Register Number :

Name of the Candidate :

4027-A

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(THIRD SEMESTER)

OOHS-301. ENVIRONMENTAL STUDIES

(Common to ALL Branches)

November] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL Marks.

UNIT - I

1. (a) Write a brief note on the environmental effects of extracting and using mineral resources. (8)

   (b) Write the effects of over utilization of surface and ground water. (7)

(OR)

2. (a) Write notes on renewable and non-renewable energy sources. (8)

   (b) Explain soil erosion and desertification in detail. (7)

UNIT - II

3. (a) Explain the structure and function of an ecosystem. (8)

   (b) Explain forest ecosystem in detail. (7)

(OR)

4. (a) Explain ecological succession using appropriate terminology. (8)

   (b) Explain aquatic ecosystem in detail. (7)

UNIT - III

5. (a) Write short notes on value of biodiversity. (8)

   (b) Write brief note on hot spots of biodiversity. (7)

(OR)

6. (a) Substantiate the statement 'India is a mega diversity nation'. (8)

   (b) Explain conservation of biodiversity. (7)

UNIT - IV

7. (a) Write short notes on marine pollution. (8)

(b) Mention any four air pollutants with their sources and emission control measures. (7)

(OR)

8. (a) Enlist the rules of solid waste management and analyse critically the problems associated with the implementation. (8)

(b) Write notes on Wildlife Protection Act. (7)

UNIT - V

9 (a) Explain population explosion in detail. (8)

(b) Write notes on environment and human healh relation. (7)

(OR)

10 Write short notes on :

(a) HIV / AIDS. (8)

(b) Role of information technology in environment and human health. (7)

4410

0604

Register Number:

Name of the Candidate:

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(THIRD SEMESTER)

PCLEC–301. STATISTICS AND NUMERICAL METHODS

(Part Time)

Nov
~~April~~]

[Time: 3 Hours

Maximum: 75 Marks

Answer any ONE FULL question from each unit

UNIT – I

1. a) A bag contains 5 balls and it is not known how many of them are white. Two balls are drawn at random from the bag and they are noted to be white. What is the change that all the balls in the bag are white? (7)

   b) A continuous random variable X has a probability density function, $f(x) = Kx^2e^{-x}$, $x>,0$ find K, mean and variance. (8)

2. If X and Y are discrete random variables $P[X = x, Y = y] = C(x + y)$ for $x = 0, 1, 2$ and $y = 1, 2$ and $P[x, y] = 0$, otherwise. Find C and the covariance between X and Y. (15)

UNIT – II

3. a) The number of monthly break downs of a computer is a RV having a Poisson distribution with mean equal to 1.8. Find the probability that this computer will function for a month (7)

      (i) Without a breakdown

      (ii) With atleast one breakdown.

   b) If X is a normal variable with mean 30 and standard deviation 5. Find the following (i) $P[2b \le X \le 40]$ and (ii) $P[X \ge 45]$. (8)

4. Find the two lines of regression and correlation coefficient from the following data: (15)

X :	45	46	48	50	52	53	51	49	47
Y :	94	96	98	100	104	105	102	99	97

UNIT – II

5. Evaluate $\int_0^{1.2} e^{-x^2} dx$ using (i) Trapezoidal rule (ii) Simpson's $\frac{1}{3}$ and $\frac{3}{8}$ rules with $h = 0.2$. (15)

6. Find an approximate value of $\int_0^{\pi/2} \sqrt{\cos x}\ dx$ by dividing the interval into six parts, (i) Using Trapezoidal rule (ii) Simpson's $\frac{1}{3}$ rule. (15)

UNIT – IV

7. Solve $xy'' + y = 0$, $y(1) = 1$, $y(2) = 2$ with $h = 0.5$ and $h = 0.25$ by using finite difference method. (15)

8. Solve the boundary value problem $y'' - 64y + 10 = 0$ with $y(0) = y(1) = 0$ by the finite difference method. (15)

UNIT – V

9. Solve the LPP using simplex method: (15)

   Maximize, $z = 2x_1+4x_2+x_3$

   Subject to the constraints

   $x_1 + 3x_2 \leq 4$

   $2x_1 + x_2 \leq 3$

   $x_2 + 4x_3 \leq 3$

   $x_1, x_2, x_3 \geq 0$.

