Sl.No. 1981 SUBJECT CODE: 34115101/34116101

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

COMMON TO ALL BRANCHES

FIRST SEMESTER

CALCULUS FOR ENGINEERS

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Prove that at the point $x = \frac{\pi}{2}$ of the curve $y = 4\sin x - \sin 2x, \rho = \frac{5\sqrt{5}}{4}$

2 Write the formula for the centre of curvature.

3 Write the sufficient conditions for a maximum (or) minimum.

4 Find $\frac{du}{dt}$ if $u = x^2 + y^2,\ x = at^2,\ y = 2at.$

5 Evaluate $\int x \sin x dx$

6 Evaluate $\int \frac{dx}{(x+2)^2 - 4}$

7 Evaluate $\int_0^a \int_0^{\sqrt{a^2-x^2}} dxdy$

8 Evaluate $\int_0^1 \int_1^2 x(x+y)dydx.$

9 Find the unit vector normal to the surface $x^2 - y^2 + z = 2$ at the point $(1,-1,2)$

10 State Green's theorem in plane

PART-B (5 x 16 = 80)

11 a. Find the equation to the circle of curvature of the curve $xy = c^2$ at (c,c)

OR

(P.T.O)

b. Find the radius of curvature at the point θ on $x = 3a\cos\theta - a\cos 3\theta$ and $y = 3a\sin\theta - a\sin 3\theta$

12 a. (i) If $u = \sin^{-1}\frac{x}{y} + \tan^{-1}\frac{x}{y}$, then find the value of $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$

(ii) Find $\frac{du}{dt}$ as a total derivative and verify the result by the direct substitution of $u = x^2 + y^2 + z^2$ when $x = e^{2t}, y = e^{2t}\cos 3t,$ and $z = e^{2t}\sin 3t$

OR

b. Find the maximum or minimum value of f $f(x,y) = 2 + 2x + 2y - x^2 - y^2$

13 a. (i) Evaluate $\int \sqrt{x^2 - 2x - 3}\, dx$

(ii) Show that $\int_2^3 \sqrt{(x-2)(3-x)}\ dx = \frac{\pi}{8}$

OR

b. (i) Evaluate $\int x\tan^{-1} x\, dx$

(ii) Evaluate $\int \frac{e^x(1+\sin x)}{1+\cos x}\, dx$

14 a. Evaluate $\int_0^a \int_0^{\sqrt{a^2-x^2}} \int_0^{\sqrt{a^2-x^2-y^2}} \frac{dzdydx}{\sqrt{a^2-x^2-y^2-z^2}}$

OR

b. Evaluate $\iint_R r^2 \sin\theta\, dr\, d\theta$, Where R is the region above the initial line of the curve $r = 2a\cos\theta$.

15 a. Verify Stoke's theorem for $\vec{F} = (x^2 + y^2)\vec{i} - 2xy\vec{j}$ taken around the rectangle bounded by the lines $x = \pm a,\ y = 0,\ y = b$

OR

b. Evaluate $\iint_S \vec{F}.\hat{n}\, ds$ where $\vec{F} = z\vec{i} + x\vec{j} - y^2 z\vec{k}$ and S is the part of the surface of the cylinder $x^2 + y^2 = 1$ included in the first octant between the planes $z = 0$ and $z = 2$

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Sl.No. 1981

Sl.No. 1821 SUBJECT CODE: 34115103/34116103

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
COMMON TO ALL BRANCHES
FIRST SEMESTER
PHYSICS FOR ENGINEERS

(Candidates admitted under 2015 &2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1	Give the examples for elastic bodies.
2	Define: bulk modulus of elasticity
3	Give the no. of atoms per unit cell and coordination number for FCC
4	What are Miller indices?
5	Define: Spontaneous emission
6	Write any two applications of CO_2 laser.
7	What is meant by critical angle?
8	What is multimode fiber?
9	What is destructive testing?
10	Give the demerits of Liquid Penetrant method.

PART-B (5 x 16 = 80)

11 a.	Describe an experiment to determine Young's modulus of a beam by uniform bending.
	OR	
b.	Explain about I-shaped girders with neat diagram.	
12 a.	Determine the number of atoms per unit cell, coordination number, atomic radius and packing factor for BCC structure.
	OR	
b.	What are Miller indices? Write down the procedure finding the Miller indices with examples.	
13 a.	Explain the applications of lasers in scientific, engineering and industrial fields.
	OR	
b.	Describe the applications of laser in communication, military and chemical fields.	
14 a.	Describe the characteristics, advantages, disadvantages and applications step-index multimode fibre with necessary diagrams.
	OR	
b.	Write a note on the following i)critical angle, ii) total internal reflection, iii) acceptance angle, iv) numerical aperture.	
15 a.	Write down the principle, advantages, disadvantages and applications of ultrasonic flaw detector
	OR	
b.	Describe the X-ray fluoroscopy technique of nondestructive testing.	

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Sl.No. 1598 **Sub. Code: 34615101/34616101**

VINAYAKA MISSIONS UNIVERSITY, SALEM

B.E. DEGREE EXAMINATION - NOV /DEC – 2018

COMMON TO AUTO, CIVL & MECH

First Semester

ESSENTIALS OF ELECTRICAL AND ELECTRONICS ENGINEERS

(Candidates admitted under 2015&2016 Regulations - CBCS)

Time: Three hours Maximum: 100 marks

Answer **ALL** questions

Use separate Answer books for Part I and Part II

PART – I: ELECTRICAL ENGINEERING (50 marks)

PART – A (10 x 2 = 20 Marks)

1. What is Electric Resistance?
2. Mention the SI unit of Area, Volume and Force.
3. Describe Power Factor.
4. What is a DC Motor?
5. Write any two Applications of DC Motors.
6. What is a Commutator?
7. Define Transformer.
8. Write the Working principle of Single Phase Induction Motor.
9. Explain the Step up and Step down Transformer.
10. How Ideal transformers differ from the practical Transformer?

PART – B (3 x 10 =30 Marks)

1 . a) Explain the Construction and principle of operation of moving coil Instrument with neat diagram.

OR

b) Derive the equation of Average value and RMS value of Sinusoidal Waveforms.

2. a) With neat diagram explain the Working Principle of a DC Generator.

OR

b) Explain the working principle of Three Point DC Starter.

3. a) Enumerate the types of Three Phase transformer connections with suitable diagrams.

OR

b) Distinguish between Synchronous Motor and Three Phase Induction Motor.

(P.T.O)

PART – II: ELECTRONIC ENGINEERING (50 marks)

PART – A (10 x 2 = 20 Marks)

1. Define Passive components.

2. List the classifications of resistors.

3. Compare N-type and P- type Semiconductors.

4. Which configuration of BJT is widely used? Why?

5. Find the 2s complement of the binary number 1011001.

6. Give the truth table of a 2-input XOR gate.

7. Give the truth table of a full adder.

8. Define MODEM.

9. List the most common storage techniques in Video Games.

10. Distinguish between AM and FM.

PART – B (3 x 10 =30 Marks)

11. a) Elaborate the formation of PN junction and its working under No Bias, Forward Bias & Reverse Bias condition. Plot its V-I characteristics curve.

OR

b) Compare CB, CE & CC configurations of BJT with necessary diagram.

12. a) Explain any four logic gates with truth table and symbol.

OR

b) Design and explain the working of 4: 1 and 8: 1Multiplexer with a neat diagram.

13 a) Discuss about High Definition TV with diagram.

OR

b) Elucidate on Satellite Communication system with diagram.

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Sl.No. 1741 SUBJECT CODE: 35015101/35016101

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E-DEGREE EXAMINATIONS- NOV/DEC - 2018

COMMON TO ALL BRANCHES

FIRST SEMESTER

ESSENTIALS OF COMPUTER SCIENCE AND ENGINEERING

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What is mean by hardware?

2 Define Booting.

3 Write notes on Bullets and numbering in MS Word.

4 Mention the uses of MS Excel.

5 List out the way how algorithms may be represented.

6 Write an algorithm to find the area of a circle.

7 In what way to analyze an algorithm.

8 Give an example for top-down analysis.

9 List out any four formatting tags in HTML.

10 How you define href, target and name Attributes?

PART-B (5 x 16 = 80)

11 a. Explain the block diagram of a Computer with neat sketch.

OR

b. Describe the services provided by Internet.

12 a. Briefly explain table menu in MS Word.

OR

b. What is a chart and explain different steps for inserting a chart in Excel.

13 a. What is flowchart? Explain the symbols used in drawing the flowchart. Also write the rules and advantages of using flowcharts.

OR

b. Write an algorithm and flowchart for generating Fibonacci series.

14 a. Discuss the features of an algorithm.

OR

b. Explain the classification of Algorithms.

15 a. To create a web page to showing an ordered & unordered list of name of your five friends.

OR

b. Explain in detail about HTML image tags.

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Sl.No. E1553 **Sub. Code: 34115201 /34116201**

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E. DEGREE EXAMINATION- NOV /DEC – 2018
COMMONTO AERO, AUTO, CIVIL, ECE, EEE,
EIE, CSE, IT, BME, MECH& & MECT
Second Semester

BUSINESS ENGLISH

(Candidates admitted under 2015&2016 Regulations - CBCS)

Time: Three hours Maximum: 100 marks

Answer **ALL** questions

PART – A (10 x 2 = 20 Marks)

1. Correct the following sentences using subject and verb agreement.

a). He can able to operate the computer.

b) One of my books are missing.

2. Fill in the blank with suitable prepositions.

a) They ceased work _____ sunset.

b) He wrote the answer _____ ink.

3. **Combine the sentences showing cause and effect relations.**

. a) The machine was tested. It was installed.

b) He was sick. He went to consult a doctor.

4. **Write the meaning for the following phrasal verbs and make sentences of your own.**

a). Break up b). Agree with

5. **Make your own sentences using the following idiomatic phrases**

a) Catch one's eye b) Jack of all trades

6. **Write British English words for the following American English words.**

a) Fulfill b) Favor

7. **Write American English words for the following British English Words.**

a) Litre b) Mould

8. **Make your own sentences for the following compound words.**

a) Boat house b) . Animal behavior.

9. **Read the answers and frame the questions**.

a) My father is sixty years old. b) I come from Bangkok

10. **Find out the stress for the following words.**

a). Before b). Television

P.T.O

PART-B (5 x 16 = 80 Marks)

11.a) Write some interpersonal etiquette for negotiation skill.

OR

b) What are the important points to be followed by the e-mail users?

12.a) Write a note on Stress.

OR

Rewrite the following jumbled sentences in the correct order.

b) i. If that strikes oil, then production wells can be drilled.

ii. They carry out surveys from the ground and from the air using a variety of instruments. And they bore into the rocks to take samples.

iii. When Petroleum engineers search for oil, they look for certain types of rock layers, or strata, which they know from past experience, can trap oil.

iv. If it indicates that oil may be present, a test well is drilled.

v. Oil is found underground trapped in the layers of rock.

vi. When all the information is collected and analyzed, of the underground strata is obtained.

vii.They also set off explosions in the ground and record the waves reflected from the underground rock layers.

viii. This is called seismic surveying.

13.a) Recommendations that should be followed for safety in a factory.

OR

b) Write a set of eight recommendations following which you could avoid the attack of swine flu.

OR

14.a) Write instructions that should be followed in computer Laboratory.

OR

b) Write a letter to the Manager of Sharptronics, Chennai. Calling for quotation for the following items. Assume that you are the purchase officer.

Items	**Nos**
Blue Star AC	3
Usha fans	7
L G Television 32”	1
L G Refrigerator	1

15.a) Prepare a checklist to find a suitable accommodation for your family.

OR

b) Explain the following Proverbs ‘No pain, no gain’ and Cleanliness is next to Godliness.

