   Write note on different types of steels used in civil engineering works.
g)   State and explain about different types of weirs used as hydraulic structures.
h)   Briefly explain about classification of stones.
i)   Briefly explain details about the qualities of good bricks.

j) Differentiate between shallow and deep foundations with neat sketches.
k) Provide a detailed classification canals used for irrigation purpose.
l) Describe about various aspects to be considered while designing transportation engineering.

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

Q3   Describe in detail about different types of tests are conducted for cement for its quality assessment.   (16)

Q4   Provide a detail classification of soil as per IS. List out and explain about various advantages of irrigation.   (16)

Q5   Summarize in detail about various steps involved in mix designing of concrete.   (16)

Q6   Define local attraction. The following bearings were taken in running a compass traverse. At what stations do you suspect local attraction? Find the correct bearings of the lines and also compute the included angles.   (16)

Line	Fore Bearing (FB)	Back bearing (BB)
AB	124° 30′	304° 30′
BC	68° 15′	246° 00′
CD	310° 30′	135° 15′
DA	200° 15′	17° 45′

Registration No:

Total Number of Pages : 01

B.Tech
RBC1B002

1st Semester Regular/Back Examination 2019-20
BASIC CIVIL ENGINEERING
BRANCH :AEIE, AERO, AG, AUTO, BIOMED, BIOTECH, CHEM, CIVIL, CSE, CST, ECE, EEE, EIE, ELECTRICAL, ELECTRICAL & C.E, ELECTRONICS & C.E, ENV, ETC, FASHION, FAT, IEE, IT, ITE, MANUFAC, MANUTECH, MARINE, MECH, METTA, METTAMIN, MINERAL, MINING, MME, PE, PLASTIC, PT, TEXTILE
Max Marks: 100
Time : 3 Hours
Q.CODE : HRB777
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) Write the function of gypsum in cement.
b) State the chemical classification of rocks.
c) Name the various stages of manufacture of concrete.
d) State the types of steels used in civil engineering works.
e) What is Compass surveying?
f) How is a station marked on the ground during surveying?
g) Define siphons.
h) What is Irrigation Engineering?
i) Define EDM
j) Write the basic objective of traffic engineering.

Part-II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** (6 x 8)
a) Justify the importance of Civil Engineering.
b) Illustrate the qualities of a good brick.
c) Mention the factors affecting workability of concrete.
d) Illustrate the uses of cement.
e) Mention the properties of good mortar.
f) When is chain survey recommended? Mention the principle of chain surveying.
g) State local attraction. How it is detected and adjusted?
h) The magnetic bearing of a line AB is $135^0 30'$. Find its true bearing, if the declination is $5^0 15'$ W.
i) Describe the classification of soil as per Indian standard.
j) Develop a typical layout of an irrigation canal system.
k) Briefly describe about planning of transportation engineering.
l) Explain about different modes of transport.

Part-III

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

Q3 Mention the common laboratory tests which are performed on physical properties of cement. Describe any two tests in details. **(16)**

Q4 Describe with a sketch how you will measure the distance on sloping ground. **(16)**

Q5 Compare merits and demerits of brick masonry and stone masonry. **(16)**

Q6 Discuss types of shallow and deep foundations with neat sketches. **(16)**

Registration No:

Total Number of Pages: 03

B.Tech
PBC1B102

1st Semester Regular/Back Examination 2017-18
Basics of Civil Engineering
BRANCH: AEIE, AUTO, BIOTECH, CHEM, CIVIL,
CSE, ECE, EEE, EIE, ELECTRICAL, ETC, IEE, IT, MECH, METTA, MINERAL, MINING,
MME, PE, TEXTILE
Time: 3 Hours
Max Marks: 100
Q.CODE: B901
Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1   **Answer the following questions:** *multiple type or dash fill up type*   **(2 x 10)**

   a) The geometrical centre of the body is………
     i)centroid   ii)centre of gravity   iii)centre of mass   iv) all of the above

