	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,	LON	ERE	
	Supplementary Winter Examination – 2023			
	Course: B. Tech. Branch: Civil Engineering Se	ngineering Semester: VI		
	Subject Code & Name: BTCVC601 & Design of Concrete Structures - I_Y	Y18		
	Max Marks: 60 Date:16/01/2024 Dura	tion: (3 Hr.	
	 Instructions to the Students: All the questions are compulsory. The level of question/expected answer as per OBE or the Course Outcowhich the question is based is mentioned in () in front of the question. Use of non-programmable scientific calculators is allowed. Assume suitable data wherever necessary and mention it clearly. Use of IS 456 is allowed. 	me (C	CO) on (Level/	Marks
			CO)	
Q. 1	Solve Any Two of the following.		,	12
A)	Enlist the different loads acting on framed structure. Explain the procedure	re to	CO1	6
	calculate wind load.			
B)	Explain the philosophy of Limit state design. Write in brief about limit state	te of	CO1	6
	strength and limit state of serviceability.			
C)	Explain stress-strain characteristics of concrete with neat sketch.		CO1	6
Q.2	Solve Any Two of the following.			12
A)	Explain the following terms with reference to beam section		CO3	6
	i) Neutral axis ii) Moment of resistance			
B)	Explain with neat sketch one way and two way slab in detail.		CO2	6
C)	Design a reinforced concrete beam subjected to a bending moment of 20 kN-m.	Use	CO3	6
	M 15 concrete and mild steel reinforcement. Keep the width of the beam equ	al to		
	half the effective area. Use WSM.			
0.3	Solve Any Two of the following.			12
(A)	Enlist different types of isolated column footings and explain any one in detail	with	CO4	6
,	sketch.		001	Ū
B)	State the names of different types of staircase. State with reasons which type	be of	CO2	6
	staircase should be provided in hospital building with sketch and list the diffe	erent		
	parts with standard for sizes for the same.			
C)	Design a short square column to carry an axial load of 1200 kN. Use M 25 con-	crete	CO4	6
	mix. Take $\sigma_{sc}=130 \text{ N/mm}^2$. Use WSM.			

Q.4	Solve Any Two of the following.		12
A)	Explain in details i) Characteristics strength of materials ii) Design values.	CO1	6
B)	Design a balanced singly reinforced concrete beam section for an applied moment	CO3	6
	of 60kN-m. The width of the beam is limited to 175 mm. Use M 20 concrete and Fe		
	415 steel bars. Use LSM.		
C)	Explain in detail i) Properties of Flanged (L and T) ii) Design procedure of Flanged	CO3	6
	Beams.		
Q. 5	Solve Any Two of the following.		12
A)	A rectangular beam of section 300 mm width and 500 mm depth is reinforced with	CO3	6
	four 20 mm bars out of which two bars bent at the ends of the beam at 45°. Determine		
	the additional shear reinforcement required if the factored shear force at the critical		
	section is 320 kN. Consider grade of concrete M 25 and steel of grade Fe 415. Use		
	LSM.		
B)	Explain in detail development length for bond stress. Write the expression for the	CO3	6
	development length in terms of flexure bond.		
C)	What do you get by 'detailing of reinforcement'? Explain with neat sketch	CO1	6
	reinforcement detailing for rectangular beam and one way slab.		

*** End ***

	DR. DADASATIED AMDEDRA Supplementi	ry Winter Examination	-2023	, LONERE	
	Course: B. Tech.	Branch : Civil	Sem	ester :6 th	
	Subject Code & Name: BTCVC6	01_Y22 & Design of RC	C Structures		
	Max Marks: 60 D	ate:16/01/2024	Duratio	on: 3 Hr.	
	 Instructions to the Students: All the questions are comput The level of question/expected which the question is based it Use of non-programmable so Assume suitable data where where the source of the source	sory. ed answer as per OBE or is mentioned in () in fron cientific calculators is all ver necessary and mentio	the Course Out t of the question owed. n it clearly.	come (CO) on n. (Level/CO)	Marks
Q. 1	Solve Any Two of the following.				12
A)	Draw stress strain curve of mild stee and Ductility.	and define Elastic limi	t, Yield Point,	CO1	6
B)	Write down the asumptions made in V	Working stress method of	f design.	CO1	6
C)	Discuss the advantages of the lin philosophies.	mit state method over	other design	CO1	6
Q.2	Solve Any Two of the following.				12
A)	Draw the Stress block diagram and method.	d show parameter for v	working stress	CO1	6
B)	Define balanced, under reinforced an stress method.	nd over reinforced sectio	on for working	CO1	6
C)	Write short note on Modulur Ratio(m	ı) .		CO1	6
Q. 3	Solve Any Two of the following.				12
A)	Write short note on i) characteristics factor and partial safety factors	strength ii) characteristic	s load iii) load	CO1	6
B)	Draw the Stress block diagram and sh	now parameter for limit s	tate method.	CO1	6
C)	A reinforced concrete beam of rectar mm and effective depth 400 mm is su kN. The grade of concrete, main s respectively. For the area of main stee N/mm2, the beam is design for collar	ngular cross-section hav Ibjected to a factored sheat Iteel, stirrups are M20, I provided the design sheat pse in limit state. Find th	ing width 230 ar force of 120 Fe415, Fe250 ar stress is 0.48 he spacing of 2	CO1	6
	legged 8 mm stirrups.				