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Sl.No. 1292 SUBJECT CODE: 34115202/34116202

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
COMMON TO ALL BRANCHES
SECOND SEMESTER
CHEMISTRY FOR ENGINEERS

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define oxidation and reduction.

2 State the reaction when a lead storage battery is recharged?

3 Name any two Coagulants.

4 What is cathodic protection?

5 Why are plastics indispensible in everyday life?

6 What is degree of polymerization?

7 Define component with example.

8 Calculate the degree of freedom for 2 $H_2(g) + O_2(g) \rightarrow 2$ H2O(v)

9 Give the frequency region of Infrared spectrum?

10 State Retention time.

PART-B (5 x 16 = 80)

11 a. Explain the determination of EMF by Poggendorff's method.

OR

b. Discuss the electrochemical series and its applications.

12 a. (i)How is internal treatment of boiler water carried out?
(ii) Describe the principle and method involved in the determination of different types and amount of alkalinity of water.

OR

b. (i) Differentiate between chemical corrosion and electrochemical corrosion.
(ii) Illustrate the reactions involved in differential aeration corrosion with reference to the iron material.

13 a. (a). What are ceramics and how they are classified? Write the uses of ceramics.
(b). Write a note on Special cements.

OR

b. Write the preparation, properties and uses of the following
(i) PVC (ii) Teflon (iii) Bakelite

(P.T.O)

14 a. With suitable examples explain the terms phase, component and degree of freedom.

OR

b. Write a detail note on harmful effects of radioactive isotopes.

15 a. Describe Gas chromatography with neat diagram.

OR

b. How will you estimate metals by flame photometer?

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Sl.No. 1452 SUBJECT CODE: 35015201/35016201

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

COMMON TO ALL BRANCHES

SECOND SEMESTER

C PROGRAMMING

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What are the memory requirements of primary data type?

2 Mention the various types of operator

3 Write the syntax of switch statement.

4 Write the Syntax of for statement?

5 Find the length of following strings using strlen( ) function,
char s1[ ]=”program”;
char s2[ ]=”importance”;

6 How to declare a union variable?

7 Define library function

8 What are the advantages of using a pointer?

9 Write the rules for preprocessor directives.

10 What is the use of fseek( ) function?

PART-B (5 x 16 = 80)

11 a. Explain the Arithmetic and relational operators in C with suitable program.

OR

b. Write a C program
i) To find sum of 5 numbers.
ii) To find simple interest.

12 a. Explain the types of looping statements?

OR

b. Write a C program:
a. i. To find the factorial of a given number using while statement
b. ii. To find the factorial of a given number using for statement

13 a. Write a C program to explain the concept of structure.

OR

b. Write a C program to explain the concept of structure within structure.

14 a. Discuss the pointer expressions used in the C program.

OR

b. Write a C program to implement function returning pointers.

15 a. Write a C program to altering the allocated memory.

OR

b. Write about the following function,
i. fputs( ) ii. fgets( ) iii. fread( ) iv. fwrite( )

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Sl.No. 1569 SUBJECT CODE: 34115303/34116304

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

COMMON TO CIVIL,EEE AND MECT

THIRD SEMESTER

PDE APPLICATIONS AND COMPLEX ANALYSIS

(Candidates admitted under 2015&2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define the order of partial differential equation.

2 Solve $(D^4 - D'^4)z = 0$

3 Find the constant a_0 of the Fourier series for function $f(x) = x$ in $0 \le x \le 2\pi$.

4 If $f(x) = |x|$ expanded as a Fourier series in $-\pi < x < \pi$, Find a_0.

5 Classify the P.D.E $u_{xx} + xu_{xy} = 0$

6 Define steady state temperature distribution.

7 State any two properties of Analytic function.

8 Define Harmonic function

9 Expand cosz in a Taylor's series at $z = \frac{\pi}{4}$

10 Define Removable singularity

PART-B (5 x 16 = 80)

11 a. (a) Solve $z = px + qy + \sqrt{pq}$

(b) Solve $pyz + qzx = xy$

OR

b. Solve $\left(D^3 - 7DD'^2 - 6D'^3\right)z = \sin(x + 2y) + e^{2x+y}$

12 a. Obtain the Fourier series to represent the function $f(x) = |x|$, $-\pi < x < \pi$.

OR

P.T.O

b. Obtain the sine series for the function $f(x) = \begin{cases} x \text{ in } o \le x \le \frac{l}{2} \\ l - x \text{ in } \frac{l}{2} \le x \le l \end{cases}$

13 a. A string is stretched between two fixed points at a distance $2l$ apart and the points of the string are given initial velocities v where

$$v = \begin{cases} \frac{cx}{l} & in \quad 0 < x < l \\ \frac{c}{l}(2l - x) & in \quad l < x < 2l \end{cases}$$

x being the distance from one end point. Find the displacement of the string at any subsequent time.

OR

b. Find the temperature distribution in a homogeneous bar of length π which is insulated laterally, if the ends are kept at zero temperature and if, initially, the temperature is k at the centre of the bar and falls uniformly to zero at its ends.

14 a. Find the bilinear transformation which maps the points $z = -2, 0, 2$ into the points $w = 0, i, -i$ respectively

OR

b. Find $f(z) = u + iv$ given that $u - 2v = e^x(\cos y - \sin y)$

15 a. Obtain Taylor's series to represent the function $\frac{z^2 - 1}{(z+2)(z+3)}$ in the region $|z| < 2$.

OR

b. Expand $f(z) = \frac{1}{(z+1)(z+3)}$ in Laurent's series valid for the regions

(i) $|z| > 3$ and (ii) $1 < |z| < 3$

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Sl.No. 1462 SUBJECT CODE: 34215304 /34216303

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
THIRD SEMESTER
MECHANICS OF SOLIDS-I

(Candidates admitted under 2015& 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write a note on volumetric strain.

2 Explain about principle of superposition.

3 Mention the types of frames.

4 What is the advantage of method of joints over method of sections?

5 State the assumptions made in the theory of simple bending.

6 A cantilever of length 2m fails when a load of 2KN is applied at the free end. If the section of the beam is 40mmx60mm, find stress at failure.

7 State the formula for finding out the max. Torque transmitted by a circular and hallow shaft?

8 Write the Torsion equation?

9 Write the value of slope at the free end and of a cantilever beam of constant EI and span L carry a point load of W at the free end

10 Write the expression for longitudinal stress and circumferential stress.

PART-B (5 x 16 = 80)

11 a. A steel bar 900mm long. Its two ends are 40mm and 30mm in diameter and length of each is 200mm. the middle portion of the bar is 15mm in diameter and 500mm long. If the bar is subjected to axial tensile load of 15KN. Take E =2 x 105 N/mm2 Determine:
a. Stress in each section.
b. Total Extension.

OR

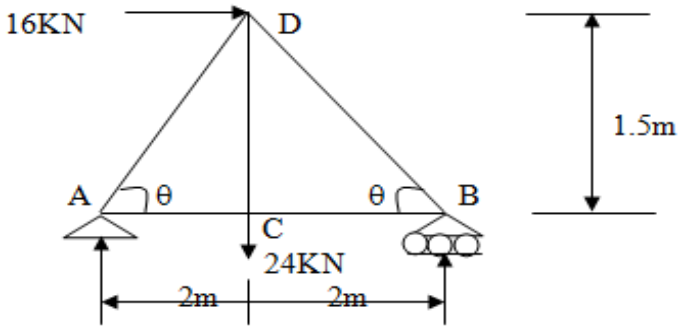
b. A steel rod of 6m long and 50mm diameter is connected to two grips and the rod is maintained at a temperature of 100˚C. Find out the stress and the force exerted by the rod after it has been cooled to 20˚C if
i) the ends do not yield
ii) the ends yield by 1.5mm.

12 a. Write down the step by step procedure for the analysis of a truss by the method of sections.

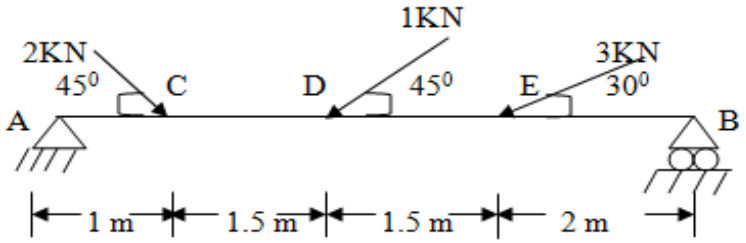
OR

P.T.O

b. Determine the forces in the members of the truss shown in fig. which carry a horizontal load of 16 KN and a vertical load of 24KN.



13 a. A beam is loaded as shown in fig. Find the reactions at A and B. Also draw the S.F.D and B.M.D and thrust diagrams.



OR

b. A simply supported beam of length 5m carries a uniformly distributed load of 1000N/m extending from the left end to a point 2m away. There is also a clockwise couple of 1500 Nm applied at the centre of the beam. Draw the S.F and B.M. diagrams for the beam and find the maximum bending moment.

14 a. A solid shaft diameter is 100mm is required to transmit 150 KW power at 120 rpm. If the length of the shaft is 4m and Modulus of Rigidity is 75 MPa. Find the twist.

OR

b. A leaf spring carries a central load of 2.5KN.The spring is to be made 10 steel plates of 6cm wide and 5mm thick. If the bending stress is limited to 100N/mm^2, determine length of the spring and deflection at centre of the spring. TakeE=2x10^{5}N/mm^2.

15 a. A beam, simply supported at ends A and B of span 6m loaded with two point loads of 60KN and 50KN at distance 1m and 3m respectively from end A. Determine the position and magnitude of max. deflection using Macaulay's method. Take E=2x105 N/mm2, I = 500cm4

OR

b. Calculate:

i) the change in diameter

ii) change in length and

iii) change in volume of a thin cylindrical shell 100cm dia., 1mm thick and 5m long when subjected the internal pressure of 3 N/mm2. Take E=2x105 N/mm2.

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Sl.No. 1462

Sl.No. 1303 SUBJECT CODE: 34215306/34216305

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
THIRD SEMESTER
MECHANICS OF FLUIDS

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write short notes on compressibility.

2 Calculate density, Specific weight, and weight of 1 litre of petrol if specific gravity = 0.7.

3 Define stream line.

4 Define fluid kinematics.

5 What is a Venturimeter?

6 State the kinetic energy correction factor.

7 Define the term boundary layer thickness.

8 Define the terms: Major energy loss and minor energy loss in pipe?

9 Write a notes on similitude

10 Define Buckingham's ' π ' theorem.

PART-B (5 x 16 = 80)

11 a. A 15 cm diameter vertical cylinder rotates concentrically inside another cylinder of diameter 15.10 cm. Both cylinders are 25 cm high. The space between the cylinders is filled with a liquid whose viscosity is unknown. If a torque of 12.0 Nm is required to rotate the inner cylinder at 100 rpm determine the viscosity of the fluid.

OR

b. A cylinder of 0.6 m^3 in volume contains air at 50^0C and 0.3 N/ mm^2 absolute pressure. The air is compressed to 0.3 m^3.
Find
(i) pressure inside the cylinder assuming isothermal process
(ii) pressure and temperature assuming adiabatic process. Take K = 1.4

12 a. In a two dimensional incompressible flow, the fluid velocity components are given by u = x – 4y and v= - y – 4x.show that velocity potential exists and determine its form. Find also the stream function.

OR

b. Write short notes on:
a. Types of Flow lines,
b. Flow nets, and
c. Eulerian and Lagrangian methods of representing fluid flow.

(P.T.O)

13 a. Derive an expression for loss of head due to friction in pipes.

OR

b. Derive an expression for Bernoulli's equation of motion.