   b) The total momentum of a system _____, if no external impressed force acts on it.
     i)increases ii) decreases iii) remains constant iv)none of the above

   c) The centre of gravity of a semi-circle lies at a distance of ---- from its base measured along the vertical radius. (i)$3r/8$ (ii))$3r/4\pi$ (iii) $8r/3$ (iv)$4r/3\pi$

   d) Harmful constituent of a good brick earth is ----- .
     i)silica ii) alumina iii) lime iv) alkali

   e) Whenever a force acts on a body and the body undergoes a displacement, then
     i)work is done ii) power is being transmitted iii)body has kinetic energy of translation iv) body develops potential energy

   f) Number of bricks required for one cubic metre of brick masonary is ------ .
     i) 500   ii)550   iii)400   iv) 450

   g) A good building stone should not absorb water more than ------ .
     i)5%   ii)10%   iii)15%   iv)20%

   h) A bus travels with a speed of 15 m/s when accelerated at 0.10 m/s^2 from its rest position. What is the distance travelled ?
     i)1125 m   ii) 1000 m   iii)2250 m   iv)None of the above

   i) Which axial force is determined while analyzing a truss?
     i)compressive force   ii) tensile force   iii) both (i) & (ii)   iv) none of the above

   j) Le Chatelier's device is used for determining the ----- of cement.
     i)setting time   ii)soundness iii)Tensile strength iv)compressive strength

Q2   **Answer the following questions briefly.**   **(2 x 10)**

   a) State parallel axis theorem.
   b) Differentiate between a particle and a rigid body.
   c) Differentiate between collinear and concurrent forces.
   d) State Varignon's theorem.
   e) Write the equations of equilibrium of a rigid body.
   f) What are the reactions at the fixed support of a plane beam?
   g) In which situation, pile foundation is provided?
   h) Name any four important stones used in the building construction.
   i) Define the term 'mortar'. How is it classified?
   j) Explain the term; *dressing of stones*

Q3 **a)** A force of magnitude 10 KN is applied at point C shown in figure. Determine the angle α for which the larger of the string tension is as small as possible and the corresponding values of tension in the strings. (Fig A) **(9)**
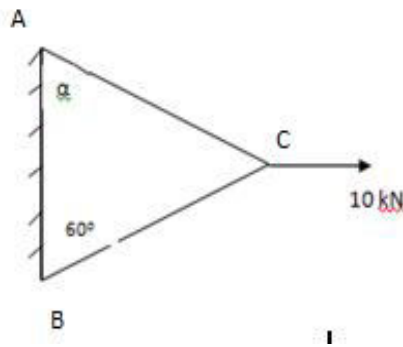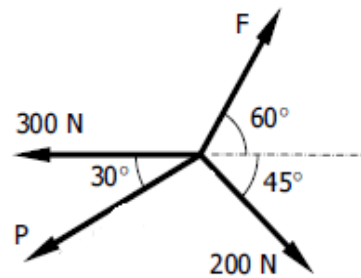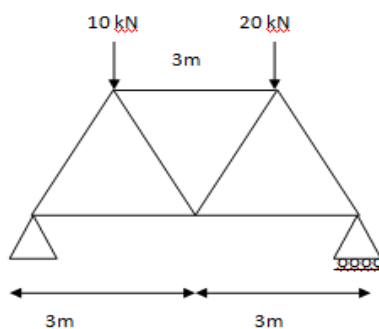

Fig. A   Fig. B

b) Determine the magnitude of P and F necessary to keep the concurrent force system in equilibrium. (Fig B) **(6)**

Q4 The girder consists of 7 members each of 3m length supported at its end points. Find the forces in all the members and their nature. **(15)**

Q5 **a)** Determine the moment of inertia of a T- section 150x100x6 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'. **(5)**

Q6 Mention the stations which are affected by local attraction and determine the corrected bearings. **(15)**

Line	FB	BB
AB	$45^0 45'$	$226^0 10'$
BC	$96^0 55'$	$277^0 5'$
CD	$29^0 45'$	$209^0 10'$
DE	$324^0 48'$	$144^0 48'$

Q7 **a)** A body of mass M moving with a velocity V collides another body of mass 2M **(10)** at rest. Find the velocities after impact assuming perfectly elastic collision.

b) The acceleration of a body starting from rest moving along a straight line **(5)** follows the law a= t/30+2/3., where a is in m/s^2 and t is in seconds. Obtain the velocity and displacement at t= 15 sec.