Q.4 Solve Any Two of the following.

A) Determine the Moment of resistance of the beam shown in the figure. Use
 M20 grade of concrete and Fe 415 grade of steel. Assume suitable data if
 necesary.



B) Derrive the goverening equations of a doubly reinforced beam using LSM. CO1 6
C) Design a simply supported beam of effective span 8 m subjected to imposed CO1 6
loads of 35 kN/m. The beam dimensions and other data are b=300 mm,

D=700 mm, M20 concrete and Fe415.

Stress level		Fe 415	Fe	500
	Strain ε_{sc}	Stress f_{sc} (N/mm ²)	Strain ε_{sc}	Stress f_{sc} (N/mm ²)
0.80 fyd	0.00144	288.7	0.00174	347.8
0.85 fyd	0.00163	306.7	0.00195	369.6
0.90 fyd	0.00192	324.8	0.00226	391.3
0.95 fyd	0.00241	342.8	0.00277	413.0
0.975 fyd	0.00276	351.8	0.00312	423.9
1.0 f_{vd}	0.00380	360.9	0.00417	434.8

Q. 5	Solve Any Two of the following.		12
A)	Discuss the limitations of interaction curve.	CO1	6
B)	Name and explain three modes of failures of short, ractangular and	CO1	6
	symmetrically reinforced concrete column subjected to axial load Pu and		
	uniaxial moment Mu.		
C)	Draw the compressive stress block of concrete of a short, ractangular and	CO1	6
	symmetrically reinforced concrete column subjected to axial load Pu and		
	uniaxial moment Mu, when the neutral axis lies outside the section.		

CO1

	DR. BABASAHEB AMBEDKAR TECHNOLOGICA	AL UNIVERSITY	, LONERE		
	Supplementry Winter Examination	on – 2023			
	Course: B. Tech. Branch : Civil	Semo	ester :6 th		
	Subject Code & Name:BTCVC602_Y22 & Foundation	Engineering			
	Max Marks: 60 Date:18/01/2024	Duratio	on: 3 Hr.		
	 Instructions to the Students: All the questions are compulsory. The level of question/expected answer as per OBE which the question is based is mentioned in () in fr Use of non-programmable scientific calculators is Assume suitable data wherever necessary and mentioned 	or the Course Out ront of the question allowed. tion it clearly.	come (CO) on (Level/CO)	Marks	
Q. 1	Solve Any Two of the following.		``````````````````````````````````````	12	
A)	Describe the methods used for soil exploration.		CO1	6	
B)	Outline a step-by-step test procedure for conducting a fiel bearing capacity. Discuss the limitations associated with thi	d test to evaluate is procedure.	CO1	6	
C)	Why is soil exploration considered a crucial step in the f	oundation design	CO1	6	
	process? Discuss its necessity and importance.				
Q.2 A)	Solve Any Two of the following. Elaborate on Terzaghi's original bearing capacity equ	uations and the	CO1	12 6	
	assumptions underlying his analysis.		001	Ū	
B)	Discuss the specialized applications of Terzaghi's equati types of foundations and soil conditions.	ons for different	CO1	6	
C)	A strip footing of width 2.5 m is to be founded at a depth of drained sand stratum having the following properties: $\phi' = kN/m3$. Determine the ultimate bearing capacity using T capacity equation.	of 1.5 m in a well 38° , C = 0, γ =18 derzaghi's bearing	CO1	6	
Q. 3	Solve Any Two of the following.			12	
A)	List preventive measures for dealing with expansive soils		CO1	6	
B)	Explain ground improvement methods suitable for cohesior	iless soils.	CO1	6	
C)	Enumerate the factors influencing the choice between structure foundations	hallow and deep	CO1	6	
Q.4	Solve Any Two of the following.			12	
A)	Discuss the advantages and limitations of dynamic formula	e in pile design	CO3	6	

B) Discuss the key considerations in the design of open caissonsCO3

C) A square pile group of 9 piles of 25 cm diameter is arranged with a pile
 CO3 spacing of 1 m. The length of the piles is 9 m. Unit cohesion of the clay is 75
 Kn/m². Neglecting bearing at the tip of the piles determine the group capacity.
 Assume adhesion factor of 0.75.