14 a. A horizontal pipe line 40m long is connected to a water tank at one end and discharges freely into the atmosphere at the other end. For the first 25m of its length from the tank, the pipe is 150mm diameter is suddenly enlarged to 300mm. the height of water level in the tank is 8m above the centre of the pipe. Considering all losses of head which occur. Determine the rate of flow. Take f = 0.01 for both sections of the pipe.

OR

b. A Pipe line of length 2000 m is used for power transmission. If 110.365 kW power is to be transmitted through the pipe in which water having pressure of 490.5 N/cm^2 at inlet is flowing. Find the diameter of the pipe and efficiency of transmission if the pressure drop over the length of pipe is 98.1 N/cm^2. Take f = 0.0065.

15 a. Write short notes:
a. Model testing.
b. Distorted models.
c. Scale effect.

OR

b. A quarter scale turbine model is tested under a head of 10m. The full scale turbine is to work under a head of 25m and to run at 454 rpm. Find N for model. If model develops 100 kW and uses 1100 l/s at this speed, what power will be obtained from full scale turbine assuming its n is 4% better than that of model.

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Sl.No. 1903 SUBJECT CODE: 34215307/34216306

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E -DEGREE EXAMINATIONS- NOV/DEC - 2018

CIVIL ENGINEERING

THIRD SEMESTER

SURVEYING-I

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define scale. Write the types of scale?

2 Define Ranging and write the types of ranging.

3 State the requirements of a magnetic needle.

4 What are the instruments used in plane table surveying?

5 Write short notes on level surface.

6 What is the forum ale used for arithmetic check in levelling?

7 Mention any four important parts of a transit theodolite.

8 Write short notes on transiting.

9 What is meant by sight distance?

10 Define peg interval.

PART-B (5 x 16 = 80)

11 a. Explain how will you construct scale of chords.

OR

b. Write the conditions to be fulfilled by survey lines or survey stations.

12 a. Draw neat sketch of prismatic compass and show all its components.

OR

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

Line	F.B
AB	60° 30'
BC	122° 0'
CD	46 ° 0'
DE	205 ° 30'
EA	300 ° 0'

13 a. Explain the Following methods: -
i) Height of instrument method
ii) Rise and fall method

(P.T.O)

OR

b. It was required to ascertain the elevation of two points P and Q and a line of levels was run from P to Q. The leveling was then continued to a bench mark of 83.500, the readings obtained being as shown below. Obtain the R.L. of P and Q.

B.S	I.S	F.S	R.L	Remarks
1.622				P
1.874		0.354		
2.032		1.780		
	2.362			Q
0.984		1.122		
1.906		2.824		
		2.036	83.500	B.M

14 a. Explain following method of balancing the traverse
i) Bow ditch's method
ii) Graphical method

OR

b. Explain how you would measure with a theodolite: -
i) Horizontal angle by repetation
ii) Vertical angle

15 a. Explain how measurement of distance and difference in elevation is done in mine surveying.

OR

b. Explain about the components of a simple curve with the help of a neat diagram.

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S.No.1021 **SUBJECT CODE: 34215308/34216307**

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC- 2018
CIVIL ENGINEERING
THIRD SEEMSTER
ENGINEERING GEOLOGY

(Candidates admitted under 2015& 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Give the branches of Geology

2 By which evidence the age of earth interpreted?

3 Mention the physical properties of minerals.

4 List the three elements of symmetry.

5 What is Magma?

6 What are volcanic rocks?

7 What are the two types of Folds?

8 What is meant by Remote Sensing

9 Define Ground water.

10 What are coral reefs?

PART-B (5 x 16 = 80)

11 a. Explain the internal structure of the earth with a neat diagram.

OR

b. Write a note on the physical and chemical weathering process.

12 a. Generally explain the optical properties of minerals.

OR

b. Explain any three crystal systems with sketches.

13 a. Describe briefly the three classes of sedimentary rocks on the basis of their mode of formation.

OR

b. Comment on the properties, composition, texture, and occurrence of Diorite.

14 a. Describe various structures and textures of igneous rocks.

(P.T.O)

OR

b. Briefly explain the different methods used in civil engineering for geological Investigations.

15 a. Give an elaborate account of the various geological factors to be considered for the construction of Dams.

OR

b. Write short notes on a) Surface investigation. b) Aerial surveys. c) Subsurface explorations.

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S.No.1020

Sl.No. 1528 SUBJECT CODE: 34416303/34215301

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
COMMON TO AUTO, CIVIL AND MECH
THIRD SEMESTER
FLUID MECHANICS AND STRENGTH OF MATERIALS

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define Modulus of rigidity.

2 Define Compressive stress and strain

3 State the different types of supports.

4 A cantilever beam 3 m long carries a load of 20 KN at its free end. Calculate the shear force and bending moment at a section 2 m from the free end.

5 In a SSB of 3m span carrying uniformly distributed load throughout the length, the slope at the supports is 10. What is the maximum deflection in the beam.

6 State Rankine's formula for crippling load.

7 What do mean by the term fluid kinematics?

8 What do you understand by convectional acceleration?

9 Explain the term streak line.

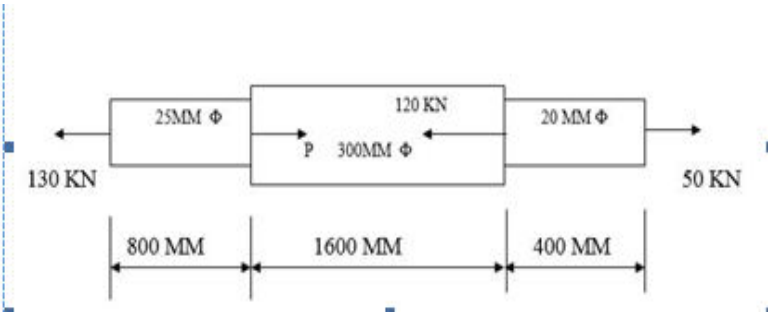
10 State the loss of head due to bend in the pipe.

PART-B (5 x 16 = 80)

11 a. Find an expression of the extension in a uniform tapering rod.

OR

b. Find the value of P and the change in length of each component and the total change in length of the bar shown in Fig. Take E=200 KN/mm^2



12 a. A beam 12m long is supported at two points 2m from each end, So that there are two equal Overhanging portions. It carries concentrated loads of 4KN, 3KN and 5KN at 1m, 8m and 12m respectively from the left end. Draw the SF and BM diagrams. What are the Values of Maximum BM and SF?

OR

b. A cantilever of length 2m carries a point load of 300N, 500N, and 800N at a distance of 0.5m,1.2m and 2m from the fixed end. Draw the S.F.and B.M. diagrams for the cantilever.

P.T.O

13 a. A simply supported beam of 8m span carries a point load of 10 KN at its centre. It also subjects to a uniformly distributed load of 1 kN/m over its entire span. Find the maximum deflection of the beam. Take E = 200 kN/mm^2 and I = 200 x 10^6 N/mm^4.

OR

b. A cantilever beam 4m long carries a load of 50 kN at a distance of 2m from the free end and a load of W at the free end. If the deflection at the free end is 25mm, calculate the magnitude of the load W and slope at free end.

14 a. A flat plate of area $1.5x10^6mm^2$ is pulled with a speed of 0.4m/s relative to any other plates located at a distances of 0.15mm from it. Find the force and power required to maintaining this speed is the fluid separating them is having viscosity as 1 poise.

OR

b. Derive the continuity equation in three dimensions.

15 a. An orifice meter with orifice diameter 15cm is inserted in a pipe of 30cm diameter. The pressure difference measured by a mercury oil differential manometer on the two side of the orifice meter gives a reading of 50cm of mercury find the rate of flow of oil of specific gravity 0.9 when the coefficient of discharge of the meter 0.64.

OR

b. Derive an expression for loss of weight due to friction in a pipe line. [Darcy's formula]

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Sl.No. 1528

Sl.No. 2010 SUBJECT CODE: 34115401/34116401

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

COMMON TO AERO,AUTO,EEE,CIVIL , MECH AND MECT

FOURTH SEMESTER

NUMERICAL METHODS

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define transcendental equation.

2 When *Gauss-Elimination method* may fail?

3 When will you use *Newton's backward interpolation* formula?

4 State Inverse Lagrange's Interpolation Formula.

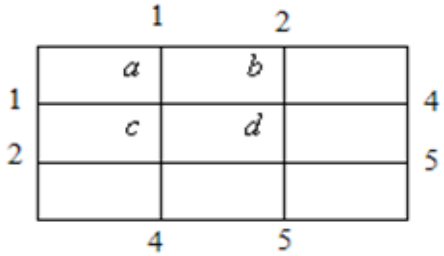
5 State *Newton's backward interpolation formula* to Find $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ at $x = x_n$

6 A curve is passing through the points $(1,2),(2,1)$ and $(4,5)$. Find the slope of the curve at $x = 3$

7 Write the formula for the bending moment.

8 Write the solution of the governing equation $\frac{d^2x}{dt^2} = -\mu^2 x$ of Simple harmonic motion

9 Given the following mesh, in solving $\nabla^2 u = 0$, Find one set of rough values of u at interior mesh points.



10 In the explicit formula for solving one dimensional wave equation given the equation if $\lambda^2 = \frac{1}{a^2}$, what is the simplest form to explicit scheme?

PART-B (5 x 16 = 80)

11 a. Evaluate $\sqrt{12}$ to four decimal places by *Newton - Raphson* method

OR

b. Find the inverse of a matrix $\begin{bmatrix} 2 & 1 & 1 \\ 3 & 2 & 3 \\ 1 & 4 & 9 \end{bmatrix}$ by *Gauss Jordan* method.

12 a. Using *Newton's Forward Interpolation Formula,* Find the value of $\text{Sin}\,47^\circ$ given that

$\text{Sin}\,45^\circ = 0.7071,\ \text{Sin}\,50^\circ = 0.7660,\ \text{Sin}\,55^\circ = 0.8192,$ and $\text{Sin}\,60^\circ = 0.8660.$

OR

b. Using *Newton's divided difference formula*, Find the value of $f(8)$ from the following table.

x	4	5	7	10	11	13
y	48	100	294	900	1210	2028

13 a. Find the first two derivatives of y at $x = 54$ from the following data.

x	50	51	52	53	54
y	3.6840	3.7084	3.7325	3.7563	3.7798

OR

b. Evaluate $I = \int_0^1 \frac{dt}{1+t}$ by *Gaussian* two point and three point formula. Find a boundary for the error in three point formula and compare it with true error

14 a. Using the *Runge-Kutta method*, tabulate the solution of the system $\frac{dy}{dx} = x + z,\ \frac{dz}{dx} = x - y,\ y(0) = 0,\ z(0) = 1,\ h = 0.1.$ Find $y(0.1),\ y(0.2),\ z(0.1)$ and $z(0.2)$.

OR

b. Given $\frac{dy}{dx} + y - x^2 = 0,\ y(0.2) = 0.8213,$ Find $y(0.3)$ correct to four decimal places using *Modified Euler's method.*

15 a. Solve $xy'' + y = 0,\ y'(1) = 0$ and $y(2) = 1$ with $h = 0.5$

OR

b.

Solve the Poisson equation $\nabla^2 u = -81xy, \quad 0 < x < 1;\ 0 < y < 1$ and $u(0, y) = u(x, 0) = 0; u(x, 1) = u(1, y) = 100$ with the square mesh of size $h = \frac{1}{3}$.

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Sl.No. 2010

Sl.No. 1900 SUBJECT CODE: 34215402/34216401

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
FOURTH SEMESTER
CONSTRUCTION TECHNIQUES, EQUIPMENT AND PRACTICES

(Candidates admitted under 2015 &2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What are the uses of cement?

