**Total No. of Question : [4]** **Registration No. :** | | | | | | | | | |

**Programme Name : Bachelor of Civil Engineering**
**Regular B.Tech.Final Year (A.Y.2023-24) ESE Sem. VII Nov.2023**
**VII SEMESTER ( 2020 BATCH)**
**201CEL406-Advanced Construction Methods(TH)**

Duration : [ 02:00 PM - 04:00 PM ]
Date : 28 Nov, 2023
Day : Tuesday

Marks : 50

**Instructions :**

(Q1) **All Questions are compulsory** [20.0]

**CO :-** C406.1
**Blooms Taxonomy :-** Understand

(1.1) Define shaft sinking? Explain purpose of shaft sinking? [6.0]
(1.2) Explain construction methods of bridges with neat sketches? [7.0]
(1.3) Differentiate between pre- fabricated construction & conventional & define pre Engineered building & explain need of PEB? [7.0]

(Q2) **All Questions are compulsory** [10.0]

**CO :-** C406.2
**Blooms Taxonomy :-** Apply

(2.1) Define coffer dam & purpose to use cofferdam structure? [5.0]
Or
Explain ?Design features of coffer dam?
(2.2) Define ? what is caisson & Explain uses of caisson & materials used for caisson? [5.0]

(Q3) **All Questions are compulsory** [10.0]

**CO :-** C406.3
**Blooms Taxonomy :-** Apply

(3.1) Define ? What is pile & explain uses of piles? [5.0]
(3.2) What are factor affecting selections of types of piles? Explain in detail & List out causes of failure of piles? [5.0]
Or
Explain ?Micro pilling in detail? & Explain pile accessories?

(Q4) **Attempt any two out of three questions** [10.0]

**CO :-** C406.4
**Blooms Taxonomy :-** Understand

(4.1) Define formwork & Explain ?materials used for formwork? [5.0]

(4.2) Explain design of formwork? [5.0]

(4.3) What are earth retaining structures? List out types of earth retaining structures? [5.0]

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**Total No. of Question : [4]** **Registration No. :** | | | | | | | | | |

**Programme Name : Bachelor of Civil Engineering**
**Regular B.Tech.Final Year (A.Y.2023-24) ESE Sem. VII Nov.2023**
**VII SEMESTER ( 2020 BATCH)**
**201MEL406-Industrial Management**

Duration : [ 02:00 PM - 04:00 PM ]
Date : 30 Nov, 2023
Day : Thursday

Marks : 50

**Instructions :**

(Q1) **Attempt Following** [20.0]

(a) What are the different levels of management? Explain roles and responsibilities of each level of management. [7.0]

**CO :-** CO415.1
**Blooms Taxonomy :-** Understand

(b) Define Planning and Explain Different steps involved in Planning [7.0]

**CO :-** CO415.2
**Blooms Taxonomy :-** Apply

(c) What is break even analysis ? Explain terms used in BEA [6.0]

**CO :-** CO415.3
**Blooms Taxonomy :-** Apply

(Q2) **Attempy any TWO out of following** [10.0]

(a) Explain different qualities of a successful entrepreneur. [5.0]

**CO :-** CO415.4
**Blooms Taxonomy :-** Understand

(b) What is SSI? What are different objectives of setting up SSI? [5.0]

**CO :-** CO415.4
**Blooms Taxonomy :-** Understand

(c) Write a note on Industrial Safety [5.0]

**CO :-** CO415.4
**Blooms Taxonomy :-** Understand

(Q3) **Attepmt any TWO out of following** [10.0]

**CO :-** CO415.5
**Blooms Taxonomy :-** Apply

(a) What is Fixed and Working capitals? explain it in brief. [5.0]

**CO :-** CO415.5
**Blooms Taxonomy :-** Apply

(b) Write a short note on GST [5.0]

**CO :-** CO415.5
**Blooms Taxonomy :-** Apply

(c) Explain Assets and Liabilities [5.0]

**CO :-** CO415.5
**Blooms Taxonomy :-** Apply

(Q4) **Attempt any TWO out of following** [10.0]

(a) What is Management by Objectives (MBO)? What are its benifits? [5.0]

**CO :-** CO415.6
**Blooms Taxonomy :-** Understand

(b) Write a short note on Management by Exception (MBE) [5.0]

**CO :-** CO415.6
**Blooms Taxonomy :-** Understand

(c) Write a short note on Business Process Re-engineering (BPR) [5.0]

**CO :-** CO415.6
**Blooms Taxonomy :-** Understand

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**Total No. of Question : [4]** **Registration No. :** | | | | | | | | | |