10. A person requires 10, 12, and 12 units of chemicals A, B & C respectively for his garden. A liquid product contains 5, 2 & 1 units of A, B & C respectively per jar. A dry product contains 1, 2 & 4 units of A, B & C per packet. If the liquid product is Rs.3 per jar and the cost of the dry product is Rs.2 per packet. Find out how many of each should be purchased in order to minimize the total cost. (15)

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Register Number :

Name of the Candidate :

4 0 2 9

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(THIRD SEMESTER)

CLEC-302 / CSEC-302 / PCSEC-102. MECHANICS OF SOLIDS - I

(Common with Civil and Structural Engineering and Part- Time)

November] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.
ALL questions carry EQUAL Marks.

UNIT - I

1. For a given material, Young's modulus is 110 GN/m^2 and shear modulus is 42 GN /m^2. Find the bulk modulus and lateral contraction of a round bear of 37·5 mm diameter and 2·4 m length when stretched 2·5 mm.

(OR)

2. A point is subjected to principal stresses of 100 MN/m^2 and 40 MN/m^2, both tensile. Find the normal, tangential and resultant stresses across a plane through the point at 48° to major principal plane, using Mohr's cricle of stress.

UNIT - II

3. Find the moment of inertia of unequal angle section 125 × 95 × 10 mm shown in figure - 1.

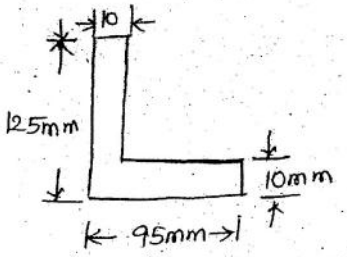

Figure - 1.

(OR)

Register Number :

Name of the Candidate :

4030

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(THIRD SEMESTER)

CLEC-303 / CSEC-303. CONSTRUCTION ENGINEERING

(For the Candidates of 2011-12 batch and later)

November] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT – I

1. Write in detail about the different types of steel and their properties so as to use them as building materials. (15)

(OR)

2. (a) Distinguish between fat lime and hydraulic lime. (5)

(b) Discuss the properties and uses of cement. (10)

UNIT - II

3. What is shallow foundation? Explain different types of shallow foundations. (15)

(OR)

4. Classify various types of masonry. Draw typical sketches to illustrate the same. (15)

UNIT - III

5. (a) Name the various materials used as roof covering and their relative merits. (8)

(b) Mention the requirements of an ideal materials for damp proofing. (7)

(OR)

6. What are the types of stairs? Draw neat sketches. (15)

UNIT - IV

7. (a) Explain the different stages of plastering. (7)

(b) What are the factors that affect the choice of flooring? (8)

(OR)

8. Define the term shoring. Write the purpose and explain any one method of it. (15)

UNIT - V

9. Discuss briefly the demolition techniques used in civil engineering. (15)

(OR)

10. Explain the causes of corrosion in concrete structures and its remedial measures. (15)

Register Number :

Name of the Candidate :

4 0 3 1

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(THIRD SEMESTER)

CLEC-304 / PCLEC-104. ENGINEERING GEOLOGY

(For the candidates of 2011-12 batch)

November] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.
ALL questions carry EQUAL Marks.

UNIT - I

1 (a) Explain the physical properties of minerals. (15)

(OR)

(b) (i) Explain the general properties of Quartz. (8)

(ii) Explain the classification of crystals. (7)

UNIT - II

2. (a) Explain in detail the formation of igneous rocks. (15)

(OR)

(b) (i) Explain the classifications of sedimentary rocks. (9)

(ii) Explain the texture of metamorphic rocks. (6)

UNIT - III

3. (a) Explain the important physical properties of minerals that are commonly studied for their identification. (15)

(OR)

(b) Write short notes on :

(i) Joints. (ii) Classification of faults. (iii) Parts of fold. (3 × 5)

UNIT - IV

4. (a) Discuss the causes and effects of earth-quake. (15)

(OR)

(b) Explain the various seismic zone of India. (15)

UNIT - V

5. (a) Enumerate the various geological characteristics that should be taken while selecting a site for dam. (15)

(OR)

(b) Explain with a neat sketch on hydrological cycle. (15)

Register Number:

Name of the Candidate:

4030A

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(THIRD SEMESTER)

01ES-304: CONSTRUCTION ENGINEERING

(Common with Civil and Structural Engineering)

November] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit **(5 × 15 = 75)**

UNIT-I

1. Discuss in detail about the manufacturing process of steel and write their types based on carbon %. (15)

2. Explain the various defect on timber and write about their various market forms. (15)

UNIT-II

3. Write short notes on:
   a) Batter pile, fender pile and sheet piles with neat sketches. (9)
   b) Factors influencing bearing capacity of soil. (4)
   c) Safe bearing capacity (4)

4. Briefly explain about the deep foundation types with neat sketch. (15)

UNIT-III

5. a) Enumerate the various types of stair case with neat sketch. (11)
   b) Write uses of DPC and what are the materials used as DPC. (4)

6. Briefly discuss about the various types of flat roof and pitched roof. (15)

UNIT-IV

7. a) Write the uses of following:
      i) Shuttering (3)
      ii) White washing (3)
      iii) Shoring (3)
   b) Explain the various components of paints. (6)

8. Discuss in detail about the various types of floors with neat sketch. (15)

UNIT-V

9. a) Write the various types of glasses and their uses. (8)
   b) Write short notes on various types of cracks on building. (7)

10. Write short notes on:
    i) Light weight concrete block (4)
    ii) Sealant joints uses (3)
    iii) Various application of PVC and UPVC material's in building construction. (8)

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Register Number :

Name of the Candidate :

4 0 3 2

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(THIRD SEMESTER)

CLEC-305 / CSEC-306. CONCRETE TECHNOLOGY

(Common with Civil and Structural Engineering)

November] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.
ALL questions carry EQUAL marks.

UNIT - I

1. Briefly discuss the hydration of Portland Cement.
2. Describe the process of manufacture of cement by dry process.

UNIT - II

3. Explain the various methods of testing aggregates abrasion value.
4. What are the characteristics and significance of aggregates ?

UNIT - III

5. What are the various factors which affect the workability of concrete ?
6. Differentiate between segregation and bleeding.

UNIT - IV

7. List the testing methods for determining compressive strength of concrete.
8. Explain in detail about the hardened concrete and its properties.

UNIT - V

9. Describe the procedure in adopting IRC method of concrete mix design.
10. Explain the factors that influence the choice of mix design..

Register Number :

Name of the Candidate :

4 0 3 2 - A

B.E. DEGREE EXAMINATION, 2017

(CIVIL ENGINEERING)

(THIRD SEMESTER)

O1PC-306 / O2PC-306. MECHANICS OF FLUIDS

(Common with Civil and Structural Engineering)

(Candidates joined in 2016 and after)

November] [Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.
ALL questions carry EQUAL Marks.

UNIT - I

1. Calculate the capillary effect in millimeters a glass tube of 4 mm diameter, when immersed in (a) Water (b) Mercury. The temperature of the liquid is 20° C and the values of the surface tension of water and mercury at 20° C in contact with air are 0·073575 and 0·51 N/m repsectively. The angle of contact for water is zero and that for mercury 130°. Take specific weight of water as 9790 N/m^3.

2. A differential manometer is conncected at any two point A and B of two pipes. The pipe-A contains a liquid of specific gravity =1·5 while pipe-B contains a liquid of specific gravity = 0·9. The pressure at A and B are 1 kgf/cm^2 respectively. Find the differential manometer.

UNIT - II

3. Derive an expression for time period of the oscillation of a floating body in terms of radius of gyration and meta centric height of the floating body.

4. A block of wood of specific gravity 0·8 floats in water. Determine the meta centric of the block if its size is 3 m × 2 m × 1 m.

UNIT - III

5. Derive Bernoulli's equation for the flow of an incompressible friction less fluid consideration of momentum.

6. Derive Euler's equation for motion along a stream line for an ideal fluid stating clearly the assumptions.

UNIT - IV

7. Determine the height of a rectangular weir of length 6 m, to be built across a rectangular channel. The maximum depth of water on the upstream side of the weir is 1·8 m and discharge is 2000 litres / sec. Take C_d = 0·6 and neglect end contractions.

8. Find the discharge through a trapezoidal notch which is 1 m wide at the top and 0·40 at the botom and is 30 cm in height the head of water on the notch is 20 cm. Assums C_d for rectangular portion = 0·62, while for rectangular portion = 0·6.

UNIT - V

9. Derive Darcy Weisbatch equation.

10. Derive expression for the loss of head due to sudden enlargement.