Hall Ticket Number :										

R-19

Code: 19A152T

III B.Tech. I Semester Regular Examinations Jan/Feb 2022

Soil Mechanics

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any *five full* questions by choosing one question from each unit (5 x 14 = 70Marks)

****

			Marks	CO	Blooms Level

UNIT–I

1. a) Using basic phase diagram, differentiate:(i) Voids ratio and Porosity, and (ii) Dry density and bulk density — 4M
   b) Distinguish between: (i) Dispersed and Flocculent structure, and (ii) Structure of Kaolinite and montmorillonite clay minerals — 4M
   c) For a given sand soil e_{max}=0.82 e_{min}=0.42 and G=2.66. In the field, the soil is compacted to a unit weight of 16.87 kN/m^3 with a moisture content of 9%. Determine its relative density and corresponding porosity. — 6M

OR

2. a) Explain with a neat sketch, the salient features of IS plasticity chart. — 5M
   b) State Stoke's law. What are its assumptions and limitations — 4M
   c) Classify the following soils as per IS1498-1970

SOIL TYPE	W_L(%)	W_P(%)	% passing 75- micron	% of GRAVEL	% of SAND	Cu	Cc
A	40	20	70	10	20	--	--
B	40	20	20	20	60	7	2

— 5M

UNIT–II

3. a) State Darcy's Law along with its limitations. Hence differentiate seepage velocity and discharge velocity — 7M
   b) Explain suitability of variable head permeability test and derive an expression for finding coefficient of permeability — 7M

OR

4. a) Explain the following terms: (i) Total Stresses, Effective Stresses and Neutral pressure (ii) Quick sand Condition — 7M
   b) An earthen dam is built on impervious foundation with horizontal filter under downstream slope. The horizontal and vertical permeability of soil is 4x10^{-5} m/sec and 1x10^{-5} m/sec respectively. Full reservoir level is 20m above downstream filter. Flow net consists of 4 flow channels and 15 equipotential drops. Estimate the seepage loss per meter length of the dam. — 7M

UNIT–III

5. a) Derive an expression for the vertical pressure at a point located at a depth 'z' directly beneath the center of circularly loaded area — 7M

b) Explain the principle, construction and use of Newmark's chart for determination of vertical stress under a loaded area. 7M

OR

6. a) Discuss the factors affecting compaction characteristics of soils. 7M

b) In a standard proctor compaction test, following results were obtained. Determine MDD and OMC. Also determine the degree of saturation at MDD

Mass of compacted soil (gms)	1700	1890	2003	1960
Water Content (%)	7.7	11.7	14.6	19.7

7M

UNIT–IV

7. a) What is pre-consolidation pressure? Explain the procedure for determining the same using oedometer test data. 7M

b) Explain square-root time fitting method for determining coefficient of consolidation 7M

OR

8. a) List the assumptions of Terzaghi's One-dimensional Consolidation theory. 7M

b) A 20m thick isotropic clay layer overlies an impervious rock. The coefficient of consolidation is $5x10^{-2}$ mm^2/sec. Find the time required for 50% and 90% consolidation, if the respective time factors are 0.2 and 0.85. 7M

UNIT–V

9. a) Classify the shear tests based on drainage conditions. Discuss the field situations under which each of theses tests are suitable. 7M

b) In a direct shear test on sand, a sample failed when normal stress is 100kN/m^2 with corresponding shear strength being 70 kN/m^2. Determine shear strength parameters. Construct a Mohr's circle for the test data and determine corresponding major and minor principal stresses. 7M

OR

10. a) Derive an expression for shear strength parameters in terms of principal stresses for a soil specimen subjected to triaxial test conditions, using Mohr's Circle 7M

b) In a drained triaxial test, a saturated soil specimen failed under a deviator stress of 360 kN/m^2 under a cell pressure was 100kN/m^2.Find the effective shear strength parameters if another identical specimen was tested under a cell pressure of 200kN/m^2.Determine the deviator stress under which the specimen fails. 7M

END

Hall Ticket Number :										

R-19

Code: 19A154T

III B.Tech. I Semester Regular Examinations February 2022

Structural Analysis

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any *five full* questions by choosing one question from each unit (5 x 14 = 70Marks)