**Programme Name : Bachelor of Civil Engineering**
**Regular B.Tech.Final Year (A.Y.2023-24) ESE Sem. VII Nov.2023**
**VII SEMESTER ( 2020 BATCH)**
**201AIMLL406 -Machine Learning with Python**

Duration : [ 02:00 PM - 04:00 PM ]
Date : 30 Nov, 2023
Day : Thursday
Marks : 50

**Instructions :**

(Q1) **All Questions are compulsory** [20.0]

(1.1) What is "No Free Lunch Theorem" in Machine Learning? Explain? [6.0]

**CO :-** C406.2
**Blooms Taxonomy :-** Understand

(1.2) What are the advantages of Numpy array over python list? [7.0]
Write the syntax for following Numpy Array Operation's
1)Linspace() 2) Identity() 3) ndmin. 4) Sort 5) eye()

**CO :-** C406.1
**Blooms Taxonomy :-** Understand

(1.3) Differentiate between simple vs multiple linear regression? Explain multiple linear regression with example. [7.0]

**CO :-** C406.3
**Blooms Taxonomy :-** Apply

(Q2) **All Questions are compulsory** [10.0]

(2.1) Why KNN is called as lazy learning algorithm? [4.0]

**CO :-** C406.2
**Blooms Taxonomy :-** Understand

**OR [ 2.1 / 2.2 ]**

(2.2) Differentiate between decision tree and random forest. [4.0]

**CO :-** C406.2
**Blooms Taxonomy :-** Understand

(2.3) Explain the working of decision tree with example. [6.0]

**CO :-** C406.4
**Blooms Taxonomy :-** Apply

(Q3) **All Questions are compulsory** [10.0]

(3.1) What are the support vectors in SVM ? Explain with suitable diagram ? [3.0]

**CO :-** C406.2
**Blooms Taxonomy :-** Understand

**OR [ 3.1 / 3.2 ]**

(3.2) What is a role of margin in SVM? Explain with suitable diagram. [3.0]

**CO :-** C406.2
**Blooms Taxonomy :-** Understand

(3.3) Explain the working of SVM with example. [7.0]

**CO :-** C406.4
**Blooms Taxonomy :-** Apply

(Q4) **Write a short note (Any Two)** [10.0]

(4.1) K Means Clustering [5.0]

**CO :-** C406.2
**Blooms Taxonomy :-** Understand

(4.2) DBSCAN [5.0]

**CO :-** C406.2
**Blooms Taxonomy :-** Understand

(4.3) Recommender systems [5.0]

**CO :-** C406.2
**Blooms Taxonomy :-** Understand

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**Total No. of Question : [4]** **Registration No. :** | | | | | | | | | |

**Programme Name : Bachelor of Civil Engineering**
**Regular B.Tech.Final Year (A.Y.2023-24) ESE Sem. VII Nov.2023**
**VII SEMESTER ( 2020 BATCH)**
**201CEL411-Railway and Tunnel Engineering(TH)**

Duration : [ 02:00 PM - 04:00 PM ]
Date : 02 Dec, 2023
Day : Saturday

Marks : 50

**Instructions :**

(Q1) **All Questions are compulsory.** [20.0]

(1.1) Write a short note on Coning of wheels. [6.0]

**CO :-** C412.1
**Blooms Taxonomy :-** Remember, Understand

(1.2) Calculate the super elevation & the maximum permissible speed for 2˚ BG transitioned curve on a high speed route with a maximum sanctioned speed of 110 kmph. The speed for calculating the equilibrium super elevation as decided by chief engineer is 80 kmph & booked speed of goods train is 50 kmph. [7.0]

**CO :-** C412.2
**Blooms Taxonomy :-** Remember, Understand, Apply

(1.3) Define Stations & its types, explain any two. [7.0]

**CO :-** C412.3
**Blooms Taxonomy :-** Remember, Understand

(Q2) **All Questions are compulsory.** [10.0]

(2.1) What are the advantages & disadvantages of Open-cut? [4.0]

**CO :-** C412.4
**Blooms Taxonomy :-** Remember, Understand

**OR [ 2.1 / 2.2 ]**

(2.2) What are the advantages & disadvantages of Tunnel? [4.0]

**CO :-** C412.4
**Blooms Taxonomy :-** Remember, Understand

(2.3) Differentiation between Tunnel, Surface road & Bridge. [6.0]

**CO :-** C412.4
**Blooms Taxonomy :-** Remember, Understand

(Q3) **All Questions are compulsory.** [10.0]

(3.1) What do you understand by Pilot tunnel? [3.0]