2 Write the different grades of concrete?

3 What is rubber masonry and ashlar masonry?

4 Write any some materials used for joints.

5 What are the operations involved in open caisson method of foundation?

6 Explain about cement grouting .Uses.

7 What is a bow-string bridge?

8 What are the forms used in the construction of chimney?

9 What are the parameters to be examined while blasting for quarrying?

10 What are the factors influencing compaction?

PART-B (5 x 16 = 80)

11 a. Write the properties of harden concrete? Explain
a)Compressive strength test b)Tensile strength test.

OR

b. Briefly explain ready mix concrete(RMC)

12 a. Explain the types of roofs.

OR

b. Explain about foundation, basement and its types.

13 a. Explicate the method of underwater construction of diaphragm wall.

OR

b. Elucidate the methods of dewatering of trenches.

14 a. Explain the method involved in in-situ precasting for high rise structures.

OR

b. Elucidate the erection of
a) articulated structures b) braced domes c) space decks

15 a. Elucidate about Bridge construction equipment.

OR

b. Define tunneling and Elucidate about tunneling equipment.

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Sl.No. 1833 SUBJECT CODE: 34215403/34216402

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
FOURTH SEMESTER
MECHANICS OF SOLIDS-II

(Candidates admitted under 2015&2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1	Define strain energy.
2	Define Resilience.
3	What are the fixed end moments for a fixed beam of length 'L' subjected to a concentrated load 'w' at a distance 'a' from left end?
4	Define Flexural Rigidity of Beams.
5	Define Slenderness ratio.
6	Write the expression for crippling load when the both ends of the column are hinged.
7	Explain maximum principal stress theory.
8	State the two types of strain energy
9	State the assumptions made in Winkler's Bach Theory.
10	Define the term Fatigue.

PART-B (5 x 16 = 80)

11 a. A simply supported beam of span L is carrying a concentrated load W at the centre and a uniformly distributed load of intensity of w per unit length. Show that Maxwell's reciprocal theorem holds good at the centre of the beam.

OR

b. A beam 8m length carries loads of 40kN each at a distance of 2m and 6m from one end. The beam is simply supported at the ends. The beam is of rectangular section with breadth b and depth d. If d=2b, and the shear stress is not to exceed, Take c=80MN/m2.find
i) size of beam
ii) energy stored
iii) deflection due to shear under the load of 40kN

12 a. Derive the expression SF and BM for a propped cantilever carrying a point load at the centre and propped at the end, draw SF and DM diagrams.

OR

b. A cantilever beam ABC of span 6m fixed at A and propped at C is loaded with an UDL of 10 kN/m for the length of 4m from the fixed end. Findthe prop reaction, maximum sagging and point of concentrations.

13 a. Determine Eulers crippling load for an I section joist 40cm x 20cm x 1cm and 5m long which is used as a strut with both ends fixed. Take E=2.1x105 N/mm2.

P.T.O

OR

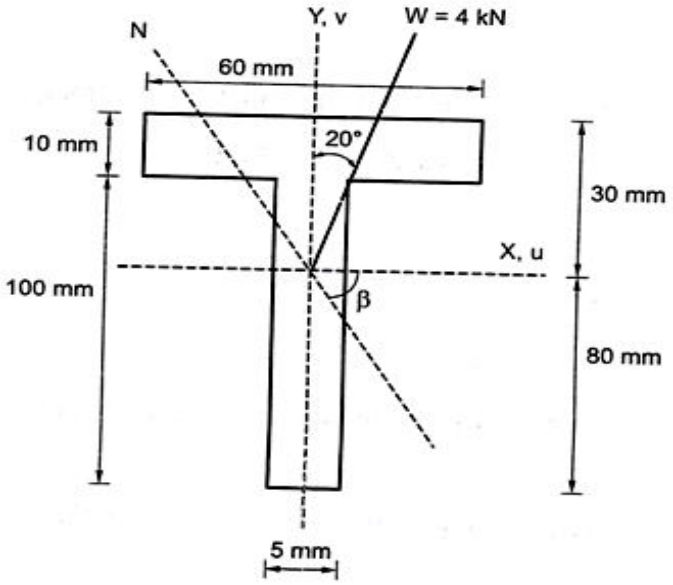
b. A 1.5 m long cast iron column has a circular cross-section of 50mm diameter. One end of the column is fixed and other end is free. Taking factor of safety as 3, calculate the load using Rankine formula. Take yield stress as 560 MPa and a=1/1600.

14 a. Direct stresses of 120N/mm2 tensile and 90N/mm2 compression exist on two perpendicular planes at a certain point in a body. They are also accompanied by shear stress on planes. The greatest principal stress at the point due to these is 150N/mm2.
a) What must be the magnitude of the shearing stress on the two planes?
b) What will be the maximum shearing stress at the point?

OR

b. A shaft is subjected to a maximum torque of 10 kN-m and a maximum bending moment of 8 kN-m at perpendicular section, if the allowable equivalent stress in simple is 160MN/m2 , find the diameter of the shaft according to the maximum shear stress theory

15 a. A curved beam has a T-section (shown in fig.). The inner radius is 300 mm. what is the eccentricity of the section?



OR

b. Explain the stresses induced due to unsymmetrical bending.

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Sl.No. 1833

Sl.No. 1719 SUBJECT CODE: 34215405/34216404

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E-DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
FOURTH SEMESTER
APPLIED HYDRAULIC ENGINEERING

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write down the formula for Froude number.

2 List the instruments used to measure velocity of open channel flow.

3 Define non-erodible channels.

4 What is meant by wetted perimeter?

5 Define varied flow.

6 Define the term backwater curve.

7 What do you mean by turbine?

8 What is Pelton wheel turbine?

9 What do you know abotDrop down curve?

10 What is Air vessel?

PART-B (5 x 16 = 80)

11 a. A Trapezoidal channel with side slope of 2H:3V Has to carry 20 m^3 /s. Find the slope of the channel when the bottom width of the channel is 4 m and the depth of the water is 3 m .Take manning's n=0.03

OR

b. Define specific energy. How would you express the specific energy for a wide rectangular channel with depth of flow 'D' and velocity of flow 'V'? Draw the typical specific energy diagram and explain its features.

12 a. A power canal of trapezoidal section has to be excavated through hard clay at the least cost. Determine the dimensions of the channel given, discharge equal to 14 m3/s, bed slope 1/2500, Manning's N= 0.02.

OR

b. Explain and derive the conditions for the Most Economical rectangular and Trapezoidal channel Section.

(P.T.O)

13 a. In a rectangular channel of 0.5 m width, a hydraulic jump occurs at a point where depth of water flow is 0.15 m and Froude number is 0.5. Determine
i) The specific energy
ii) The critical and subsequent depths
iii) Loss of head and
iv) Energy dissipated.

OR

b. How do you classify surface profiles? Briefly explain the various salient features of various profiles. Also write a note on hydraulic jump

14 a. What is meant by Kaplan turbine? Discuss in detail about the characteristics and working of Kaplan turbine with all the details about Kaplan turbine

OR

b. What is meant by Francis Turbine? Discuss the Working principle, Function and applications involved in Francis turbine with neat Sketch

15 a. What is meant by Positive displacement Pumps. Explain the various types of positive displacement pumps with all the details.

OR

b. A single acting reciprocating pump having a cylinder diameter of 150 mm and stroke of 300 mm is used to raise the water through a height of 20 m. Its crank rotates at 60 rpm. Find the theoretical power required to run the pump and the theoretical discharge. If actual discharge is 5 lit/s find the percentage of slip. If delivery pipe is 100 mm in diameter and is 15 m long, find the acceleration head at the beginning of the stroke.

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Sl.No. 1581 SUBJECT CODE: 34215406/34216405

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
FOURTH SEMESTER
SURVEYING – II

(Candidates admitted under 2015 & 2016Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define Stadia diaphrams.
2 What are the three types of telescope used in stadia surveying?
3 What is the object of geodetic surveying?
4 Draw and name the various triangulation figures.
5 Give any four random errors occur in linear measurements.
6 How do you determine the most probable values?
7 What is meant by solar Apparent Time?
8 What is Latitude and Longitude?
9 Distinguish between crab and drift
10 Define tilt displacement.

PART-B (5 x 16 = 80)

11 a. What is the use of anallactic lence? Explain the theory of anallactic lence.

OR

b. Explain any four effects of errors in stadia tacheometry, due to manipulation and sighting.

12 a. From a satellite station S, 5.8 meters from the main triangulation station A, the following directions were observed:
The lengths AB, AC and AD were computed to be 3265.5m, 4022.2 m and 3086.4 m respectively. Determine the directions of AB, AC and AD.

OR

b. Briefly explain the corrections to be made while the calculation of length of base.

13 a. (i) An angle A was measured by different persons and the following are the values:m(6marks)

Angle	Number of measurements
65°30'10"	2
65°29'50"	3
65°30'00"	3
65°30'20"	4
65°30'10"	3

Find the most probable value of the angle.

(ii) Adjust the following angles closing the horizon:

A = 110°20'48"	wt. 4
B = 92° 30'12"	wt. 1
C = 56° 12'00"	wt. 2
D = 100°57'04"	wt. 3

OR

b. The following angles were measured at a station O so as to close the horizon:

∟AOC = 83° 42' 28".75	weight 3
∟BOC = 102° 15' 43".26	weight 2
∟COD = 94° 38' 27".22	weight 4
∟DOA = 79° 23' 23".77	weight 2

Adjust the angles.

14 a. What are the components of total station? Explain them briefly. Also write notes on accessories used in total station.

OR

b. Explain in detail about the properties of electromagnetic waves. How are they useful in measuring of distances?

15 a. What are the elements required to predict the tides? Explain them.

OR

b. How azimuth is determined by altitude? Explain them.

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Sl.No. 1049 SUBJECT CODE: 34215501/34216501

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
FIFTH SEMESTER
STRUCTURAL ANALYSIS

(Candidates admitted under 2015& 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define compatibility.

2 What is meant by a stable structure?

3 When two members BA and BC are meeting at B. Write the joint moment Equilibrium equation.

4 While drawing the BMD what are the necessary conditions to be followed?

5 Write the formula for the stiffness of a span when the other end is hinged.

6 Write the relative stiffness formula for one end fixed and other end free.

7 Define when the maximum positive shear force occur in a simply supported beam when a number of point loads moving on it.

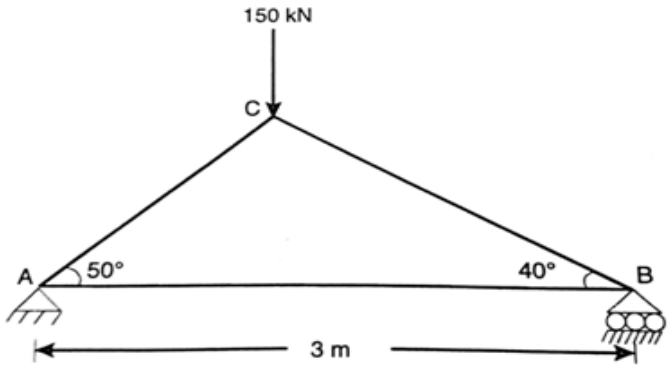
8 State the condition at which the max. Bending moment occur in a simply supported beam when a udl longer than the span moving on it.