****

		Marks	CO	Blooms Level
	UNIT–I			
1.	A fixed beam of span 9m carries point loads of 200 kN and 150 kN at distances 3m and 6m from the left end. Find the fixing moments at the ends and draw the B.M and S.F diagrams. Find also the central deflection.	14M	CO1	L1
	OR			
2.	A fixed beam of span 5 metres carries a concentrated load of 250 kN at 3 m from the left end. If the right end sinks by 10mm, find the fixing moments at the supports. For the beam section take I = 3 X 10^7 mm^4 and E = 200 kN/mm^2. Find also the reactions at the supports.	14M	CO1	L1
	UNIT–II			
3.	A continuous beam ABC consists of two consecutive spans AB and BC of length 10m and 15m respectively. The beam carries a UDL of 5kN/m throughout its length. The end A is fixed and the end C is simply supported. Find the support moments and the reactions. Also draw the S.F and B.M diagrams.	14M	CO2	L3
	OR			
4.	A beam ABC 8m long is fixed at A and simply supported at B with an overhang BC 2m long. The beam carries a Uniformly distributed load of 12 kN/m on AB and a point load of 12 kN at C. Find the support moments and support reaction.	14M	CO2	L2
	UNIT–III			
5.	A continuous beam ABCD consists of three spans with fixed supports on both ends and simple supports at B and C. Span AB=6m, BC=5m and CD=6m. An uniformly distributed load of 3 kN/m acts on AB. A point load of 6kN acts at 3m from B. A point load of 8kN acts at the mid span of CD. Flexural rigidities are I, 2I and I for AB,BC and CD respectively .Determine the bending moments at the supports, using slope deflection method.	14M	CO3	L3
	OR			
6.	A beam ABC, 16m long, fixed at A and C and continuous over support B, carries a uniformly distributed load of 4kN/m over the span AB and a point load of 10kN at the mid span of BC. Calculate the end moments and plot the bending moment diagram using moment distribution method. EI is constant throughout. (AB=BC=8m)	14M	CO3	L3
	UNIT–IV			
7.	Two wheel loads 90 kN and 220 kN, spaced 4m apart move on a girder of span 20 meters. Find the maximum positive and negative shear force at a section 6 meters from the left end. Any wheel load can lead the other.	14M	CO4	L4
	OR			
8.	A girder AB of length 30m is simply supported at C and D which are 5 and 20 m respectively from A. Draw the influence lines for BM and SF for the midpoint of the girder and obtain the maximum BM and SF at this point when the girder is crossed by a uniformly distributed load 20 kN per meter which can occupy the whole span.	14M	CO4	L4
	UNIT–V			
9.	State and prove Castiglianos first theorem.	14M	CO5	L4
	OR			
10.	Explain the following. a) Strain energy. b) Kinematic Indeterminacies. c) External Indeterminacies.	14M	CO5	L4

END

Hall Ticket Number :										

R-19

Code: 19A153T

III B.Tech. I Semester Regular Examinations February 2022

Water Resource Engineering

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any *five full* questions by choosing one question from each unit (5 x 14 = 70Marks)

****

			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	What is canal lining? What are its advantages? Write the requirements of good lining material.	6M	CO1	L2
	b)	Using Lacey's theory, design an irrigation channel for the following data: Discharge Q =50 m^3/s Silt factor f =1.00 Side slopes =1/2 : 1	8M	CO1	L3
		OR			
2.	a)	Define 'duty' and 'delta'. What are the factors affecting duty?	7M	CO1	L2
	b)	A water course has a culturable commanded area of 1200 hectares. The intensity of irrigation for crop A is 40% and for B is 35%, both the crops being Rabi crops. Crop A has a kor period of 20 days and crop B has kor period of 15 days. Calculate the discharge of the water course if the kor depth for crop A is 10 cm and for B it is 16 cm.	7M	CO1	L3
		UNIT–II			
3.	a)	Explain the factors on which the selection of site for a dam depends.	7M	CO2	L2
	b)	Explain the various types of reservoirs.	7M	CO2	L2
		OR			
4.	a)	Discuss the various modes of failure of a gravity dam.	6M	CO2	L2
	b)	Explain the various hydraulic and seepage failures of earth dams.	8M	CO2	L2
		UNIT–III			
5.	a)	What is a spillway? What are its functions? What are the various types of spillways?	8M	CO3	L2
	b)	Compute the discharge over an Ogee weir with Coefficient of Discharge equal to 2.4 at a head of 2m. The length of the spillway is 100m. The weir crest is 8m above the bottom of the approach channel having the same width as that of the spillway.	6M	CO3	L3

OR

6.	a)	Explain the various component parts of a diversion headwork,with a diagram.	8M	CO3	L2
	b)	Discuss the various causes of failure of weirs and their remedies.	6M	CO3	L2

UNIT–IV

7.	a)	What is a 'canal fall'? Explain its necessity and location.	6M	CO4	L2
	b)	Explain the procedure of designing straight glacis fall.	8M	CO4	L2

OR

8.	a)	What is a distributary head regulator? Explain its functions.	6M	CO4	L2
	b)	Explain the procedure for designing a cross regulator.	8M	CO4	L2

UNIT–V

9.	a)	What is an outlet? What are the requirements that an outlet should fulfill? What are the different types of outlets?	7M	CO5	L2
	b)	What do you understand by flexibility of an outlet? Derive an expression for the same.	7M	CO5	L2

OR

10.	a)	Differentiate between (i) Syphon aqueduct and Canal syphon, (ii) Aqueduct and Super passage.	8M	CO5	L2
	b)	Write a note on the selection of suitable type of cross drainage work.	6M	CO5	L2

END

Hall Ticket Number :										

R-19

Code: 19A15FT

III B.Tech. I Semester Regular Examinations February 2022

Watershed Management

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any *five full* questions by choosing one question from each unit (5 x 14 = 70Marks)