Q. 5	Solve Any Two of the following.		12
A)	Enumerate and describe common types of slope failures.	CO2	6
B)	Discuss the key factors influencing the stability of an infinite slope of	CO2	6
	cohesive soils.		
C)	Discuss the impact of construction activities on slope stability.	CO2	6

Dr. Babasaheb Ambedkar Technological University, Lonere

Supplementary Semester Examination – Winter 2023

Semester: VI

Course: B. Tech. Branch: Civil Engineering

Subject Code & Name: BTCVC602_Y 18 Foundation Engineering

Max Marks: 60 Date:18/01/2024 Time: 2:00 to 5:00 PM

Instructions to the Students:

- 1. All the questions are compulsory.
- 2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
- 3. Use of non-programmable scientific calculators is allowed.
- 4. Assume suitable data wherever necessary and mention it clearly.

		(Level/CO)	Marks
Q. 1	Solve <u>any two</u> of the following.		12
A)	What are the stages of site investigation? State objectives of each stage?		06
B)	Describe, with a neat sketch, the wash boring method. In what field conditions would you recommend this method?		06
C)	C.1) A SPT was conducted in a dense sand deposit at a depth of 22 m, and a value of 48 was observed for N. The density of the sand was 15 kN/m^2 . What is the value of N, corrected for overburden pressure?		06
	C.2) Compute the area ratio of a thin-walled tube samples having an external diameter of 6 cm and a wall thickness of 2.25 mm. Do you recommend the sampler for obtaining undisturbed soil samples? Why?		
Q.2	Solve <u>any two</u> following questions.		12
A)	What are the common modes of bearing capacity failure of a footing. Explain in detail with Sketches?		06
B)	A strip footing of width 3 m is founded at a depth of 2 m below the ground surface in a (c - ϕ) soil having a cohesion c = 30 kN/m ² and angle of shearing resistance ϕ = 35°. The water table is at a depth of 5 m below ground level. The moist weight of soil above the water table is 17.2 5 kN/m ³ . Determine (a) Ultimate bearing capacity of the soil,		06
	(b) Net bearing capacity, and		
	(c) Net allowable bearing pressure and the load/m for a factor of safety of 3.		
	Use the general shear failure theory of Terzaghi.		
	$\phi = 35^{\circ}$ N _c = 57.8, N _q = 41.4 and N γ = 42.4		
C)	If the water table in Q.2 B) rises to the ground level, determine the net safe		06

bearing pressure of the footing. All the other data given in Q.2 B) remains the same. Assume the saturated unit weight of the soil γ_{sat} is 18.5 kN/m³.

Q. 3	Solve <u>any two</u> of the following.	12	
A)	What is swelling soils? Explain in detail the characteristics of swelling soils?	06	
B)	Define and explain the following terms:B) Swelling PressureC) Free SwellA) Swelling PotentialB) Swelling PressureC) Free Swell	06	
C)	Enlist & explain the essential steps involved in the final choice of the type of foundation?	06	
Q.4	Solve <u>any two</u> of the following.	12	
A)	 Classify and explain the types of Piles: a) Based on purpose b) Based on load transfer c) Based on method of construction 	06	
B)	Enlist the different methods to estimate the load carrying capacity of piles and explain in detail static formulae method.		
C)	C.1) A timber pile was driven by a drop hammer weighing 30 kN with a free fall of 1.2 m. The average penetration of the last few blows was 5 mm. What is the capacity of the pile according to Engineering News Formula?		
	C.2) A pile is driven with a single acting steam hammer of weight 15 kN with a free fall of 900 mm. The final set, the average of the last three blows, is 27.5 mm. Find the safe load using the Engineering News Formula?		
Q. 5	Solve <u>any two</u> of the following.	12	
A)	Enlist the different methods for the analysis of finite slopes and explain in detail the stability number method.	06	
B)	Enlist and explain in detail the different types of slope failures?	06	
C)	An embankment is inclined at an angle of 35° and its height is 15 m. The angle of shearing resistance is 15° and the cohesion intercept is 200 kN/m^2 . The unit weight of soil is 18.0 kN/m^3 . If Taylor's stability number is 0.06, find the factor of safety with respect to cohesion.	06	

