

K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU-560109

DEPARTMENT OF CIVIL ENGINEERING

SESSION: 2023-2024 (ODD SEMESTER)

I SESSIONAL TEST QUESTION PAPER

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				USN								
Degree Branch Course Title Duration	:::::::::::::::::::::::::::::::::::::::	B.E Civil Engineering Hydrology &water resource Engineering 60 Minutes	Semester Date Course Co Max Mar	ode ks	:	V 03 21 20	3 -0 1CV)	1-2 751	2 02 I	4		

	Note: Answer ONE full question from each	part		
Q. No.	Question	Marks	K Level	со
	PART-A			
1(a)	Determine the optimum number of rain gauges in A catchment area using the following data number of existing rain gauges =8, mean annual rainfall at the gauges: $1000,950,900,850,800,700,600$ and 400 mm, permissible error =6%	5	K3 Applying	CO1
(b)	What is precipitation? Describe the different forms of precipitation	5	K2 Understanding	CO1
	OR			
2(a)	A catchment has five rain gauge stations. In a year the annual rainfall recorded by the gauges are 78.8cm, 90.2cm, 98.6cm, 102.4cm and 70.4cm for a 6% error in the estimation of the mean rainfall, determine the additional number of gauges needed.	5	K3 Applying	CO1
(b)	Discuss briefly the factors affecting evaporation.	5	K2 Understanding	COI
	PART-B			
) 3(a)	Enumerate the various processes involved in hydrologic cycle using Horton's engineering representation	5	K2 Understanding	CO1
(b)	Illustrate the concept of catchment with neat sketch	5	K2 Understanding	CO2
	OR		<i>i</i>	
4(a)	Define rain gauge. Describe with a neat sketch working principal of weighing bucket type rain gauge.	5	K2 Understanding	CO1
(b)	Explain the components of hydrograph with neat sketch.	5	K2 Understanding	CO2

Course Incharge

HOD CV Professor & Head Dept. of Civil Engineering K.S. Group of Institutions K.S. School of Engineering & Management Bangalore-560 062

IQAC-Coordinator

Principal

Dr. K. RAMA NARASIMHA Principal/Director K S School of Engineering and Management Bengaluru - 560 109



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SESSION: 2023-2024 (ODD SEMESTER)

I SESSIONAL TEST QUESTION PAPER

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				USN								
Degree	:	B.E	Semester		:	v						
Branch	:	Civil Engineering	Date		:	03	3 -0	1-2	202	24		
Course Title Duration	:	60 Minutes	Course Co Max Mar	ode ks	:	20)	V 3.	1			

	Note: Answer ONE full question from each	part		
Q. No.	Question	Marks	K Level	СО
$\mathbf{)}$	PART-A			
1(a)	What is precipitation? Describe the different forms and types of precipitation	5	K2 Understanding	CO1
(b)	With neat sketch Explain Horton's engineering representation of hydrologic cycle	5	K2 Understanding	CO1
	OR			
2(a)	What is meant by evaporation losses? Discuss the factors affecting evaporation.	5	K2 Understanding	CO1
(b)	Describe the different forms of precipitation	5	K2 Understanding	CO1
	PART-B			
3(a)	Discuss the various processes involved in hydrologic cycle using Horton's engineering representation	5	K2 Understanding	CO1
(b)	Enumerate the rainfall runoff relationship using regression analysis	5	K2 Understanding	CO2
2	OR	1		
4(a)	Define rain gauge. Describe with a neat sketch working principal of weighing bucket type rain gauge.	5	K2 Understanding	CO1
(b)	List and Explain briefly factors affecting runoff.	5	K2 Understanding	CO2

Course Incharge

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Q. No.

K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU-560109 DEPARTMENT OF CIVIL ENGINEERING SESSION: 2023-2024 (ODD SEMESTER) II SESSIONAL TEST QUESTION PAPER

SET-A

	US	SN						
	Semester	:	V	7				
Engineering logy &water resource Engineering	Date Course Code	:	8 2	-02 1C	2-202 V51	24		

Degree	:	B.E
Branch	:	Civil Engineering
Course Title	:	Hydrology &water resource Eng
Duration	;	60 Minutes

Duration	:	60 N	Minu	tes			U		N	Aax M	larks	; ;	20		
· · · · · · · · · · · · · · · · · · ·				Not	e: An	swer (ONE	full	questi	on fro	m ea	ch pa	rt		
					Ques	tion			ti K				Mar ks	K Level	СО
								PA	RT-A			×			
Given the or	di	nates	of	4-h u	nit hy	drogr	aph.	Der	ive th	e ord	inate	s of	τ.	K3	
12-hour unit	ĥу	drog	raph	for the	ne san	ne cat	chm	ent.	Find	the pe	ak v	alue		Applying	
of discharge	an	d the	e cor	respo	nding	time	inter	val (observ	ved in	4-h	and			
12-h unit hyd	lro	grap	h										5	. 2	CO2
Time(h)	0	4	8	12	16	20	24	28	32	36	40	44			
ordinates	0	20	80	130	150	130	90	52	27	15	05	0			