****

			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Discuss principle factors influencing on watershed operation.	7M	1	L1
	b)	Describe classification of watershed based on AISLUS & IMSD guidelines.	7M	1	L1
		OR			
2.	a)	Explain concept and objectives of watershed management.	8M	1	L1
	b)	What are the applications of watershed management & development?	6M	1	L1
		UNIT–II			
3.	a)	Explain structural measures of soil conservation methods.	8M	2	L4
	b)	Discuss various remedial measures of soil conservation.	6M	2	L4
		OR			
4.	a)	Describe methods of control soil erosion.	6M	2	L5
	b)	Explain estimation of soil erosion in watershed level.	8M	2	L5
		UNIT–III			
5.	a)	List out and explain different systems of water harvesting according to rainfall zones.	8M	3	L5
	b)	What are the feasibility conditions for water harvesting?	6M	3	L5
		OR			
6.	a)	Explain different tips for water conservation to publics and society.	7M	3	L5
	b)	Explain different methods of water harvesting technique.	7M	3	L5
		UNIT–IV			
7.	a)	Enumerate concept and importance of artificial recharge.	7M	4	L4
	b)	What are the characteristics and design guidelines for check dam.	7M	4	L4
		OR			
8.	a)	Describe roof top rain water harvesting mechanism.	7M	4	L4
	b)	Explain watershed characteristics considered for artificial recharge.	7M	4	L4
		UNIT–V			
9.	a)	Discuss methods of reclamation of saline soil.	7M	5	L4
	b)	Explain factors responsible for reclamation of saline soil.	7M	5	L4
		OR			
10.	a)	What are the benefits and ill effects of biomass management?	7M	5	L4
	b)	Explain concept of biomass management of farms.	7M	5	L4

END

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES
(AUTONOMOUS)
III B.Tech. I Semester **CE, ME & CSE Regular** End Examination

SET-A

19AC51L-General Aptitude

Roll No.										

Date: 17-02-2022 *Duration: 2 hrs.* *Max.Marks:70*

Choose the correct Answer. *100 X 1 = 100 Marks*

1. Two taps A and B can fill a tank in 4 hrs. and 5 hrs respectively. If both the pipes are opened simultaneously. How much time will be taken to fill the tank?
   a) 2 2/9hrs b) 3 ½ c) 2 ½ d) 5 ½
2. A Certain number when divided by 95 leaves a remainder 30. What is the remainder if, the same number be divided by 19?
   a) 8 b) 9 c) 10 d) 11
3. With what least number should 1250 be multiplied to make it a perfect cube?
   a) 5 b) 10 c) 25 d) 100
4. Which three numbers in the ratio 3:2:5 have the sum of their squares as 1862?
   a) 30, 20, 50 b) 21, 14, 35 c) 18, 21, 30 d) 24, 16, 40
5. Find the smallest number which when divided by 24, 36, & 60 leaves 20, 32, & 56 as remainders respectively?
   a) 256 b) 356 c) 456 d) 556
6. If a merchant estimates his loss as 25% on the S.P, what is his actual loss %?
   a) same b) 20% c) 15% d) 30%
7. The cost price of 4 articles is equal to the selling price of 5 articles. Find the profit or loss percentage.
   a) 20% loss b) 25 % loss c) 25% profit d) 33.33% profit
8. On selling for Rs.600 a man looses 25%, at what price should it be sold to gain 25%?
   a) 800 b) 900 c) 1000 d) 1200
9. One man and four boys can do a work in 26 days and two men and two boys can do the same work in 16 days. A man is how many times efficient than a boy?
   a) 1.5 b) 4.6 c) 8 d) 12
10. 2 men can dig a 2 m canal in 2 days. Then 8 men can dig 8 m canal in how many days?
    a) 1 b) 2 c) 4 d) 8
11. The average age of an adult class is 40 years. Twelve new students with an average age 32 years join the Class, thereby decreasing the average of the class by 4 years. The original strength of the class was
    a) 10 b) 11 c) 12 d) 15
12. The Average of 13 results is 68. The average of first 7 is 63 and that of the last7 is 70. What is the seventh result?
    a) 27 b) 37 c) 47 d) 57
13. Anita can type a 3200 pages typing job in 10 days, while Beena can type 1600 pages in 5 days. If both work together, in how many days can they complete a 1920 pages typing job?
    a) 3 b) 4 c) 5 d) 6
14. Pipe A can fill a tank in 6 hrs. Due to a leak in the bottom, it takes 8 hrs to fill the tank. If pipe A can fill the tank at the rate of 6 lts/minute, find the capacity of the tank.
    a) 1080 b) 2160 c) 3200 d) 4210

15. The population of bacteria decreases by 20% every hour. If the population of the bacteria after one hour from now is calculated to be 1200, what would be its population before one hour from now?
    a) 1875 b) 1700 c) 1500 d) 1660
16. A person crosses a 600 m long street in 5 minutes. What is his speed in km per hour?
    a) 3.6 b) 7.2 c) 8.4 d) 10
17. Excluding stoppages the speed of a bus is 54 kmph and including stoppages it is 45 kmph. For how many minutes does the bus stop per hour?
    a) 9 b) 10 c) 12 d) 20
18. A train running at the speed of 60 km/hr crosses a pole in 9 seconds. What is the length of the train?
    a) 120 metres b) 180 metres c) 324 metres d) 150 metres
19. A group of friends goes for dinner and gets bill of Rs 2400. Two of them says that they have forgotten their purse so remaining make an extra contribution of Rs 100 to pay up the bill. Find the number of persons in that group?
    a) 8 persons b) 7 persons c) 6 persons d) 5 persons
20. There are seven books one each on Psychology, Hindi, English, Sociology, Economics, Education and Accountancy lying on the table one above the other. Sociology is on the top of all the books. Accountancy is immediate below Education which is immediately Sociology. Economics is immediately above Psychology but not in the middle. Hindi is immediately below Psychology. Which three books are between Accountancy and Hindi?
    a) Education, English, Economics b) Education, Economics, Psychology
    c) English, Economics, Psychology d) none of the above
21. If 6 and 2 = 22, 4 and 3 = 1, 8 and 2 = 46 then find the value of 7 and 2?
    a) 26 b) 33 c) 42 d) 45
22. Replace each letter by a digit from 1 to 9. Each letter represents the same digit whenever it occurs.