Q8 **a)** Describe a test to determine the compressive strength of concrete. **(10)**

b) Define and explain the workability of concrete. **(5)**

Q9 **a)** State various types of floors commonly provided . Briefly explain any two of **(8)** them.

b) Define water-cement ratio. Explain the importance of water cement ratio in **(7)** preparing concrete.

Registration No :

Total Number of Pages : 02
B.Tech
PBC1B102

1st Semester Back Examination 2019-20
BASICS OF CIVIL ENGINEERING
BRANCH : AEIE, AERO, AUTO, BIOMED, BIOTECH, CHEM, CIVIL, CSE, ECE, EEE, EIE, ELECTRICAL, ENV, ETC, FAT, IEE, IT, MANUFAC, MANUTECH, MECH, METTA, MINERAL, MINING, MME, PE, PLASTIC, PT, TEXTILE
Max Marks : 100
Time : 3 Hours
Q.CODE : HB710
**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 are the characteristics of concurrent forces?
b) What is the ratio of magnitude of two forces when the forces are like or unlike parallel unequal forces?
c) What are the necessities of knowing centre of gravity?
d) What is parallel axis theorem?
e) State the principle of moment of inertia of a material body.
f) Define magnification factor.
g) What is the actual size and nominal size of brick?
h) How to increase the setting speed of mortar?
i) Classify the chains used in survey field.
j) Draw the symbol of one way, two way and U-turn used in road transportation system.

Part- II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** (6 x 8)
a) Two concurrent forces F_1 and F_2 have the resultant of amount 30 N acting along negative y-axis. If the vector F_1 = 10i-9j+15k, determine F_2.
b) Three like parallel forces P,Q,R act at the vertices of triangle ABC. If their resultant passes through the orthocentre O, show that $\frac{P}{\tan A} = \frac{Q}{\tan B} = \frac{R}{\tan C}$.
c) Locate the centroid of the curve AB bent in the shape of a quadrant.
d) Locate the centroid of the angle section shown in figure.
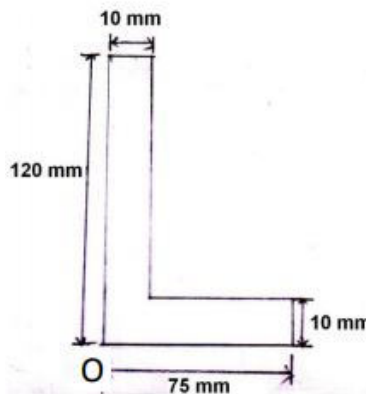
e) A pin jointed framed structure is loaded as shown in figure below. Calculate the forces in all members. Take area for horizontal members as 20 cm2, vertical members as 30 cm2, inclined members as 50 cm2 and E = 2000 t/cm2.
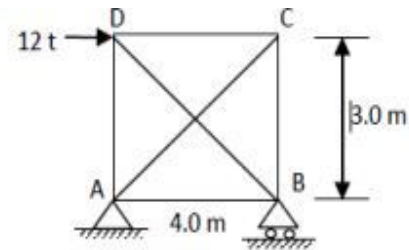

f) Compare English and Flemish bond.
g) List the main operations involved in manufacturing of cement.
h) Describe the properties of cement concrete.
i) What are the principles of chain surveying?
j) How does the surveyor compass differ from prismatic compass?
k) What are the different modes of transport? Explain briefly.
l) Mention the railway gauges used in India.