			-	<u> </u>								-					
		of discharge	e an	d the	e cor	respo	nding	time	inte	rval	obser	ved in	1 4-h	and	_		
	1(a)	12-h unit hy	dro	grap	h	-	1								5	, <i>1</i>	CO2
		Time(h)	0	4	8	12	16	20	24	28	32	36	40	44			
		ordinates	0	20	80	130	150	130	90	52	27	15	05	0			
		of,4-h U.H					- S45					· ·	2			K2	1
	(b)	What is Bha	ndł	nara	irriga	tion?	List i	its adv	vanta	ges a	and di	isadva	antag	es	5	K2 Understanding	CO3
								1		(OR		٩.,				
		Rain fall ma	gni	tude	3.8c	m and	12.8c	m occ	urrir	ng on	ı two	conse	cutiv	e 4-			
		hour duratio	ns	on a	a cat	chmei	nt of	area	km ²	prod	luced	the f	follov	ving		K2	
		hydrograph	of	flow	v at	the c	outlet	of th	ne ca	atchn	nent.	Estin	mate	the		Annlying	a.,
	2(a)	rainfall exce	ss a	and Ø	0-Ind	ex.									5		CO2
		Time(h)	0	6	12	18	24	30	36	42	48	54	60	66			A
		Observed	5	13	26	21	16	12	9	7	5	5	4.5	4.5			
		flow m ³ /s								10 H				1			
	(b)	Define duty a	and	delt	a. De	erive	the re	lation	betv	veen	them		la -		5	K2 Understanding	CO3
T										PA	RT-B			<i>'</i>			
	3(a)	What is unit	hyc	lrogr	aph?	Expl	lain a	ny 5 I	imita	tion	S				5	K2 Understanding	CO2
		Determine a	fter	r hov	v mai	ny da	ys wil	l you	supp	oly w	ater 1	to soi	l in o	rder		1. U	
		to ensure effi	cie	nt irr	igati	on of	the gi	iven c	rop,	if fil	ed ca	pacity	/ of	A 12.1		K2	
	(b)	soil=30%, p	ern	nane	nt w	vilting	; poir	nt=15	%,	dry	densi	ty of	f soi	1 =	5	Understanding	CO3
		21KN/m ³ , eff	fect	tive o	depth	of ro	ot zo	ne = 7	70cm	ı, dai	ly co	nsum	ptive	use		e nue e contra nue	
		of water for t	he	giver	n cro	p = 12	2mm.						1				
										C	DR						
	4(a)	Define S-curv	ve ł	nydro	ograp	h. De	escrib	e brie	fly v	vith s	sketcł	1.			5	K2 Understanding	CO2

h

(b) A crop require days find the c	s a total depth of 98cm of wat luty of water.	er for a	base period of 125	5 5	K3 Understanding	CO3
S Rullmin Course Incharge	HOD CV		M IQAC- Coordinate))r	۲. Corro (Principal	5
	Professor & Head Dept. of Civil Engineering K.S. Group of Institutions K.S. School of Engineering	romont		Dr. K S School	K. RAMA NARAS Principal/Director of Engineering and Bengaluru - 560 1	IIVintA r I Managen 09

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K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU-560109 DEPARTMENT OF CIVIL ENGINEERING SESSION: 2023-2024 (ODD SEMESTER) II SESSIONAL TEST QUESTION PAPER

SET-B

			2. 1 a 1		1917 - 1 1917 - 1 1917 - 1	USN					ж. Т		
Degree Branch Course Title Duration	::	B.E Civil Engine Hydrology &v 60 Minutes	eering water resource	Engineering	Semester Date Course C Max Mar	Code rks	::	V 8 - 21 20	-02- CV	202 51	4		