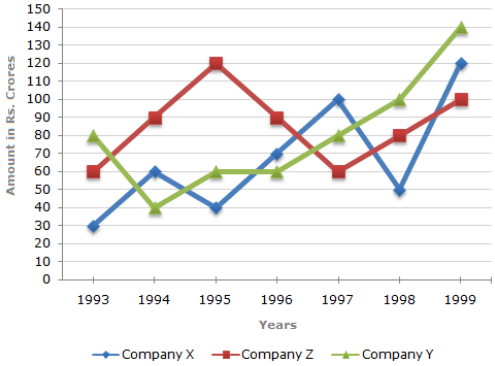
```
  X X X X
  Y Y Y Y
+ Z Z Z Z
-------
  Y X X X Z
-------
```

    What are the values for the alphabets X, Y and Z?
    a) X=2, Y= 3, Z=5 b) X=3, Y=5, Z=7 c) X=7, Y=2, Z=5 d) X=9, Y=1, Z=8
23. Six girls P, Q, R, S, T and V are sitting in a circle facing to the center of the circle. Three queries are: T is not in between Q and S but some other one. P is next to the left of V. R is fourth to the right of P.
    Who is sitting just right to the V?
    a) P b) T c) R d) S/Q

DIRECTIONS FOR Q.No: (24 – 28)

Study the following line graph and answer the questions.

Exports from Three Companies Over the Years (in Rs. crore)



24. For which of the following pairs of years the total exports from the three Companies together are equal?
a) 1995 and 1998 b) 1996 and 1998 c) 1977 and 1998 d) 1995 and 1996

25. Average annual exports during the given period for Company Y is approximately what percent of the average annual exports for Company Z?
a) 87.12% b) 89.64% c) 91.21% d) 93.33%

26. What was the difference between the average exports of the three Companies in 1993 and the average exports in 1998?
a) Rs. 15.33 crores b) Rs. 18.67 crores c) Rs. 20 crores d) Rs. 22.17 crores

27. In how many of the given years, were the exports from Company Z more than the average annual exports over the given years?
a) 2 b) 3 c) 4 d) 5

28. In which year was the difference between the exports from Companies X and Y the minimum?
a) 1994 b) 1995 c) 1996 d) 1997

DIRECTIONS FOR Q.No: (29 – 32): In each question below are given two statements followed by two conclusions numbered I and II. You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusion and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

29. **Statements:** All the locks are keys.
All the keys are bats.
Some watches are bats.
Conclusions: 1. Some bats are locks. 2. Some watches are keys.
3. All the keys are locks.
a) Only (1) and (2) b) Only (1)
c) Only (2) d) Only (1) and (3)

30. **Statements:** Some keys are staplers.
Some staplers are stickers.
All the stickers are pens.
Conclusions: 1. Some pens are staplers. 2. Some stickers are keys.
3. No sticker is key. 4. Some staplers are keys.
a) Only (1) and (2) b) Only (2) and (4)
c) Only (2) and (3) d) Only (1) and (4) and either (2) or (3)

31. **Statements:** Some questions are answers.
Some answers are writers.
All the writers are poets.
Conclusions: 1. Some writers are answers. 2. Some poets are questions.

3. All the questions are poets. 4. Some poets are answers.

a) Only (1) and (2) b) Only (1) and (4) c) Only (1) and (3) d) Only (2) and (4)

32. **Statements:** Some envelops are gums.
Some gums are seals.
Some seals are adhesives.
Conclusions: 1. Some envelopes are seals. 2. Some gums are adhesives.
3. Some adhesives are seals. 4. Some adhesives are gums.

a) Only (3) b) Only (1) c) Only (2) d) Only (4)

33. A+B means A is the son of B; A - B means A is the wife of B; A x B means A is the brother of B; A / B means A is the mother of B and A = B means A is the sister of B. Then what does P x R / Q mean?

a) P is the brother of R b) P is the father of Q
c) P is the uncle of Q d) P is the nephew of Q

34. 80, 10, 70, 15, 60, ... What number should come next?

a) 20 b) 25 c) 30 d) 50

35. 2, 6, 18, 54, ... What number should come next?

a) 108 b) 148 c) 162 d) 201

36. 5.2, 4.8, 4.4, 4, ... What number should come next?

a) 3.2 b) 3.6 c) 3.8 d) 3.4

37. 1000, 200, 40, ... What number should come next?

a) 8 b) 10 c) 15 d) 5

38. 544, 509, 474, 439, ... What number should come next?