9 How will you calculate the effect of temperature in three hinged arch central rise?

10 What are the different types of Three Hinged arches?

PART-B (5 x 16 = 80)

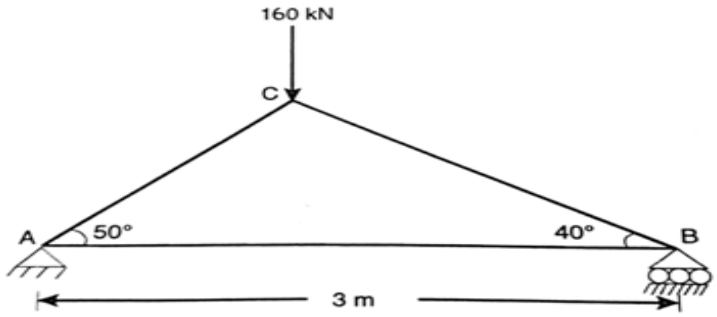
11 a. Using the principle of virtual work, determine the horizontal displacement of joint C of the truss shown. Take E = 200 X 10^6 kN/m^2 and cross sectional area of each bar as 150 X 10^{-6} m^2



(P.T.O)

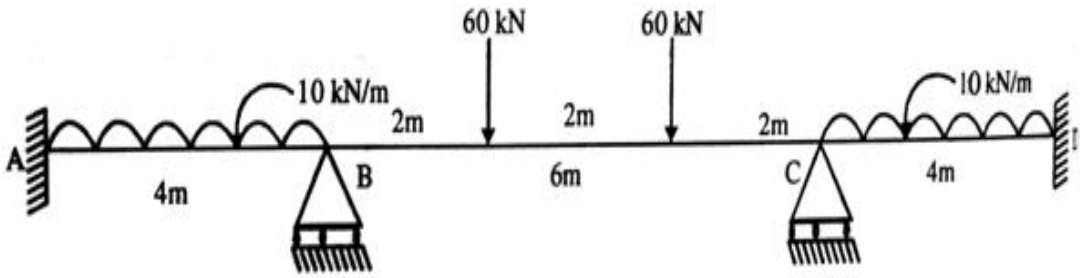
OR

b. Using the principle of virtual work, determine the horizontal displacement of joint C of the truss shown. Take E = 200 X 10^6 kN/m^2 and cross sectional area of each bar as 150 X 10^{-6} m^2



12 a.

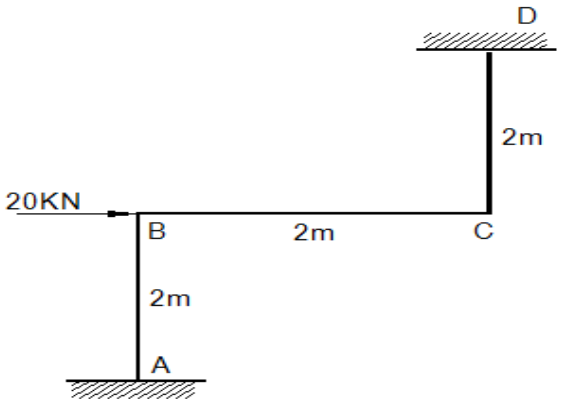
Analyse the continuous loaded shown by the slope deflection method and sketch the bending moment diagram.



OR

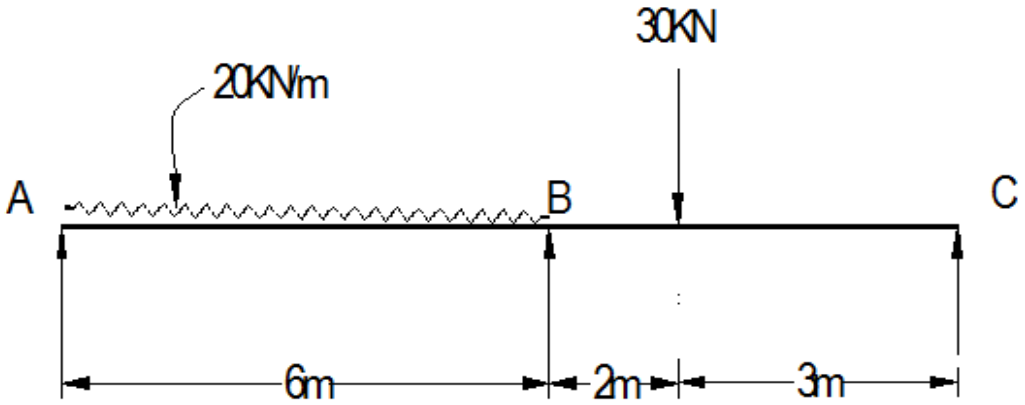
b.

Analyse the structure shown by the slope deflection method and sketch the bending moment and shear force diagram



13 a.

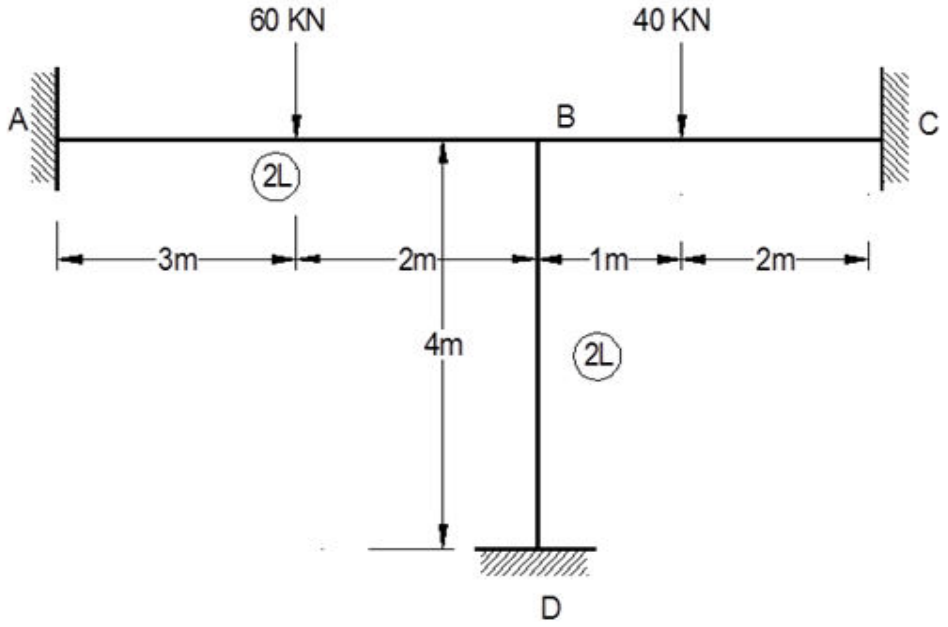
4. Analyse the continuous beam shown by moment distribution method.



OR

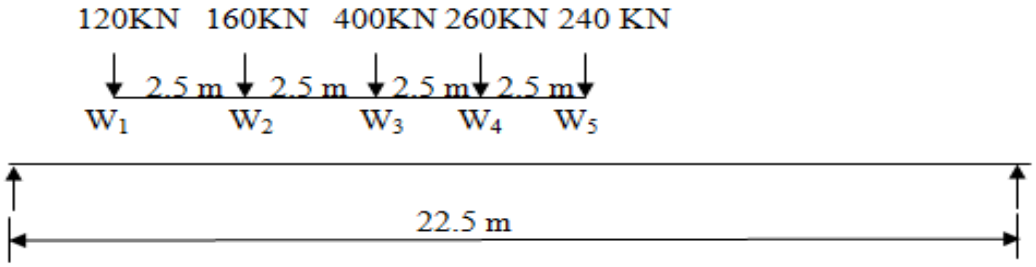
b.

8. Analyse the structure shown by moment distribution method.



14 a.

A train of 5 wheel loads crosses a simply supported beam of span 22.5m. Using influence line calculate the maximum positive and negative shear forces at mid span and absolute maximum bending moment anywhere in the span.



OR

b. A single rolling load of 50KN rolls along a girder of 25m span. (a) Construct the influence lines for (i) shear force and (ii) bending moment for a section 5m from the left support. (b) Construct the influence lines for points at which the maximum shear and maximum bending moment develop. Determine these maximum values.

15 a. A parabolic arch hinged at the ends has a span of 60m and a rise of 12m. A concentrated load of 8 k N acts at 15m from the left hinge. The second moment of area varies as the secant of the inclination of the arch axis. Calculate the horizontal thrust and the reactions at the hinge. Also calculate the net bending moment at the section.

OR

b. A two hinged parabolic arch of span 30m and central rise 7m carries a uniformly distributed load of 32k N/m over the left half of the span. Determine the position and value of maximum bending moment. Also find the normal thrust and radial shear at the section. Assume that the moment of inertia at a section varies as secant of the Inclination at the section.

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Sl.No. 1049

Sl.No. 1557 SUBJECT CODE: 34215502/34216502

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
FIFTH SEMESTER
DESIGN OF REINFORCED CONCRETE ELEMENTS

(Candidates admitted under 2015&2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write short notes on RCC.

2 Write the advantages of limit state method?

3 Define characteristic load and characteristic strength.

4 Explain what the loads are acting on the RCC structures

5 What is the maximum spacing of shear reinforcement?

6 Write short notes on transverse reinforcement.

7 What are the types of columns?

8 Explain short column with helical reinforcement.

9 Write a formula for find out the depth?

10 Explain pile driving.

PART-B (5 x 16 = 80)

11 a. Explain the Balanced, Under-Reinforced and Over-Reinforced sections with neat sketch.

OR

b. Brief out the philosophy and principles of limit state design method.

12 a. Design a cantilever beam using the following data: Clear span=5m Working live load=15kN/m Cantilever beam is monolithic with reinforced concrete column 300 mm wide by 600 mm deep at the junction of the column and beams Materials: grade concrete Fe-415 HYSD bars.

OR

b. Design a singly reinforced concrete beam to suit the following data : Clear span 6m width of support 250mm service load 4kN/m Materials: grade concrete Fe-415 HYSD bars.

13 a. A simply supported beam 350mm wide and 550mm effective depth carries a UDL of 50 KN/m including its own weight, over an effective span of 6m. Design the shear reinforcement in the form of vertical stirrups. Assume the beam contains 0.75% reinforcement throughout the length. Take with of supports as 400mm. Adopt M20 and Fe415.

OR

P.T.O

b. Determine the reinforcement for a rectangular beam with the following data Width of section: 350mm Depth of section: 550mm Factored bending moment :50KNm factored torsion moment:50kNm Factored shear force:60KN use M20 and Fe415 also design for torsion.

14 a. Design an axially loaded tied column 450mmx450mm pinned at both ends with an unsupported length of 3m for carrying a factored load of 2300kN M20 and Fe415.

OR

b. Design the reinforcements in a circular column of diameter 500mm to support a factored load of 700kN together with a factored moment of 90 kNm. Adopt M20 grade concrete and Fe415 steel.

15 a. Design a reinforced concrete footing for a rectangular column of section 400mm by 600 mm supporting an axial factored load of 1500 kN. The SBC of the soil is 185 kN/m2 Use M20 concrete and Fe415.grade steel.

OR

b. Design a compound wall of height 1.6m to the top of 100mm thick coping. Assume wind pressure is equal to 1kN/ m2 and is UDL. The safe bearing capacity of soil is 120kN/ m2 .

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Sl.No. 1513 SUBJECT CODE: 34215503/34216503

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
FIFTH SEMESTER
ENVIRONMENTAL ENGINEERING -II

(Candidates admitted under 2015&2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What is mean by capillary water?

2 What are the types of sewerage system?

3 Define the term sewage.

4 List out the chemical unit process.

5 Write the formula for recirculation factor?

6 Write two types of High rate Trickling Filter?

7 Write short notes on dilution.

8 Write short notes on sewage disposal?

9 What do u mean by two stage digestion of sludge?

10 What do you understand by chemical condition?

PART-B (5 x 16 = 80)

11 a. Explain about effluent disposable standard.

OR

b. Write in detail about pump selection.

12 a. Briefly explain the principle and process of grid chamber.

OR

b. Explain the characteristics and composition of sewage.

13 a. Explain the construction and use of septic tank.

OR

b. Briefly explain the merits and demerits of activated sludge process.

14 a. Explain in detail about deep well injection.

OR

b. Briefly explain the waste water reclamation techniques.

15 a. Explain the principle and process of thickening.

OR

b. Briefly explain the principle and functions of land filling.