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

Q3 Determine the moment of inertia of a T- Section 150 mm × 100 mm × 6 mm with respect to its centroidal X-axis. **(16)**

Q4 Analysis the truss shown in the figure below. **(16)**
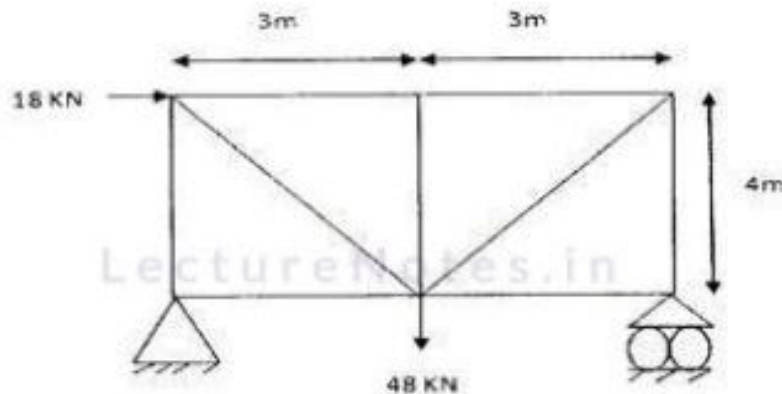
Q5 a) What do you mean by workability of Concrete? Explain the factors affecting workability. **(8)**
b) Explain about soundness and consistency of cement. **(8)**

Q6 The following bearing were observed in running a closed traverse. At station do you suspect the local attraction? Determine the correct magnetic bearings. **(16)**

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

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° 45' (b) 210° 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 × 10⁵ 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.   (8)

     b)   Briefly describe weirs and dams.   (8)

Q4   **a)**   Discuss various types of shallow foundations with neat sketches.   (8)

     b)   The following bearings were observed with a compass. Calculate the interior angles.   (8)

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.   (8)

     b)   What is pre-stressed concrete? Under which situation they are preferred?   (8)

Q6   **a)**   Discuss the merits and demerits of highways as compared to railways.   (8)

     b)   Write notes on: (a) Total station, (b) Compaction of concrete   (8)

Registration No :

Total Number of Pages : 04   B.Tech.
                                                                       PBC2B102
2nd Semester Regular / Back Examination 2017-18
BASICS OF CIVIL ENGINEERING
BRANCH : AEIE, AERO, AUTO, BIOMED, BIOTECH, CHEM, CIVIL,
CSE, ECE, EEE, EIE, ELECTRICAL, ENV, ETC, FAT, IEE, IT, MANUFAC,
MANUTECH, MECH, METTA, MINERAL, MINING, MME, PE, PLASTIC, PT, TEXTILE
Time : 3 Hours
Max Marks : 100
Q.CODE : C923
Answer Part-A which is compulsory and any four from Part-B.
The figures in the right hand margin indicate marks.
Answer all parts of a question at a place.

Part – A (Answer all the questions)

Q1   Answer the following questions : *multiple type or dash fill up type :*   (2 x 10)

a) The resultant of two forces can be defined as a force that
    (a) Keeps the system in equilibrium
    (b) Has the greatest magnitude in the system
    (c) Has the same effect as the two forces
    (d) Has the same effect as one forces

b) If the two equal forces of magnitude P act an angle Ө, their resultant will
    be_____
    (a) 2P cos Ө/2   (b) P tan Ө/2
    (c) 2P sin Ө/2   (d) P cos Ө/2

c) The coefficient of friction (µ) is equal to_____
    (a) TanФ   (b) SinФ
    (c) CotФ   (d) CosФ
    Where Ф = angle of friction

d) The moment of inertia of a triangular section of base 'b' and height 'h' about an
    axis passing through its C.G. and parallel to the base is_____
    (a) $\dfrac{bh^3}{36}$ (b) $\dfrac{bh^3}{12}$