a) 404 b) 414 c) 420 d) 445

39. SCD, TEF, UGH, ____, WKL

a) CMN b) UJI c) VIJ d) IJT

40. ELFA, GLHA, ILJA, _____, MLNA

a) OLPA b) KLMA c) LLMA d) KLLA

41. CMM, EOO, GQQ, _____, KUU

a) GRR b) GSS c) ISS d) ITT

42. In a certain code, '37' means 'which class' and '583' means 'caste and class'. What is the code for 'Caste'?

a) 3 b) 7 c) 8 d) Either 5 or 8

43. If ROSE is coded as 6821, CHAIR is coded as 73456 and PREACH is coded as 961473, what will be the code for SEARCH?

a) 246173 b) 214673 c) 214763 d) 216473

44. In a language A is coded as 1, B is coded as 2, ….. then FACE is coded as

a) 1356 b) 6135 c) 6315 d) 6134

45. In a certain code FLOWER is coded as 36 and SUNFLOWER is coded as 81, then how to code FOLLOWS?

a) 42 b) 49 c) 63 d) 36

46. In a code language, A is written as B, B is written as C, C is written as D and so on, then how will SMART be written in that code language?

a) TLBSU b) SHBSU c) TNBSU d) SNBRU

47. If Go =32, SHE = 49, then SOME will be equal to

a) 56 b) 58 c) 62 d) 64

48. **Question:** On which date of the month was Anjali born in February 2004?
Statements: I. Anjali was born on an even date of the month.
II. Anjali's birth date was a prime number.
a) I alone is sufficient while II alone is not sufficient
b) II alone is sufficient while I alone is not sufficient
c) Either I or II is sufficient
d) Both I and II are sufficient

49. **Statements:** All the harmoniums are instruments. All the instruments are flutes.
Conclusions: 1. All the flutes are instruments. 2. All the harmoniums are flutes.
a) Only (1) conclusion follows b) Only (2) conclusion follows
c) Either (1) or (2) follows d) Neither (1) nor (2) follows

50 **Statements:** Some papers are pens. All the pencils are pens.
Conclusions: 1. Some pens are pencils. 2. Some pens are papers.
a) Only (1) conclusion follows b) Only (2) conclusion follows
c) Either (1) or (2) follows d) Both (1) and (2) follow

Directions (51-55) In each of the following questions, out of the given alternatives, choose the one which best expresses meaning of the given word.

51. Wrath
a) Jealousy b) Hatred c) Anger d) Violence

52. Lethargy
a) Laxity b) Impassivity c) Serenity d) Listlessness

53. Diligent
a) Intelligent b) Energetic c) Modest d) industrious

54. Bounty
a) Donation b) Gift c) Pleasure d) Reward

55. Mystique
a) Fame b) Reputation c) Admirable Quality d) Popularity

Direction (56-60) In each of the following questions, choose the word opposite in meaning to the given word.

56. Fraternity
a) Hospitability b) Hostility c) Brotherhood d) Enmity

57. Mawkish
a) Sentimental b) Intelligent c) Certain d) Carefree

58. Magnify
a) Induce b) Diminish c) Destroy d) Shrink

59. Vanquish
a) Surrender b) Debase c) Destroy d) Ruin

60. Malicious
a) Boastful b) Indifferent c) Kind d) Generous

Directions (61-65) In each of the following questions, and Idiomatic expression is given followed by alternatives, choose the one which best expresses the meaning of the given idiom.

61. To turn over a new leaf

a) To change completely one's course of action
b) To shift attention to new problems after having studied the old ones thoroughly
c) To cover up one's faults by wearing new marks
d) To change the old habits and adopt new ones

62. To talk one's head off
a) To talk loudly b) To talk in whispers c) To talk to oneself d) To talk excessively

63. To throw down the glove
a) To resort to wrong tactics b) To give a challenge
c) To accept defeat d) To reject the prize

64. To flog a dead horse
a) To act in a foolish way b) To waste one's efforts
c) To revive interest in an old subject d) To revive old memories

65. To play fast and loose
a) To beguile others b) To be winning some times and losing at other times
c) To play with someone's feelings d) To play tricks

Directions (66-70): In each of the following questions, out of the four alternatives, choose the one which can be substituted for the given words/sentences

66. Bringing about gentle and painless death from incurable disease
a) Suicide b) Euphoria c) Gallows d) Euthanasia

67. Large scale departure of people
a) Migration b) Emigration c) Immigration d) Exodus

68. One who always runs away from danger
a) Escapist b) Timid c) Coward d) Shirker

69. Simplest and smallest form of plant life, present in air, water and soil; essential to life but may cause disease
a) Virus b) Amoeba c) Bacteria d) Toxin

70 One who loves mankind
a) Anthropologist b) Philanthropist c) Seismologist d) Optometrist

Directions (71-75) In each of the following questions, a word has been written in four different ways out of which only one is correctly spelt. Find the correctly spelt word.

71 a) Alienate b) Allienate c) Alienat d)Alienatte

72 a) Accommodetion b) Accomodation c) Accommodtion d) Accommodation

73 a) Leisure b) Leissure c) Leasure d) Lesiure

74 a) pasanger b) pessenger c) pesanger d) passenger

75 a) comitment b) comitment c) commitment d) comitmant

Direction (76-80): In the questions given below, some of the sentences have errors and some have none. Find out which part of a sentence has an error. If there is no mistake, the answer is 'No error'.