**CO :-** C412.4
**Blooms Taxonomy :-** Remember, Understand

(3.2) What are the factors affecting on alignment of tunnel? [7.0]

**CO :-** C412.4
**Blooms Taxonomy :-** Remember, Understand

**OR [ 3.2 / 3.3 ]**

(3.3) Write a short note on Setting out of tunnel. [7.0]

**CO :-** C412.4
**Blooms Taxonomy :-** Remember, Understand

(Q4) **Attempt any two out of three questions.** [10.0]

(4.1) Enlist methods of tunneling in hard rock & explain any one with neat sktech. [5.0]

**CO :-** C412.5
**Blooms Taxonomy :-** Remember, Understand

(4.2) Write a short note on Tunnel drainage. [5.0]

**CO :-** C412.5
**Blooms Taxonomy :-** Remember, Understand

(4.3) What are the factors affecting on choice of excavation technique in tunnel? [5.0]

**CO :-** C412.5
**Blooms Taxonomy :-** Remember, Understand

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**Total No. of Question : [4]** **Registration No. :** | | | | | | | | | |

**Programme Name : Bachelor of Civil Engineering**
**Regular B.Tech.Final Year (A.Y.2023-24) ESE Sem. VII Nov.2023**
**VII SEMESTER ( 2020 BATCH)**
**201CEL402-Earthquake Engineering(TH)**

Duration : [ 02:00 PM - 04:00 PM ]
Date : 23 Nov, 2023
Day : Thursday

Marks : 50

**Instructions :**

(Q1) Solve Any 2 [10.0]

**CO :-** C402.1
**Blooms Taxonomy :-** Understand

(a) Explain **Seismograph** & **Seismogram** with Neat Sketch [5.0]

**CO :-** C402.1
**Blooms Taxonomy :-** Understand

(b) Differenciate Between **Magnitude** and **Intensity.** [5.0]

(c) Explain **Continental Drift Theory**. [5.0]

(Q2) Solve any 3 [18.0]

**CO :-** C402.2
**Blooms Taxonomy :-** Apply

(a) A **SDOF** system is having following parameters. [6.0]
Mass = **M = 200 Kg**
Stifness = **K = 160 N/m**
Damping = **C = 40 N.sec/m**
**Determine -**
1. Damping Factor
2. Natural Frequency of Damped Vibration
3. Logarithmic Decrement
4. Ration of two Succecive Amplitudes.
5. No. of Cycles afte which original Amplitude is reduced to 25%

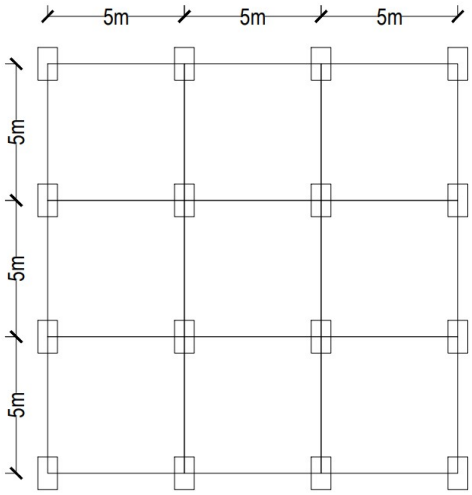
(b) Derive Equation for **Free vibration** of **Under Damped SDOF** System. [6.0]

(c) Write Short note on **Earthquake Resistance Design Philosophy**. [6.0]

(d) What is **Soft Story**, Describe in Detail. [6.0]

(Q3) Design **Seismic Horizontal Force** using **Static Equivalent Method** for the Building with following Parameters. Also Draw **Lateral Load diagram** and **Base Shear Diagram.** [12.0]
1. Type of Building -**RCC Residential Building**
2. No. of Floor -**G+3**

3. Floor to Floor Height -**3m.**
4. Dead load & Live Load Intensity. -**10Kn/m2 & 3Kn/m2 Resp.**
5. Type of Soil -**Hard Strata.**
6. Type of Frame -**SMRF**
7. Location of Building -**Pune**
8. Type of Infill -**Light weight Brick Infill.**




Plan of Building

**CO :-** C402.3
**Blooms Taxonomy :-** Apply

(Q4) Solve Any 2 [10.0]

**CO :-** C402.4
**Blooms Taxonomy :-** Understand

(a) Explain in Detail, **Tuned Mass Damper** and **Liqued Mass Damper**. [5.0]
(b) Explain with Neat Sketch **Bands** in **Masonry Structure**. [5.0]
(c) Differenciate Between **Active** and **Passive Base Isolation** System [5.0]