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Sl.No. 1513

Sl.No.1480 SUBJECT CODE: 34215504

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
FIFTH SEMESTER
DESIGN OF STEEL STRUCTURES

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Illustrate the advantages of HSFG bolts.

2 Recommend the four types of serviceability limit states applicable to steel structures.

3 What is meant by built up members?

4 Give the sketches of steel sections?

5 What is meant by strut?

6 Define single lacing & double lacing.

7 Draw the curvature for flexural member performance and the classification of cross sections.

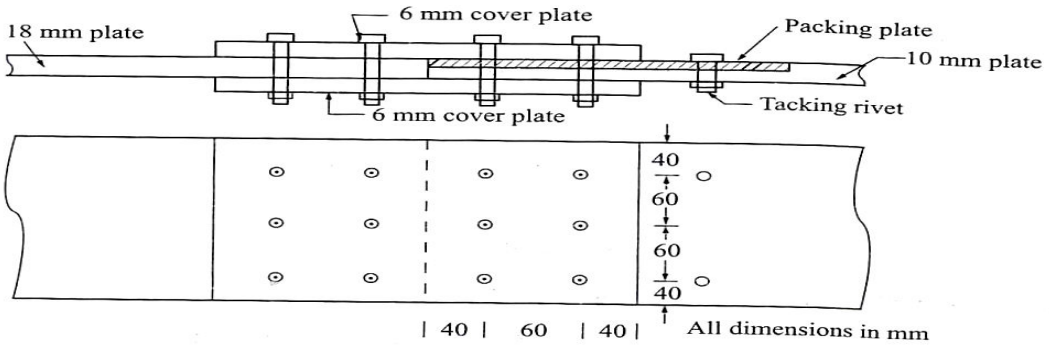
8 Under what circumstances web plates are stiffened and unstiffened.

9 What are the loads to be considered while designing the purlins?

10 Calculate the permissible deflection for a truss of 10 m span.

PART-B (5 x 16 = 80)

11 a. Two cover plates 10mm and 18mm thick are connected by a double cover butt joint using 6mm cover plate as shown in the figure. Find the strength of the joint. Given M20 bolts of grade 4.6 and Fe415 plates are used.



OR

b. Design the welded connection to connect two plates of width 200mm and thickness 10mm for 100% efficiency

12 a. Design a single angle section for a tension member of a roof truss to carry a factored tensile force of 225KN.the member is subjected to the possible reversal of stress due to the action of wind. The length of the member is 3m.Use 20mm shop bolts of grade 4.6 for the connection.

OR

b. Write in detail about the design of lug angle.

13 a. In a truss a strut 3m long consists of two angles ISA 100 X 100 X 6 mm. Find the factored strength of the member if the angles are connected on both sides of 12mm gusset by (i) One bolt (ii) two bolt (iii) welding, which makes the joint rigid.

OR

b. Design a gusseted base for a column ISHB 350@710 N/m with two plates 450mmX20mm carrying a factored load of 3600KN.The column is to be supported on concrete pedestal to be built with M20 concrete.

14 a. Determine the design bending strength of ISLB 350@486 N/m considering the beam to be laterally unsupported. The designs shear force 'v'is less than design shear strength. The unsupported length of beam is 3.0m.assume steel of grade Fe410.

OR

b. Explain in detail about the design of end panel.

15 a. What is a purlin? Write in detail about the step by step procedure to design a purlin.

OR

b. Design an angle iron purlin for a trussed roof from the following data:
Span of roof truss =12m Spacing of roof truss = 5m
Spacing of purlin along the slope of roof truss = 1.2m Slope of roof truss = 1V to 2H
Wind load on roof surface normal to roof = 1.04 KN/m^2
Vertical load from roof sheeting = 0.20 KN/m^2

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Sl.No. 1402 SUBJECT CODE: 34215505/34216505

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

CIVIL ENGINEERING

FIFTH SEMESTER

MECHANICS OF SOILS

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write short notes about specific gravity?

2 Write the major soil classification as per Indian standard?

3 Define Darcy's law.

4 Define Seepage Pressure.

5 Write short notes on Iso-Bar.

6 Write short notes on pre consolidation?

7 What are the various methods of determination of shear strength in the laboratory?

8 What is a stress path?

9 What is critical depth?

10 Define the term Infinite slopes. Give example.

PART-B (5 x 16 = 80)

11 a. Explain the soil classification.

OR

b. What are the limitations of sedimentation analysis?

12 a. Explain capillary tension, capillary potential and soil suction.

OR

b. Explain in brief upward flow or Quick condition.

13 a. Explain the Terzaghi's Theory of One Dimensional Consolidation.

OR

b. State and explain the equilibrium of soil mass.

14 a. Explain in detail triaxle compression best.

OR

b. Explain the step by step procedure of conducting vane shear test.

15 a. Explain briefly the types of Slope failure mechanisms.

OR

b. Explain briefly :i) Slope stability. ii) Bishop's method of stability analysis

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Sl.No. 1242 SUBJECT CODE: 34215506/34216506

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
FIFTH SEMESTER
ELECTIVE I - GEOGRAPHICAL INFORMATION SYSTEM

(Candidates admitted under 2015& 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 List out the GIS Softwares.
2 Write a note on Geo-referencing.
3 What is meant by Pixel?
4 What are the important uses in Vector data Analysis?
5 Define Pen Plotter.
6 Which type of display device is used in vector data output.
7 What is the application of GIS?
8 Which type of data used in soil resources.
9 Briefly write a note on database component.
10 How to integrate the remote sensing and GIS.

PART-B (5 x 16 = 80)

11 a. Explain with neat sketch in types of data model in GIS.

OR

b. Explain Raster and Vector data with examples.

12 a. Give a detailed account on Vector data Analysis.

OR

b. Describe about the Integration with GIS.

13 a. What are the various sources of errors? Explain them in detail.

OR

b. Describe the errors which results in natural variations from original measurements.

14 a. Narrate the watershed management with GIS guidance.

OR

b. Write short notes on the following: a) Geomorphology b) Land use c) Land cover analysis.

15 a. Describe the Integration of GIS with remote sensing.

OR

b. List the various advantages and disadvantages of object oriented data base models.

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Sl.No. 1217 SUBJECT CODE: 34215507/34216507

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
FIFTH SEMESTER
ELECTIVE - HYDROLOGY

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define Rain gauge

2 What is known as PMP?

3 What are the types of infiltrometers used in the measurement of infiltration process?

4 What are the physical factors which affect evaporation?

5 What are the uses of S curve hydrograph?

6 What is basin lag?

7 Write down the Dicken's formula.

8 How can you classify flood control measures?

9 Define porosity

10 What are the properties of an aquifer?

PART-B (5 x 16 = 80)

11 a. Describe the principle of working of a weighing bucket type recording raingauge with a neat sketch. Mention its advantages and disadvantages?.

OR

b. Thiessen polygons constructed for a network of ten rain gauges in a river basin yield thiessen weights of 0.10, 0.16, 0.12, 0.11, 0.09, 0.08, 0.07, 0.11, 0.06 and 0.10. If the rainfalls recorded at these gauges during a cyclonic storm are 132, 114, 162, 138, 207, 156, 135, 158, 168 and 150 mm respectively determine the average depth of rainfall by thiessen mean and arithmetic mean methods. Also determine the volume of surface, at the basin outlet. If 35% of the rainfall is lost as infiltration. Take the area of the basin as 5800km^2 and express your answer in Million cubic metres.

12 a. Explain the working of a double ring infiltrometer with adjustable depth of flooding with the help of a neat sketch.

OR

b. What are the methods available for the measurement of Infiltration? Explain it with a neat sketch.

13 a. a) Given below are the ordinates of a 6-h unit hydrograph for a catchment. Calculate the ordinates of the DRH due to a rainfall excess of 3.5cm occurring in 6-h.

Time (h)	0	3	6	9	12	15	18	24	30	36	42	48	54	60	69
UH ordinate (m^3 /Sec)	0	25	50	85	125	160	185	160	110	60	36	25	16	8	0

b) Two storms each of 6-h duration and having rainfall excess values of 3 and 3 cm respectively occur successively. The 2cm ER rain follows the 3cm rain. The 6-h unit hydrograph for the catchment is

Time (h)	0	3	6	9	12	15	18	24	30	36	42	48	54	60	69
UH ordinate (m^3 /Sec)	0	25	50	85	125	160	185	160	110	60	36	25	16	8	0

Calculate the resulting DRH.

OR

b. Explain the method of determining direct runoff from a given storm hydrograph.

14 a. Differentiate between
(a) Hydraulic routing and hydrologic routing
(b) Channel routing and reservoir routing
(c) Prism storage and wedge storage

OR

b.

Briefly explain flood flow.

15 a. Derive an expression for discharge from a well fully penetrating an unconfined Aquifer.

OR

b. Briefly explain Perched Aquifer

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Sl.No. 2040 SUBJECT CODE: 34215601

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
SIXTH SEMESTER
MODERN METHODS OF STRUCTURAL ANALYSIS

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define degree of indeterminacy.

2 Briefly mention the two types of matrix methods of analysis of indeterminate structures.

3 Write a short note on global stiffness matrices

4 What is the displacement transformation matrix?

5 What are the factors governing the selection of finite elements?

6 Define Shape function.

7 List out the assumptions made for plastic analysis.

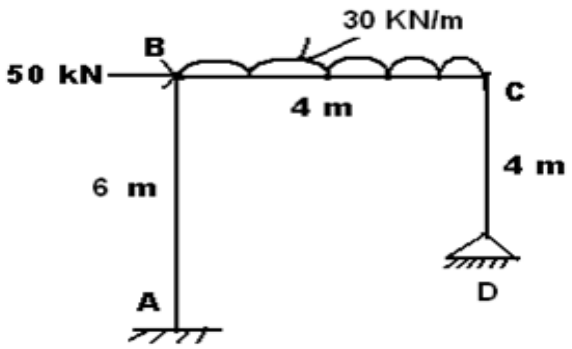
8 Give the theorems for determining the collapse load.

9 What is the true shape of cable structures?

10 Differentiate between plane truss and space truss.

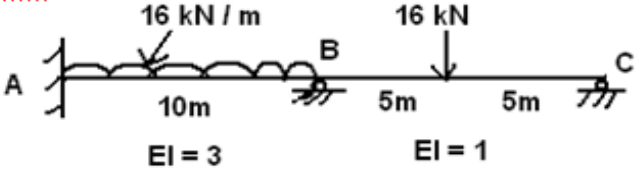
PART-B (5 x 16 = 80)

11 a. Analyse the given portal frameshownin figure using force method



OR

b. Analyse the continuous beam shown in figure by flexibility method



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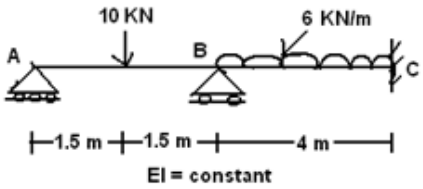
12 a. Analyse the continuous beam ABC shown in figure by stiffness method and also sketch the bending moment diagram



OR

b. A two span continuous beam ABC is fixed at A and simply supported over the supports B and C.AB = 10 m and BC = 8 m. moment of inertia is constant throughout. A single central concentrated load of 10 tons acts on AB and a uniformly distributed load of 8 ton/m acts over BC. Analyse the beam by stiffness matrix method.

13 a. How the CST (Constant Strain Triangles) developed in FEM? Explain the above Elaborately.

OR

b. Explain elaborately the term convergence. Also mention the commonly used F.E software and their uses.

14 a. Analyse a propped cantilever of length 'L' and subjected to udl of w/m length for the entire span and find the collapse load.