    (c) $\dfrac{bh^3}{4}$ (d) $\dfrac{bh^3}{3}$

e) Momentum_____
    (a) Is the inertia of objects in motion   (b) Depends on an object's velocity
    (c) Is a vector quantity   (d) All of the above

f) Crushing strength of a good building stone should be more than_____
    (a) 50Mpa   (b) 100 Mpa
    (c) 150 Mpa   (d) 200 Mpa

g) The accumulation of water on outer surface of concrete is_____
   (a) Transpiration   (b) Bleeding
    (c) Guttation   (d) Ponding

h) The curvature of the earth is taken in to account when the extent of area is more than _____
   (a) 50km^2 (b) 100km^2
   (c) 150km^2 (d) 250km^2

i) A 20m chain is divided in to _____link and 30 m chain is divided in to_____link.
   (a) 150 , 200 (b) 200, 150
   (c) 100 , 150 (d) 150 ,100

j) The fore bearing of a line is S45^{0}30', _____ is its back bearing.

Q2 **Answer the following questions : *Short answer type :*** **(2 x 10)**

a) Uniformly distributed load of 5 kN acts on a simply supported beam of length 10 m. What are the reactions at end points of the beam?

b) Sketch the different types of supports and the reactions developed in each type.

c) What is the C.G of an isosceles triangle of base 20 cm and side 40 cm?

d) State theorem of parallel axis.

e) State law of conservation of energy.

f) What are the different stages involved in the manufacture of bricks?

g) Write down the different composition of ordinary cement.

h) How are foundations classified according to their depth?

i) What is local attraction?

**j)** What are the characteristics of first class brick?

Part – B (Answer any four questions)

Q3 **a)** Block A in Fig. weighs 120 kN, block B weighs 200 kN, and the cord is parallel to the incline. **(10)**
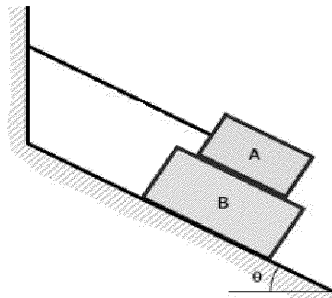

If the coefficient of friction for all surfaces in contact is 0.25, determine the angle θ of the incline of which motion of B impends.
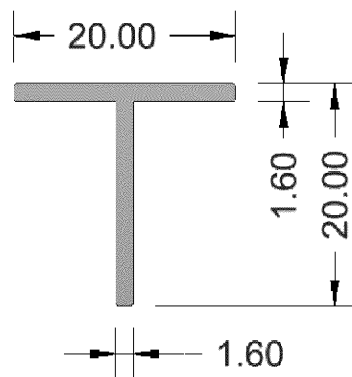
b) Using method of projections, find the magnitude and direction of the resultant R of the four concurrent forces shown in Fig and having the magnitude F$_1$=1500N, F$_2$=2000N, F$_3$=3500N and F$_4$=1000N. **(5)**
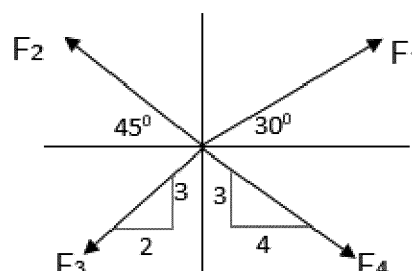
Q4 a) Calculate the reactions R_a and R_b for the beam loaded as shown in Fig. Neglect   **(10)**
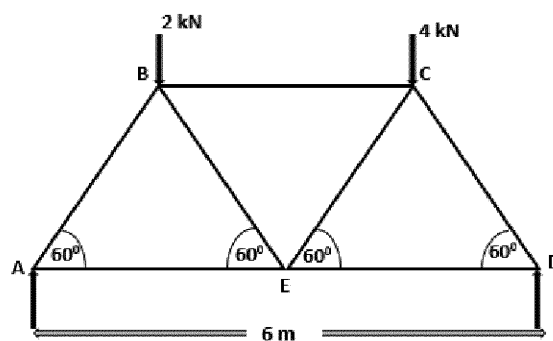weight of the beam.
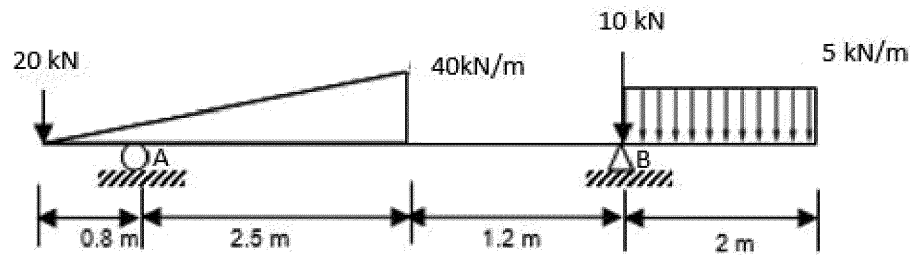
b) Locate the centroid of the given section.   **(5)**