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**Total No. of Question : [4]** **Registration No. :** | | | | | | | | | |

**Programme Name : Bachelor of Civil Engineering**
**Regular B.Tech.Final Year (A.Y.2023-24) ESE Sem. VII Nov.2023**
**VII SEMESTER ( 2020 BATCH)**
**201AR408-A-Affordable Housings**

Duration : [ 02:00 PM - 04:00 PM ]
Date : 30 Nov, 2023
Day : Thursday

Marks : 50

**Instructions :**

(Q1) **All Questions are compulsory** [20.0]

(1.1) Define affordable housing and state the need for affordable housing in India. [6.0]

**CO :-** CO1
**Blooms Taxonomy :-** Understand

(1.2) Describe central government?s policies in India to promote affordable housing. [7.0]

**CO :-** CO2
**Blooms Taxonomy :-** Understand

(1.3) Discuss the issues and challenges faced by affordable housing sector. [7.0]

**CO :-** CO3
**Blooms Taxonomy :-** Analyze

(Q2) **All Questions are compulsory** [10.0]

(2.1) List the considerations for affordable housing in urban areas [5.0]

**CO :-** CO4
**Blooms Taxonomy :-** Understand

(2.2) Explain the impact of urbanization on the demand for affordable housing [5.0]

**CO :-** CO4
**Blooms Taxonomy :-** Understand

(Q3) **All Questions are compulsory** [10.0]

(3.1) Identify three design strategies for achieving energy efficiency in affordable housing. [5.0]

**CO :-** CO5
**Blooms Taxonomy :-** Analyze

(3.2) Illustrate design innovations used in affordable housing in European Cities. [5.0]

**CO :-** CO5
**Blooms Taxonomy :-** Analyze

(Q4) **Attempt any two out of three questions** [10.0]

(4.1) Discuss the concept of Global Housing Technology Challenge (GHTC) and explain its components [5.0]

**CO :-** CO6
**Blooms Taxonomy :-** Analyze

(4.2) Explain in detail how selection of technology affects cost with reference to housing. [5.0]

**CO :-** CO6
**Blooms Taxonomy :-** Analyze

(4.3) Explain in detail any two innovative technologies used in construction of affordable housing. [5.0]

**CO :-** CO6
**Blooms Taxonomy :-** Analyze

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**Total No. of Question : [4]** **Registration No. :** | | | | | | | | | |

**Programme Name : Bachelor of Civil Engineering**
**Regular B.Tech.Final Year (A.Y.2023-24) ESE Sem. VII Nov.2023**
**VII SEMESTER ( 2020 BATCH)**
**201CEL401-Design of Concrete Structres(TH)**

Duration : [ 02:00 PM - 04:00 PM ]
Date : 21 Nov, 2023
Day : Tuesday

Marks : 50

**Instructions :**

(Q1) Attemp All Questions. [20.0]

(1.1) Design beam of size 300 mm X 500 mm overall, subjected to ultimate bending moment of 245 KN-m , Use M20 and Fe415 [10.0]

**CO :-** C401.2, C401.3
**Blooms Taxonomy :-** Apply, Analyze

(1.2) A simply supported reinforced concrete beam is 250 mm wide and 500 mm effective depth and is reinforced with 5-16 mm dia. as tensile steel. If the beam is subjected to a factored shear force 105 KN, design shear reinforcement consisting of stirrups. Use M20 and Fe415. [10.0]

**CO :-** C401.2
**Blooms Taxonomy :-** Apply

(Q2) Design simply supported one way slab from the following data [10.0]
width of support: 230 mm, clear span : 3 m, live load: 4 KN/m2, floor finish: 1.5 KN/m2, use M20 and Fe415

OR

Design a dog-legged RCC stair case for the following data
floor to floor height : 3 m, consider landing width 1.2 m on both side, Live load: 3 KN/m2, floor finish: 1 KN/m2, Use M20 and Fe 415.

**CO :-** C401.2
**Blooms Taxonomy :-** Apply

(Q3) Design a short RCC column for ultimate load 2100 KN, Use M20 and Fe 415 for effective height 2.2.m. [10.0]

**CO :-** C401.3
**Blooms Taxonomy :-** Apply, Analyze

(Q4) Design isolated square footing with uniform depth for following data [10.0]
Column size: 300mm X 300 mm, ultimate load: 2000KN, ultimate bearing capacity of soil: 250 KN/m2

Use M20 and Fe415

**CO :-** C401.4
**Blooms Taxonomy :-** Apply, Analyze

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