OR

b. A rectangular portal frame of span L and L 2 is fixed to the ground at both ends and has a uniform section throughout with its fully plastic moment of resistance equal to Mp. It is loaded with a point load W at centre of span as well as a horizontal force W 2 at its top right corner. Calculate the value of W at collapse of the frame.

15 a. A three hinged stiffening girder of a suspension bridge of 100 m span subjected to two pointloads 10 kN each placed at 20 m and 40 m respectively from the left hand hinge. Determine the bending moment and shear force in the girder at section 30 m from each end. Also determine the maximum tension in the cable which has a central dip of 10 m.

OR

b. A suspension bridge of 100m span has two three hinged stiffening girders supported by two cables with a central dip of 10m. if three point loads of 20kN each are placed along the centre line of the roadway at 10, 15 and 20m from left hand hinge, find the shear force and bending moment in each girder at 30m from each end. Calculate the maximum tension in the cable.

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Sl.No. 2040

Sl.No. 1985 SUBJECT CODE: 34215602

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
SIXTH SEMESTER
DESIGN OF REINFORCED CONCRETE AND MASONRY STRUCTURES

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write the cases of cohesionless backfill?

2 Write the short notes on soil pressure distribution.

3 What are the forces acting on water tank?

4 What is free board in water tank?

5 Define Anchorage.

6 What is meant by un-tensioned steel?

7 Define Virtual work method.

8 How to calculate the limiting moment of resistance?

9 Define Column head.

10 What is the minimum rise and tread in residential buildings?

PART-B (5 x 16 = 80)

11 a. Write the design procedure of counterfort retaining wall?

OR

b. Design a Stem and Toe slab for Counterfort Retaining wall with following data's.
Data's:
i) Retain Earth embankment 6 m high above G.L.
ii) The density of Earth is 16kN/m3 and its Angle of repose is 33 degree.
iii) S.B.C of soil is taken as 160kN/m2.
iv) Spacing of Counterforts is 3 m c/c.
v) Adopt M-20 Grade concrete and Fe-415 HYSD bars.

12 a. Write the design procedure in reinforced cement concrete rectangular water tank.

OR

b. Design a reinforced concrete water tank resting on ground is 6 m x2 m with a maximum depth of 2.5 m. Using M-20 concrete and Grade - I steel design the tank walls.

13 a. Write the procedure for tensioning and transfer?

OR

b. What are types of prestressing? Explain briefly with neat sketch.

14 a. Derive the isotropically reinforced square slab simply supported and fixed on all edges subjected to a UDL

OR

b. A square slab of side length 4m is simply supported at the ends and carries a service load of 3 kN/m2. Design the slab. Use M-20 concrete and Fe-415 steel bars.

15 a. Design an interior panel of a flat slab for an office floor of size 25m X 25m; size of panels is 5 m x 5 m for a live load of 4 kN/m2. Use M20 grade concrete and Fe415 grade steel.

OR

b. What is concrete wall? Explain the empirical method for walls subjected to inplane loads.

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Sl.No. 1961 SUBJECT CODE: 34215603

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
SIXTH SEMESTER
HIGHWAY ENGINEERING

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What are the important modifications made in macadam's method of road construction?

2 What are the main features in roman roads?

3 What is overtaking sight distance?

4 What is the Super elevation formula?

5 Define ESWL.

6 Define critical load positions.

7 State the desirable properties of road aggregate.

8 Define the three groups of evaluation of soil strength.

9 List out the types of defects in flexible pavements.

10 What are the operations involve in road construction?

PART-B (5 x 16 = 80)

11 a. Describe the classifications of urban roads in India. Give the cross section of urban road with all its features.

OR

b. Briefly explain the various Engineering surveys needed for road alignment.

12 a. Calculate the extra Widening required for a pavement of 7.5m on a horizontal curve of radius 300m if the longer wheelbase of vehicle on the road is 6.5m. Design speed is 100 km / h.

OR

b. Calculate the absolute minimum sight distance required to avoid a head collision of two cars approaching from the opposite directions at 90km/h and 75 km/h. Assume a reaction time of 2.5 seconds. Coefficient of friction of 0.85 and a brake efficiency of 50% in either case.

13 a. Explain the recommended design procedure for the design of rigid pavements by IRC.

OR

b. Explain the factors governing the structural design of pavements.

14 a. Explain the importance and procedure of field density test and crushing strength test.

OR

b. Explain the construction of dense bituminous macadam road.

15 a. (i) Briefly explain the procedure of overlap design by Benkelman beam method.
(ii) Explain how resealing of cracks may be carried out in rigid pavements.

OR

b. (i)Explain briefly the maintenance of bituminous surface.
(ii) What is meant by rutting? Explain the symptoms, causes and treatment..

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Sl.No. 2016 SUBJECT CODE: 34215604

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

COMMON TO CIVIL AND CSE

SIXTH SEMESTER

DISASTER MITIGATION AND MANAGEMENT

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write the types of geological hazard.

2 Define flood.

3 Write short notes about Socio Economic Capacity.

4 What are the Factors to be considered during Recovery process?

5 What on earth do you know about water?

6 Write three general charcteristics of cyclone.

7 Expand NDMP.

8 Write Short Notes about Landslide Risk Evalution.

9 What is a Necular hazard?

10 How can we Predict Tsunami?

PART-B (5 x 16 = 80)

11 a. Describe flood and explain causes of flood

OR

b. Describe cyclone and explain causes of cyclone.

12 a. Describe drought and explain causes of drought

OR

b. Explain the activities during the recovery process.

13 a. Describe the factors to considered during good construction

OR

b. Explain Risk and suggest two ways of reducing risk with appropriate examples.

14 a. Explain briefly State Disaster Response Fund.

OR

b. Briefly explain Maintaining and updating the plan.

15 a. Explain Volcanism and discuss the causes and effects .

OR

b. Explain briefly Financial arrangements.

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Sl.No. 1856 SUBJECT CODE: 34215605

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
SIXTH SEMESTER
FOUNDATION ENGINEERING

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 When thin walled sampler is used for sampling?

2 Write short notes on types of samplers?

3 Write about ultimate bearing capacity.

4 What are the types of foundation?

5 What is mean by proportioning of footing?

6 What is the function of strap beam in a strap footing?

7 What are the factors consider while selecting the type of pile?

8 What is meant by single-under reamed pile?

9 Distinguish Coloumb‟s wedge theory from Rankine‟s theory?

10 What is earth pressure at rest?

PART-B (5 x 16 = 80)

11 a. Explain in detail about disturbed and undisturbed sampling.

OR

b. Explain in detail the cone penetration test with sketches.

12 a. Write in detail about the various factors that affect the depth of foundation.

OR

b. A rectangular footing 2m x 3m rests on a cohesive soil with its base at 1.5m below the ground surface. Calculate the safe bearing capacity using a factor of safety of 3 on
i) Net ultimate bearing capacity and
ii) ultimate bearing capacity. The soil has parameters γ=18 kN/m^{3,} c = 10 kN/m^2 and ϕ=30^0. Use Terzaghi's equation.

13 a. What is combined Footing? Elaborate the proportioning of rectangular combined footing.

OR

b. A building is to be supported on a RCC raft foundation of dimension 14x21m. The soil is clay which has an average unconfined compressive strength of 15 kN/m^2. The pressure on the soil due to weight of the building and the load it will carries expected to be 140 kN/m^2 at the base of the raft. The building has provision for basement floors. At what depth the bottom of the raft should be placed to provide a FOS=3 against shear failure. γ_{clay} = 19 kN/m^3 .Use skempton's approach for bearing capacity calculations.

14 a. Explain with neat sketch about pile load test method of determination of load carrying capacity of piles.

OR

b. A n pile group has to be proportioned in uniform pattern in a soft clay with equal spacing in both directions. Assuming any value of c, determine the optimum value of spacing of piles in the group. Take n=25 and m=0.7. neglect the end bearing effect and assume that each pile is circular in section.

15 a. Elaborate about culmann's graphical method for active earth pressure.

OR

b. A rigid retaining wall, 6m is restrained from yielding. The backfill consists of cohesion less soil having $\varphi = 26^0$ and γ=19 kN/m^3.compute the total earth pressure per metre length of the wall?

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Sl.No. 1856

Sl.No. 1801 SUBJECT CODE: 34215606

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E -DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
SIXTH SEMESTER
ELECTIVE - GROUND IMPROVEMENT TECHNIQUES

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What is the need for improving the ground?
2 What is advantage of using vertical drains along with pre-loading?
3 What is the need for Drainage and Dewatering?
4 What are the problems occurred by seepage of water.
5 What do you understand from the term In-situ Densification?
6 Write the various types of vertical drains used in ground improvement.
7 Define Geonets
8 What is meant by Geocells.
9 Name the different methods of Grout Injection.
10 What do you understand by Circuit Grouting?

PART-B (5 x 16 = 80)

11 a. Write in brief about : a). Compaction b). Vibro-Compaction c). Pre-loading d). Pre-loading with vertical drains

OR

b. Explain in brief about a stone column and how is it installed?

12 a. What is a deep well? When is it adopted? What are its merits and demerits?

OR

b. List out the various stages and methods of drainage. Explain in detail.

13 a. Write in brief about the following. a). Sand drains b). Wick drains

OR

b. How is a stone column installed by vibro-displacement method?

14 a. Geosynthetics can be used as soil reinforcement – Jusify in detail with supporting sketches.

OR

b. List out different types of soil stabilization. Explain in detail.

15 a. Write a detailed note on the various grout injection methods.

OR

b. Explain in detail how an expansive soil is stabilized.

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Sl.No. 1710 SUBJECT CODE: 34215701

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E-DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
SEVENTH SEMETER
CONSTRUCTION PLANNING AND SCHEDULING

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What are the advantages of planning?
2 What are the advantages of coding system?
3 Short notes on types of events
4 Explain about Total Float.
5 Explain Estimated total cost and Budgeted cost.
6 Define cost oriented scheduling.
7 What are the various temporary safeguards in construction?
8 Mention the Physical causes of Accident in a construction industry.
9 Explain Accuracy.
10 Define Data base.

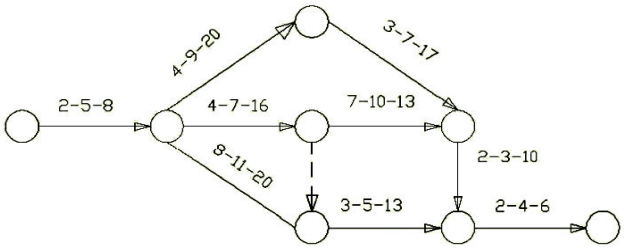
PART-B (5 x 16 = 80)

11 a. Explain resource requirement for an activity with example

OR

b. Explain the procedure of the estimating the resource requirements for activities.

12 a. For the given PERT network, determine i)Expected time, standard deviation and variance of Project. ii) Show the critical path



(P.T.O)

OR

b. Construct the network diagram and find the earliest and latest times.

Activity	Predecessors	Duration
A	-	6
B	A	7
C	A	1
D	-	14
E	B	5
F	C,D	8
G	C,D	9
H	D	3
I	H	5
J	F	3
K	E,J	4
L	F	12
M	G,I	6
N	G,I	2
O	L,N	7

13 a. Explain Financial accounting systems and cost accounts.

OR

b. How will you forecast the activity cost control.

14 a. Explain Quality control and safety during construction.

OR

b. Explain the various safety measures in detail.

15 a. Explain software tools.