All the dimensions are in mm.

Q5 a) A Truss consisting of seven members each of 3m length freely supported at its   **(10)**
end points. Determine the nature and magnitude of the forces in all the
members.

b) An arrow weighing 0.1433 N is shot from a 155.75N draw bow at full draw   **(5)**
d=400mm.Assuming a linear relation between draw and force, calculate the
velocity v with which the arrow leaves the bow.

Q6 a) Enumerate the laboratory tests for cement and describe any two of them.   **(10)**
**b)** What are the qualities of a good building stone? Discuss them.   **(5)**

Q7 a) The following are the bearings observed in traversing, with a compass.   **(10)**

Line	Fore bearing	Back bearing
AB	$68^0 15'$	$248^0 15'$
BC	$148^0 45'$	$326^0 15'$
CD	$224^0 30'$	$46^0 0'$
DE	$217^0 15'$	$38^0 15'$
EA	$327^0 45'$	$147^0 45'$

Calculate the correct fore and back bearings and the true bearings of the lines, given that, the magnetic declination is $1^0 40'$ E.

b) What are the types of traverse and how it checks?   **(5)**

Q8 a) Find the tension S in the spring during motion of the system shown in Fig. if   **(10)**
W_1=890N; W_2=445 N. The system is in a vertical plane, and the coefficient of friction between the inclined plane and the block W_1 is μ=0.2.Assume the pulleys to be without mass.
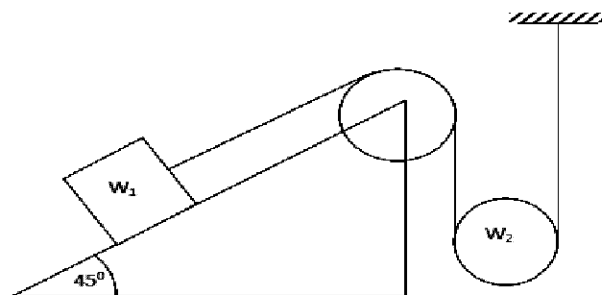
b) Determine the moments of inertia of the Z-section about its centroidal x and y-axes.   **(5)**
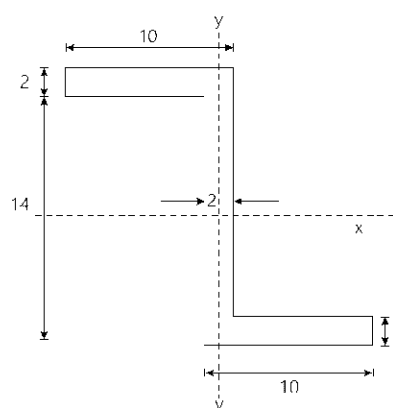
Q9   Write short notes on any THREE :   **(5x3)**
  a) Explain the different modes of transportation.
  b) D' Alemberts principle
  c) Total Station
  d) EDM
  e) Pile foundation