*** End ***

	DR. BAB	ASAHEB A	MBEDKA	R TECHN	OLOGICA	L UNIVER	SITY, LO	ONERE	
		S	upplementa	ry Winter	Examinatio	n – 2023			
	Course: B. T	ech.	Branch : C	ivil Enginee	ering		Sem	ester : VI	
	Subject Cod	e & Name:	Concrete Te	echnology (BTCVC603	_Y18)			
	Max Marks: 60 Date: 20/01/2024 Duration				on: 3 Hr.				
	Instructions a 1. All the 2. The le which 3. Assum	to the Stude e questions d evel of question the question ne suitable d	nts: are compulso ion/expected n is based is lata wheneve	ory. answer as mentioned er necessary	per OBE or in () in fron ^y .	the Course t of the que	Outcome stion.	(CO) on (CO)	Marks
Q. 1	Solve Any T	wo of the fo	llowing.						12
A)	Write a short	note on Sul	phate attack	on concrete	2.			CO 3	6
B)	Explain proce	edure for fin	ding Standa	d Consister	ncy of Ceme	ent.		CO 1	6
C)	Explain proce	edure for fin	ding Bulking	g of Sand ir	ı detail.			CO 1	6
Q.2	Solve Any T	wo of the fo	llowing.						12
A)	Define Workability. Explain Compaction factor test.					CO 3	6		
B)	Explain proce	edure for fin	ding Finenes	ss of Cemer	nt.			CO 1	6
C)	Find Fineness	s Modulus a	nd Specify t	ype of Sand	l.				
	Sieve Size	4.75 mm	2.36 mm	1.18mm	600 µ	300 µ	150 μ		
	Weight Retained	30 gm	250 gm	220 gm	200 gm	150 gm	50 gm	CO 2	6
Q. 3	Solve Any T	wo of the fo	llowing.						12
A)	Define : a) D	urability b) l	Hardened Co	oncrete c)	Segregation			CO 3	6
	d) B	leeding e) C	haracteristic	Strength f) Compressi	ve Strength			
B)	Define Concr	ete. Explain	types of con	ncrete.				CO 2	6
C)	Explain diffe	rence betwee	en Weight B	atching & V	Volume Bate	ching.		CO 2	6
Q.4	Solve Any T	wo of the fo	llowing.						12
A)	Write short n	ote on Need	le Vibrator.					CO 3	6
B)	Explain rebo	und hammer	test in detai	l with neat	sketch.			CO 3	6
C)	Explain Pond	ling Method	of Curing.					CO 1	6

Q. 5	Solve Any Two of the following.		12
A)	What is Admixture? Illustrate difference between Accelerator & Retarder.	CO 2	6
B)	Write a short note on transportation of Concrete.	CO 1	6
C)	Explain procedure for Concrete Mix Design by Indian Standard Method.	CO 3	6

*** END***

	DR. BABASAHEB AN	MBEDKAR TECHNOLOGICAL U	INIVERSITY, LONERE	
	Su	pplementary Winter Examination	- 2023	
	Course: B. Tech.	Branch: Civil Engineering	Semester: VI	
	Subject Code & Name:	BTCVC604_Y18 & Project Mana	gement	
	Max Marks: 60	Date: 23/01/2024	Duration: 3 Hr.	
	Instructions to the Stude 1. All the questions of 2. The level of quest which the question 3. Use of non-progra 4. Assume suitable of	nts: are compulsory. ion/expected answer as per OBE or the n is based is mentioned in () in front of ammable scientific calculators is allow lata wherever necessary and mention	he Course Outcome (CO) on of the question. wed. it clearly. (Level/CO)) Marks
Q. 1	Solve Any Two of the fo	llowing.		12
A)	Explain Bar chart, its asp	ects, advantages, and disadvantages.	CO1	6
B)	Explain rules of network	diagram	C01	6
C)	Explain resource allocation	on	CO2	6
Q.2	Solve Any Two of the fo	llowing.		12
A)	Differentiate between CP	M and PERT.	C01	6
B)	Draw the network diagram value for completing the	m, determine the project duration, and project in 25 days.	l find the Z CO3	6