OR

b. Write the problems in information system management in detail'

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Sl.No. E1543 **Sub. Code: 34215702**

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E. DEGREE EXAMINATION- NOV /DEC - 2018
CIVIL ENGINEERING
Seventh Semester
ESTIMATION AND QUANTITY SURVEYING
(Candidates admitted under 2015 Regulations - CBCS)

Time: Three hours Maximum: 100 marks

Answer **ALL** questions

PART – A (10 x 2 = 20 Marks)

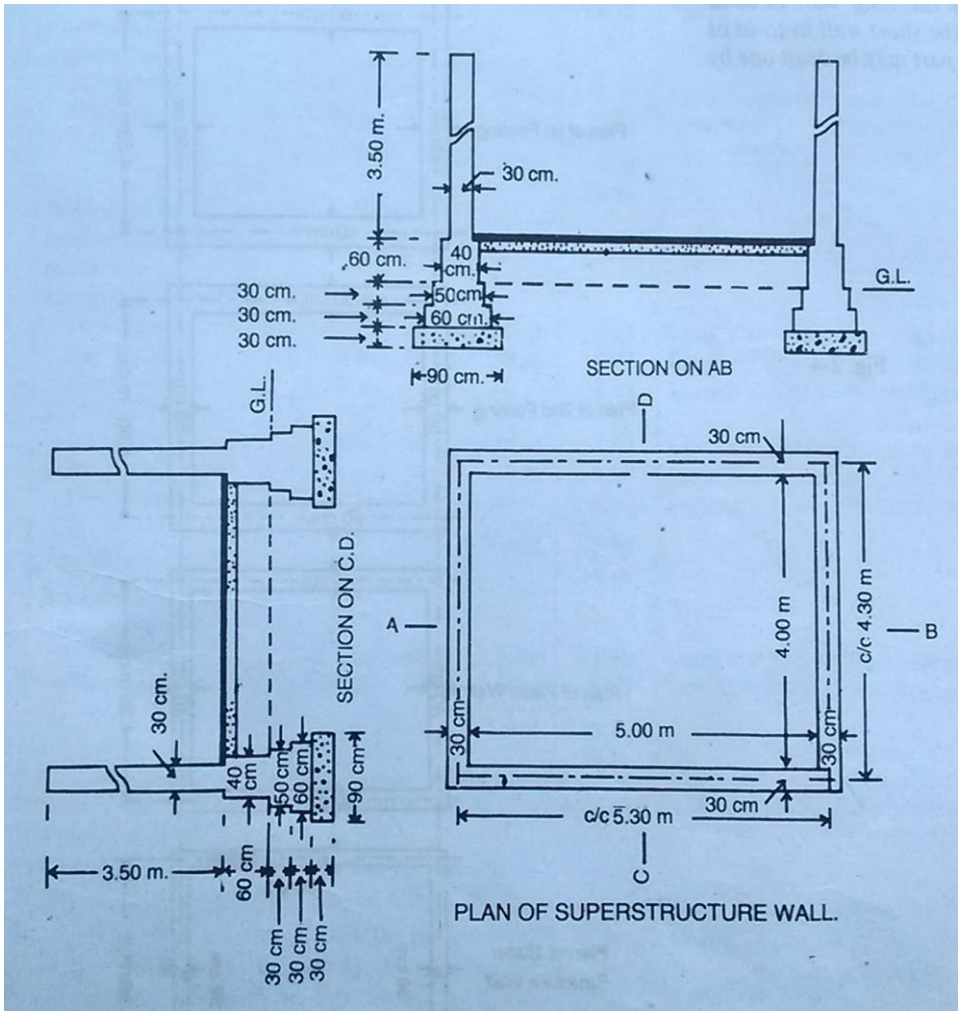
1. How can you prepare the rough cost estimate?
2. What is the meaning of sundries?
3. State the specifications for RCC works.
4. Define the term “EMD”.
5. What are the types of contract?
6. Differentiate ‘running account’ and ‘first and final’ bills.
7. How will you determine the scrap value?
8. What is Years purchase?
9. Under what circumstances a cheque being cancelled?
10. What are the points to be sent in a cash balance report?

PART-B (5 x 16 = 80 Marks)

11.a) What are the different methods of taking out estimates? Explain briefly.

OR

b) Estimate the quantities by Separate wall method and centerline method of the following items of single room building from the given plan and section.
   a) Earthwork in excavation in foundation.
   b) Foundation in lime concrete.
   c) Ist class brick work in CM 1:6 in foundation & plinth.
   d) Ist Brickwork in lime mortar in Superstructure.



12.a) Write the detailed specifications for Earthwork in excavation in foundation and Lime Concrete in Foundation.

OR

b) What are the terms and condition for applying tenders.

13.a) Explain the formation of one contract?

OR

b) Write notes on: (i) Hand Receipt. (ii) Bill of Quantities. (iii) Checking of bills.

14.a) Calculate the annual rent of a building with the following data

Cost of land	= Rs 20000/-
Cost of building	= Rs 80000/-
Estimate life	= 80 years.
Return expected	= 5% on land and 6% on building.

Annual repairs are expected to be 0.8% of the cost construction and other outgoings will be 25% of the gross rent. There is no proposal to set up a sinking fund.

OR

b) A building costing Rs. 7, 00,000.00 has been constructed on a freehold land measuring 100sq.m. recently in a big city. Prevailing rate of the land in the neighborhood is Rs. 150.00 per qu.m. Determine the Net rent of the property if the expenditure on an outgoing including sinking fund is Rs. 24,000.00 per annum. Work out also the Gross rent of the property per mounth.

15.a) Explain: (i) Contribution work. (ii) Deposit work. (iii) Appropriation and Reappropriation.

OR

b) Write the classification of tools and plants and explain it?

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Sl.No. 1432 SUBJECT CODE: 34215703

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

CIVIL ENGINEERING

SEVENTH SEMESTER

IRRIGATION ENGINEERING

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 List the cropping season

2 State any two difference between Rabi and Kharif season

3 State the relationship between Duty and Delta

4 State any two methods of improving duty

5 What is the function of distributaries ?

6 Define Artificial sub-irrigation

7 What is a fall?

8 Explain the types if groynes

9 Define water distribution efficiency

10 List the agencies involved in PIM

PART-B (5 x 16 = 80)

11 a. Explain the principal crops and cropping season in India

OR

b. Explain the following terms
a)Root zone Depth
b) Permanent wilting point
c) Field capacity

12 a. Explain the estimation of Evapotranspiration by Penman Formula

OR

b. State the difference in between Blaney criddle method and Penman method Discuss the advantages and disadvantages of both the methods

13 a. Compare the advantages and disadvantages of sprinkler irrigation and drip irrigation system

OR

b. Discuss the advantages and disadvantages of surface and sub surface Irrigation

14 a. Write short notes on
• Syphon aqueduct
• Canal siphon

(P.T.O)

OR

b. Explain the bank protection in detail

15 a. What is PIM? Explain the functions of it.

OR

b. Explain inadequacies of canal irrigation management.

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Sl.No. 1432

Sl.No. 1321 SUBJECT CODE: 34215704

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
SEVENTH SEMESTER
REPAIR AND REHABILITATION OF STRUCTURES

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Briefly explain Carbonation test.
2 List the test on concrete to determine strength.
3 Write short notes on catholic protection.
4 What are the types of damages occur in building?
5 List out the causes of failure of structures.
6 What are the factors to be considered for maintenance?
7 Write short notes on concrete chemicals.
8 Explain the Alkali –aggregate reaction.
9 Briefly explain the column strengthening.
10 Define 'Guniting'

PART-B (5 x 16 = 80)

11 a. Explain in detail about fresh and hardened concrete.

OR

b. Discuss in detail about types of shrinkage in concrete and fire resistance of concrete.

12 a. Discuss in details about the protection to rain for cement in new construction through coatings.

OR

b. Discuss the methods for controlling the chemical and acid attack on concrete.

13 a. Discuss in detail about the preventive measures in new construction against damage, regarding structures.

OR

b. a). Give the flow chart for the "Assessment procedure for damage." b). Explain in details about the various materials involved in rehabilitation.

14 a. Discuss in detail about polymer concrete as a special concrete and its applications.

OR

b. Explain in detail about the Ferro cement its casting techniques and its applications.

15 a. Explain in detail about durability of concrete in sea water.

OR

b. Briefly explain. a). Overlays .b). Grouting.c). Autogeneous healing.d). Stitching.

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Sl.No.1071 SUBJECT CODE: 34215705

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
CIVIL ENGINEERING
SEVENTH SEMESTER
RAILWAY,AIRPORT AND HARBOUR ENGINEERING

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write three methods to reduce the wearing of railway track.
2 Define creep in a railway track.
3 What is meant by loading gauge?
4 List out the classification of track renewals.
5 What is meant by Runway?
6 Write short notes on Nose hanger.
7 Define harbor.
8 What are the needs for navigational aids in harbor?
9 Briefly explain internal rate of return method.
10 What is maintenance cost?

PART-B (5 x 16 = 80)

11 a. Define the following. i).Negative super elevation ii). Cant deficiency iii) Various types of gradient iv).Grade compensation

OR

b. With the neat sketch, explain the different component of a railway track and their function.

12 a. Describe the various types of railway stations with sketches.

OR

b. What is meant by level crossing? Discuss in detail, how the level crossing classified in India.

13 a. Describe types of airport components with neat sketch.

OR

b. What is wind rose diagram? What is its utility? What are its types? Explain each type.

14 a. Describe in detail the various types of floating docks.

OR

b. Explain the various types of Coastal Protection works.

15 a. Write and explain the cost and benefits of transport project.

OR

b. Explain the principles of economic evaluation of the project in detail.

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Sl.No. 1757 SUBJECT CODE: 34215708

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E-DEGREE EXAMINATIONS- NOV/DEC - 2018
COMMON TO ECE,EEE AND MECT
SEVENTH SEMESTER
DISASTER MITIGATION AND MANAGEMENT

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Enumerate phases of disaster management cycle.

2 What is cyclone?

3 What are the harmful effects of floods?

4 Name any four NGOs related with Disaster Management

5 Write the various awareness programmes in India

6 What is risk management?

7 What are the various tasks undertaken by the department of development planning?

8 What is meant by Standard Operating Procedure?

9 What do you mean by disaster risk reduction plan?

10 What is “financial arrangements” regarding disaster?

PART-B (5 x 16 = 80)

11 a. Explain in detail the causes of any four types of disaster.

OR

b. Describe manmade (anthropogenic disaster) disaster and list out the natural disaster.

12 a. What determines the severity of a hazard?

OR

b. What are the characteristics and damage potentials of volcanic eruption?

13 a. Enumerate the process of risk management.

OR

b. Explain in detail about Trigger Mechanism.

14 a. Define logistic management?

OR

b. What are the relief works should be done after disaster?

15 a. Describe the organizational structure for disaster management in India.

OR

b. Narrate National Policy on Disaster Management

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S.No.1014 **SUBJECT CODE: 38215702**

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC- 2018
ELECTIVE : ENGINEERING MANAGEMENT AND ETHICS
CIVIL ENGINEERING
SEVENTH SEMESTER

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Give a note on Engineering Management.
2 Explain the term MBO.
3 Mention any four characteristics of organizing.
4 Define the term career.
5 Mention the advantages of motivation.
6 Culture – define.
7 List the causes of moral dilemmas.
8 Mention the characteristics of a valid consent.
9 Give a note on gift and bribe.
10 Mention the important duties of an engineer as an experimenter in environmental ethics.

PART-B (5 x 16 = 80)

11 a. Discuss the various kinds of plans in detail.

OR

b. Describe the steps involved in strategic planning process.

12 a. Distinguish between formal and informal organisation.

OR

b. Describe the various types of on-the-job training.

13 a. Enumerate the nature and importance of motivation.

OR

b. Comment on the five main leadership positions depicted in managerial grid. Which would you advocate? Why?

14 a. Enumerate the various uses of ethical theories.

OR

b. Describe in detail the concept of risk-benefit analysis.

15 a. Write a detailed essay on occupational crimes.

OR

b. Discuss in detail the Collective bargaining and its uses.

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