76 Man needs (a)/ security and leisure. (b) / of free thinking. (c) / No error (d)

77 I am not wealthy,(a)/so I cannot afford (b)/to buy a expensive car(c) no error(d)

78 The man (a)/ cannot live (b) / by bread alone. (c) / No error (d)

79 A person I met (a) / in the theatre (b) / was the playwright himself. (c) / No error (d)

80 To perform this experiment, (a) / drop little sugar (b) / into a glass of water. (c) / No error (d)

Directions (81-85):: in each question, a part of sentence is printed in italics. Bellow each sentence, some phrases are given which can substitute the italicized part of the sentence. Find out the phrase which can correctly substitute that part of the sentence. if sentence is correct as if is, the answer is' No correction is required" or No improvement.

81 The police broke away the meeting as it turned violent.
a) Broke up b) Broke off c) broke through d) No improvement

82 They are working for the upliftment of their village.
a) uplift of b) uplifting of c) uplifting d) No improvement

83 My mother asked me when would I have a glass of milk.
a) I will b) I would c) I shall d) No improvement

84 The teacher asked, ”why you are late?”
a) why you were late b) why late you are c) why are you late d) No correction required

85 The train left before we reached the station.
a) had left b) would have left c) has had left d) No improvement

Directions (86-90) Rearrange the given sentences A,B,C,D ,and E in the proper sequence so as to form a meaningful paragraph and then answer the questions given below them.

A. As he got up, a frightened native told him about the man –eater.
B. When he approached the thick bush, he saw the lion running towards him.
C. To m was awakened by the fearful screams of the villagers.
D. I n a stage of fright, a shot was fired accidentally by Tom, but it hit the Lion.
E. Tom decided to chase the lion and took out his gun.

86. Which of the following should be the first sentence?
a) A b) B c) C d) D

87 Which of the following should be the second sentence?
a) A b) B c) C d) D

88 Which of the following should be the third sentence?
a) A b) B c) C d) E

89 Which of the following should be the fourth sentence?
a) A b) B c) C d) D

90. Which of the following should be the last sentence?
a) A b) B c) C d) D

Directions (91-100): Read the following passage carefully and answer the questions given below it.

Amnesty International's charge that 'tens of thousands' of political prisoners, including prisoners of conscience, are languishing in India jails and that prisoners are routinely tortured in this country has to be seen in a much wider context than the organization’s annual report cares to do. In its overall appraisal of 151 countries, Amnesty has accused 112 of torturing prisoners, 63 of harboring prisoners of conscience, 61 of resorting to political killings and 53 of detaining people without a trial. Of these apparently overlapping categories, India seems to have been excluded from the list of the 61 which undertake political killings. The report has however, pointed out that scores of people in India die of torture in police and military custody and that many also simply disappear. Clearly, only a thin line separates the 61 charged with political murder from the rest. Before coming to such conclusions, however, it may also be necessary to classify the various countries according to their political systems. Torture by the security forces and killings at the behest of the government make no difference to the victims whether they are in a democratic country or a totalitarian one. It is also nobody's case that a democratic country is less culpable than a dictatorship in the event of human rights violations. But the point perhaps still needs to be made that torture of the system in a democracy in contrast to being an integral part of state policy in a country ruled by an autocrat who is answerable to no one.

India may be guilty of keeping 'tens of thousands' behind bars and of the other human rights abuses mentioned by Amnesty, but it still remains a qualitatively different place from a totalitarian country. It is in this respect that Amnesty has been less than fair. It has chosen to ignore the distinctions between the good, the bad and the ugly. The openness of Indian society will be evident to anyone who spends half an hour in one of its chaotic market-places or visits the law courts or watches a political rally or reads a newspaper or strikes up a conversation with any person on the roads. There is no sense of fear in India, as in a conversation with any person on the roads. There is no sense of fear in India, as in a dictatorship. There is also scope for securing relief from the heavy-handed behaviour of the authorities, even if the human rights commission has not yet lived up to expectations, Unless such points are recognized, Amnesty's assessment will seem to be a dry recital of statistics which may pillory India simply because of its larger population.

91 In the report, India has been excluded from which of the following categories of violating human rights?
a) Torturing prisoners b) Detaining without trial
c) Political killings d) Harbouring prisoners of conscience

92 Which of the following is not true in the context of the passage?
a) India is guilty of some human rights abuses
b) Amnesty International appraised all the democratic countries
c) There is overlapping of cases in the categories of human rights abuses.
d) India was one of the countries appraised by Amnesty International.