Activity	1-2	1-3	2-4	3-4	3-5	2-6	4-6	5-6
to	6	3	2	4	1	5	7	1
tm	9	4	5	6	2	6	8	2
tp	12	11	14	8	5	7	15	3

C) Explain types of interests **CO4** 6 12 Q.3 Solve Any Two of the following. A) Explain break - even analysis **CO5** 6 **B**) Explain the quality control concept **CO5** 6 **CO4** C) Explain Demand and supply 6 Q.4 Solve Any Two of the following. 12 A) Explain the importance of economics in the construction industry **CO4** 6 6

Explain graphical representation of cost slope **CO2** B)

C)	Explain in detail updating, data required for updating and procedure of								f	CO3	6
	updatir	ıg.									
Q. 5	Solve Any Two of the following.										12
A)	Discuss Philosophy of Demings								CO6	6	
B)	 B) The time cost data of a project are given below; the project indirect cost is 60/- per week. Determine the optimum time duration of the project and cost as with this duration by crashing of activities. 								CO2	6	
		Activity	1-2	1-3	2-4	2-5	3-4	4-5			
		Normal time	8	4	2	10	5	3			
		Normal cost	100	150	50	100	100	80			
		Crash time	6	2	1	5	1	1			
		Crash cost	200	350	90	400	200	100			

C) Explain use of Computers in Project Management.

CO6 6

*** End ***

	DR. B	ABAS	SAHEB .	AMBEI	DKAR 7	FECHN	OLOGIC	AL UNIVI	ERSITY,	LONERE	
			S	upplem	entary V	Winter	Examinati	on – 2023			
	Course	: B. Te	ech.		В	ranch :	Civil		Seme	ster :VI	
	Subject Max Ma	Code arks: (& Nam 60	e: Engi	neerin Date	g Man 23-01-	agement 24	(BTCVI Durati	PE604J) on: 3 Hr		
	Instruct 1. 4 2. 7 	ions to All the The lev which t Use of Assume	the Stu question vel of que the quest non-pro e suitable	<i>dents:</i> as are co estion/ex tion is bo gramma e data w	mpulson pected c used is n ble scien herever	ry. inswer o nentione ntific ca necesso	ts per OBE ed in () in f lculators is ry and mer	f or the Cou front of the allowed. ntion it clea	ırse Outc question. urly.	ome (CO) on	
										(Level/CO)	Marks
Q. 1	Solve A	ny Tw	vo of the	followi	ng.						12
A)	Explain	Henr	y Fayol'	's princi	ples of	Manag	ement(Any	v six)		L1/1	6
B)	Explain	Gant	t Chart	with a n	neat ske	tch				L2/1	6
C)	Explain	Impo	ortance o	of Mana	gement	in Con	struction I	Field.		L2/1	6
Q.2	Solve A	ny Tw	vo of the	followi	ng.						12
A)	Enlist f	unctio	ns of Ma	anagem	ent and	explair	any two f	unctions.		L2/1	6
B)	Explain	Line	Organiz	ation w	ith a ne	at sketo	h.			L2/1	6
C)	Explain	Princ	ciples of	Site-La	yout(Ar	y Thre	e)			L2/2	6
Q. 3	Solve A	ny Tw	vo of the	followi	ng.						12
A)	Explain	the st	teps in D	ecision	Making	g.				L2/2	6
B)	Explain	Decis	sion Tree	e with a	suitabl	e examj	ole.			L2/2	6
C)	Explain	Decis	ion und	er certa	inty and	d risk.				L2/2	6
					-						
Q.4	Solve A	ny Tw	vo of the	followi	ng.						12
A)	Solve th	v ne follo	owing As	ssignme	nt prob	lem.				L4/3	6
			0	mack	ines						
			T	maci	IIIIes	137					
		٨	1	12	10	11	Г				
		B	5	10	7	8					
	jobs	С	12	14	13	11					
		D	8	15	11	9					
	~ -										
B)	Solve th	e pro	blem usi	ng Nort	h-West	Corner	method			L4/3	6

		Desti	nation				
		D1	D2	D3	D4	Supply	
	O1	3	1	7	4	300	
	02	2	6	5	9	400	
	03	8	3	3	2	500	
	Demand:	250	350	400	200	1200	
C)	Explain Mont	te-Carlo	o simula	ation		L3/3	6
Q. 5	Solve Any Tw	o of the	e follow	ing.			12
A)	Explain funct	ions of	Materia	al Mana	agemen	t, L2/4	6
B)	Explain Safet	y Stock	S.			L2/4	6
C)	Explain EOQ	Analys	sis with	a suital	ble sket	cch. L3/4	6
					*** E	nd ***	

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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Winter Examination – 2023

	Course: B. Tech.	Branch: Civil Engineering	Semester: VI	
	Subject Code & Name:	BTCVOE605J & Planning for Sustai	nable Development	
	Max Marks: 60	Date: 25/01/2024	Duration: 3 Hr.	
	 Instructions to the Studen 1. All the questions of 2. The level of question which the question 3. Use of non-program 4. Assume suitable design of the student 	nts: are compulsory. <i>Con/expected answer as per OBE or the C</i> a is based is mentioned in () in front of the ammable scientific calculators is allowed ata wherever necessary and mention it cl	ourse Outcome (CO) on a question. early.	
			(Level/CO)	Marks
Q. 1	Solve Any Two of the fo	llowing.		12
A)	Write a short note on sust	ainable development?	CO1	6
B)	Explain in detail what are	the ideas of sustainable development	CO2	6
C)	List down the objectives of	of sustainable development	CO1	6
Q.2	Solve Any Two of the fo	llowing.		12
A)	Explain the main principle	e of sustainable development	CO2	6
B)	Elaborate relationship bet	ween poverty and environment degradati	on CO2	6
C)	Explain the strategies for	promoting the sustainable development	CO3	6
Q. 3	Solve Any Two of the fo	llowing.		12
A)	What are the issues accord	ding to the concept of sustainable develop	pment and CO3	6
	explain the alternative app	proaches for it		
B)	Explain institutional susta	inability in detail	CO5	6
C)	Write short note on ideas	of innovation for sustainable development	nt CO4	6
Q.4	Solve Any Two of the fo	llowing.		12
A)	State and explain the area development	s of debate in relation with sustainable	CO3	6
B)	Explain Societal transform	nations in brief	CO5	6
C)	Explain Research method	s for Sustainability	CO5	6
Q. 5	Solve Any Two of the fo	llowing.		12
A)	Explain environmental ma	anagement strategies	CO4	6
B)	State and explain the example of the	nple of innovation for sustainable develo	pment CO4	6
C)	Explain the government p	olices to protect the environment	CO5	6
		*** End ***		

	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE	
	Supplementary End Semester Examination – Winter 2023	
	Course: B. Tech.Branch: Civil EngineeringSemester: VI th Semester	
	Subject Code & Name: BTCVE605D Advanced Engineering Geology	
	Max Marks: 60 Date: 25/01/2024 Duration: 3.00 Hr.	
	 Instructions to the Students: All the questions are compulsory. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question. Use of non-programmable scientific calculators is allowed. Assume suitable data wherever necessary and mention it clearly. 	Marks
Q. 1	Solve Any Two of the following.	
A)	Write short notes on: -	6
	a. Principle of Uniformitarianism	
	b. Peninsular India	
	c. Law of superposition	
B)	Describe the Gondwana supergroup with detailed lithostratigraphic succession	6
	and economic importance.	
C)	Describe in detail about geological time scale and major extinctions in Earths	6
	history.	
Q.2	Solve Any Two of the following.	
A)	Write a short note on: -	6
	a. Artesian well	
	b. Auger drilling	
	c. Confined aquifer	
B)	Write a detailed note on trial pit sampling method with its pros and cons.	6
C)	Describe the procedure of measurement and advantages of rock quality	6
	designation (RQD) index.	
Q. 3	Solve Any Two of the following.	
A)	Write a short note on: -	6
	a. Civil engineering properties of laterite rock.	
	b. Effect of hydrothermal alteration.	
	c. Civil engineering properties of volcanic breccia.	
B)	Describe various types of basalts with their engineering properties.	6
C)	Write a detailed note on columnar joints and associated problems.	6

Q.4 Solve Any Two of the following.

- A) Write a short note on:
 - a. Magnetic method
 - b. Pedogenesis
- c. Regur soil
 B) Write a detailed note on textural classification of soil with neat suitable diagram.
 C) Explain the difference between transported and residual soil with neat labeled diagram of both soil profiles.

Q. 5 Solve Any Two of the following.

- A) Write a short note on:
 - a. Divergent plate boundary
 - b. Shear Strength of rocks
 - c. Koyana dam earthquake
- **B**) Explain the difference between Wenner and Schlumberger configuration?
- C) Write a detailed note on seismic zones in India with neat labeled diagram.

*** End ***

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