93 According to the passage, through which media or forum Amnesty International has hurled the charges?
a) Seminar on Human rights b) Its Regional Report
c) Its Annual Report d) Its International Meet

94. The author of the passage
a) agrees with the report **b)** disagrees with the report
c) hat conditions of disagrees prisons in India is bad **d)** supports the totalitarian approach

95 The Amnesty International's report is based on the information of how many countries?
a) 63 b) 112 c) 131 d) None of these

96 The author suggests classification of various countries on one additional dimension. Which of the following is that dimension?
a) Economic progress b) Human Rights c) Industrial progress d) Political systems

97 According to the passage, what does political murder in a democratic country signify?
a) Failure of system b) Policy of the country
c) Need for autocratic rule d) Openness of society

98 Which of the following is the meaning of the phrase 'strike up' as used in the passage?
a) hit sharply b) initiate c) discussion d) protest

99 Which of the following seems to be the main purpose of writing this passage?
a) To highlight the sufferings of prisoners **b)** To condemn political killings
c) To highlight the role of Amnesty International **d)** To further the cause of human rights

100 According to the author, among the good, the bad and the ugly, what at worst is the situation in India?
a) Good b) Bad c) Ugly d) Good or ugly

Hall Ticket Number :										

R-19

Code: 19A151T

III B.Tech. I Semester Regular Examinations February 2022

Basic Reinforced Concrete Design

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

PART-A

Answer *any one* questions carry's 28 marks

		Marks	CO	Blooms Level
1.	The panel of slab is 4.5 m x 5 m. One short edge and one long edge of the slab is discontinuous and other short edge and long edges are continuous. The slab is restrained with edge beam. Super imposed load is 3.5 kN/m^2 and floor finishes being 1.0 kN/m^2. Design the slab. Use M20 grade concrete and Fe 415 steel. Give the detailing of steel reinforcement.	28M	CO1	L4
	OR			
2.	Design a rectangular footing for a column of size 350mm x 450mm using 20mm diameter bars to transmit characteristic loads of 600KN as dead load and 400KN as live load to a foundation with safe bearing capacity of 120KN/m^2. Assume M20 grade concrete and Fe415 grade steel. Draw the reinforcement details	28M	CO1	L4

PART-B

Answer *any three* questions

Each question carry's 14 marks

3.	a)	Write down assumptions made in the elastic theory of reinforced concrete sections.	7M	CO2	L2
	b)	Explain clearly the concept of assigning different safety factors for different types of loads.	7M	CO2	L2
4.	a)	What are the types of reinforcements used to resist shear? Explain the action of different types of shear steel in resisting shear.	7M	CO2	L3
	b)	What is meant by full development length? What is its approximate value for tension and compression in terms of the diameter of the bar?	7M	CO2	L3
5.		Determine the moment of resistance of a tee-beam having the following section properties: Effective width of flange=2500mm Depth of flange=150mm Width of rib=300mm Effective depth=800mm Area of steel:6 bars of 25mm diameter Materials:M-20grade concrete Fe-415 HYSD bars.	14M	CO3	L4
6.		Design a short circular column of diameter 350 mm to support a factored axial load of 1200kN, together with a factored moment of 100kNm. Adopt M20 grade concrete and Fe415 HYSD bars.	14M	CO3	L4
7.		Design the footing for a reinforced concrete column 225 x 450 mm carrying an axial load of 1075 kN. The bearing capacity of the soil is 100 kN/m2 . Use M20 concrete and Fe500 grade steel as reinforcement.	14M	CO4	L4

END

Hall Ticket Number :										

R-19(SS)

Code: 19A142T

III B.Tech. I Semester Regular Examinations January / February 2022

Concrete Technology

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

****

			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Write the names of basic compound of cement and their role in hydration of cement.	7M		
	b)	Discuss the role of use of pozzolanas and slag in the manufacture of cement.	7M		
		OR			
2.	a)	Elaborate on bulking of aggregate. What are the different classifications of coarse aggregate? Explain with illustrations.	7M		
	b)	What is the major difference between mineral admixture and chemical admixture? List major mineral and chemical admixtures and explain two from each type.	7M		
		UNIT–II			
3.	a)	What are the properties of fresh concrete? Explain the slump test method with neat sketch.	7M		
	b)	State Abram's law. What are the various parameters which control the strength of concrete?	7M		
		OR			
4.	a)	Explain the following important properties of concrete; workability consistency, water cement ratio.	7M		
	b)	Discuss the effect of water cement ratio and gel/space ratio on the development of the strength of concrete	7M		
		UNIT–III			
5.	a)	What is curing? Differentiate between membrane curing pond curing and accelerated curing.	7M		
	b)	Define creep and fatigue. Explain the factors that inflict creep in concrete.	7M		
		OR			

6. a) When there is scarcity or in availability of water, which method will you employ to cure concrete? Which admixtures will help in shrinkage reductions? What are the advantages and disadvantages of such admixtures? 7M

   b) Explain the method of self-curing and its significance. What is air curing? Where is it useful? Can sea water be used in curing give reasons for your answer? 7M

UNIT–IV

7. Design M 40 grade concrete using OPC 53, maximum aggregate size at 20mm and minimum cement content at 320 kg/cu.m. and for a workability of 100mm under good supervision conditions. Specific gravity of cement: 3.15; Specific gravity of Coarse aggregate: 2.74 and Fine aggregate : 2.74; Water absorption Coarse aggregate : 0.5 percent Fine aggregate : 1.0 percent; Free (surface) moisture Coarse aggregate : Nil (absorbed moisture also nil) Fine aggregate : Nil; Sieve analysis Coarse aggregate : Conforming to Table 2 of IS: 383 Fine aggregate: Conforming to Zone I of IS: 383. 14M

OR

8. a) What is the minimum grade of concrete, to be used, specified by IS: 456–2000? How surface moisture of aggregates is accounted for in the mix design? 7M

   b) What are the acceptance criteria of the concrete? Discuss briefly how the quality of concrete is controlled. 7M

UNIT–V

9. a) Write short notes on light weight aggregate. Discuss its applications, advantages and disadvantages. 7M

   b) Give your opinions on fibre reinforced concrete with applications advantages and disadvantages. 7M

OR

10. a) Difference between High performance concrete and high density concrete. 7M

    b) What is the need to study fiber reinforced concrete and explain briefly the factors effecting properties of fiber reinforced concrete? 7M

***

Hall Ticket Number :										

R-19

Code: 19A15GT

III B.Tech. I Semester Regular Examinations February 2022

Disaster Management

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any *five full* questions by choosing one question from each unit (5 x 14 = 70Marks)

****

			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Define the terms (i) Disaster (ii) hazard (iii) risk.	6M	CO1	1
	b)	Write the procedure to mitigate the disaster.	8M	CO1	1
		OR			
2.	a)	Define vulnerability and discuss about the vulnerability concept.	8M	CO1	2
	b)	What are the various types of vulnerability and their impact on human life?	6M	CO1	2
		UNIT–II			
3.		What is a manmade disaster? Explain about any two types of manmade disasters?	14M	CO2	2
		OR			
4.	a)	Write a short note on ecological fragility.	6M	CO2	2
	b)	What is the impact of forest fires on the social and ecological balance of the world?	8M	CO2	3
		UNIT–III			
5.		Discuss about the following disaster impacts on (a) environment (b) political (c) social (d) ecology	14M	CO3	2
		OR			
6.	a)	Why are the gender issues important in disaster preparedness plan?	6M	CO3	2
	b)	Discuss about the impact of disaster on psycho-social issues.	8M	CO3	2
		UNIT–IV			
7.		Discuss about the role of risk analysis, vulnerability and capacity assessment in the disaster management.	14M	CO4	2
		OR			
8.	a)	Discuss about the various policies and legislation framed for disaster risk reduction.	7M	CO4	2
	b)	Define mitigation. Explain structural and non-structural mitigation strategies.	7M	CO4	2
		UNIT–V			
9.		Write about the various factors affecting the vulnerability	14M	CO5	2
		OR			
10.		Explain about the various reconstruction and development methods.	14M	CO5	2

END

Hall Ticket Number :										

R-19

Code: 19A15BT

III B.Tech. I Semester Regular Examinations February 2022

Prestressed Concrete

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any *five full* questions by choosing one question from each unit (5 x 14 = 70Marks)

****

		Marks	CO	Blooms Level

UNIT–I

1. Explain why high strength concrete and high strength steel are needed for prestressed concrete construction. 14M

OR

2. Elaborate different types of prestressing and mention the advantages and limitations of each type. 14M

UNIT–II

3. A pre-tensioned beam 200 mm wide and 400 mm deep is pre-stressed by 7 wires of 7 mm diameter initially stressed to 1000N/mm^2 with their centroid located 90 mm from the soffit. Estimate the percentage loss of stress in the wires with the following data.

   Relaxation of stress in steel=5 percent, E_s=210 kN/mm^2, f_{ck}=45N/mm^2,Creep coefficient=1.6,Total shrinkage strain=2.8x10^{-4}. 14M

OR

4. Discuss the Loss of pre-stress in pre-tensioned and post-tensioned members due to shrinkage and creep of concrete. 14M

UNIT–III

5. A bonded post-tensioned pre-stressed concrete rectangular beam of cross section 300 mm x 650 mm has high tensile steel tendons of cross-sectional area 4000 mm^2 located at an effective depth of 600 mm. If the characteristic strength of concrete and steel is 40 and 1500 N/mm^2, respectively, calculate the flexural strength of the section. 14M

OR

6. Sketch the resultant stress at the top and bottom of the mid span section of a pre-tensioned member with the following data.

   Cross-section of the member = 300 mm x 600 mm,

   A_p = 200 mm^2, f_{ck} = 40 N/mm^2 , f_p = 1500 N/mm^2,

   L = 6.0 m, udl = 10 kN/m. 14M

UNIT–IV

7. A rectangular continuous pre-stressed concrete beam has two spans of length 8 m each has width 120 mm and depth 340 mm. The tendon carries an effective pre-stressing force of 400 kN and is located at 100 mm from the soffit. The beam carries an imposed load of 3.5 kN/m. Locate the resultant line of thrust. 14M

OR

8. Write the design procedure of rectangular section according to IS code 1343. 14M

UNIT–V

9. a) Explain the term End blocks. Write the steps involved in the design of end blocks by Guyon's method. 8M

   b) A pretensioned beam, 160 mm wide by 320 mm deep, is prestressed by four plain wires of 7 mm diameter at an eccentricity of 100 mm. If the cube strength of concrete at transfer is 40 n/mm2 , estimate the transmission length at the ends of the pretensioned units using IS: 1343 code provisions 6M

OR

10. A pre-stressed concrete rectangular beam 300 mm wide and 600mm deep is subjected to an effective pre-stress of 2000 kN. The beam has a parabolic tendon with an eccentricity of 150 mm in the mid-span. The span of the beam is 6.0 m and is subjected to a uniformly distributed load of 50 kN/m. The characteristic strength of concrete is 40 N / mm^2. Evaluate the short time deflection at centre. 14M

END