\sim						Not	e: An	swer (ONE	full o	uestic	n from	m eac	h par	t		
	Q. No						Que	estion							Mar ks	K Level	CO
	1.0.									PA	RT-A						
	1(a)	Explain the	ste	ps of	f deri	vatio	n for s	simple	stor	m hy	drogr	aphs.			5	K2 Understanding	CO2
	(b)	Determine a ensure effici 27%, perma effective dep the given cro	afte ien ine oth	erhov tirri ntw ofro = 111	w ma gatio ilting oot z mm.	any da on of g poin one =	the gint=14 75cn	ill you iven c %, dr n, dail	y de	oly w if fi nsity nsum	vater t led ca of s of s	o soil pacit oil = use c	in or y of 15K of wa	rder to soil = N/m ³ ter for	5	K3 Applying	CO3
										(DR						
	2(a)	Mention the	as	sumj	ption	s and	appli	cation	sof	ınit l	nydrog	graph.		,	5	K2 Understanding	CO2
	(b)	A crop requi days find the	res e d	a to uty o	tal de f wa	epth o ter.	of 92ci	m of v	vater	for a	ı base	perio	d of	120	5	K3 Applying	CO3
										PA	RT-B						
١	3(a)	Rain fall magnitude 3.8cm and 2.8cm occurring on two consecutive 4-h durations on a catchment of area km^2 produced the following hydrograph of flow at the outlet of the catchment. Estimate the rainfall excess and \emptyset -Index									1 1 - 5	K3 Understanding	CO2				
		Time(h)	0	6	12	18	24	30	36	42	48	54	60	66			
		Observed flow m ³ /s	5	13	26	21	16	12	9	7	5	5	4.5	4.5			
	(b)	Enumerate	in	detai	l cro	p seas	sons ir	n India	a.						5	K2 Understanding	CO3
										()R						
	4(a)	Given the ordinates of 4-h unit hydrograph. Derive the ordinates of 12-hour unit hydrograph for the same catchment. Find the peak value of discharge and the corresponding time interval observed in 4-h and 12-h unit hydrograph. Time(h) 0 4 8 12 16 20 24 28 32 36 40 44 ordinates 0 0 0 150 160 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 160 150 150 150 150 150								t e 5	K3 Applying	CO2					
		of,4-h U.H	0	20	80	130	150	130	90	52	27	15	05	0			

(b)	Discuss any :	5 factors affecting duty.		5	K2 Understanding CO3
Cøu	Rulani rse Incharge	HOD CV	IQAC- Coordinator	(*	Principal
		Professor & Head Dept. of Civil Engineering K.S. Group of Institutions K.S. School of Engineering & Management Bangalore-560 062.	KSS	Dr. K. RA Prir School of En Beng	AMA NARASIMHA Icipal/Director gineering and Management aluru - 560 109



K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU-560109 DEPARTMENT OF CIVIL ENGINEERING SESSION: 2023-2024 (ODD SEMESTER) III SESSIONAL TEST QUESTION PAPER

SET-A

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Degree:B.EBranch:Civil EngineeringCourse Title:Hydrology &water resource EngineeringDuration:60 Minutes	Semester Date Course Code Max Marks	: : :	V 13 -03-2024 21CV51 20	
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	Note: Answer ONE full question from each pa	art		
Q. No.	Question		K Level	CO
	PART-A			
1(a)	With a neat sketch Explain different zones of storage in reservoir.	5	K2 Understanding	CO
(b)	What is flood management? Discuss in detail the causes of flood.	5	K2 Understanding	СО
	OR			
2(a)	Enumerate the basic differences between Lacey's and Kennedy's theory.	5	K2 Understanding	CO4
(b)	Briefly Explain drought contingency plan.	5	K2 Understanding	CO
	PART-B			
3(a)	A channel section has to be designed for the following data: Discharge = 30cumecs. Silt factor = 1.00 Side slope= 1/2:1 Find also the longitudinal slope.	5	K3 Applying	CO4
(b)	Describe briefly rain water harvesting.	5	K2 Understanding	COS
	OR	1	i i	
4(a)	Design an irrigation channel on Kennedy's theory, to carry a discharge of 45cumecs. Take N=0.0225 and m= 1.05. The channel has a bed slope of 1 in 5000.	5	K3 Applying	CO4
(b)	Discuss in detail small dams & its advantages.	5	K2 Understanding	CO

Course Incharge

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K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU-560109 **DEPARTMENT OF CIVIL ENGINEERING** SESSION: 2023-2024 (ODD SEMESTER) **III SESSIONAL TEST QUESTION PAPER**

SET-B

	USI	N					
Degree : B.E Branch : Civil Engineering Course Title Hydrology &water resource Engineering Duration : 60 Minutes	Semester Date Course Code Max Marks	::	V 13 21 20	-03 CV5	-2024 51		

	Note: Answer ONE full question from each part			
Q. No.	Question		K Level	со
	PART-A			
1(a)	Define canal. Classify the canal based on various conditions.	5	K2 Understanding	CO4
(b)	Explain briefly flood walls, flood ways and Levees.	5	K2 Understanding	CO5
	OR			
2(a)	With a neat sketch Illustrate the procedure of determining reservoir capacity for a specific yield using the mass-inflow curve.	5	K2 Understanding	CO4
(b)	What is flood management? Discuss in detail the causes of flood	5	K2 Understanding	CO5
	PART-B		19 19 10 10	
3(a)	Design an irrigation channel on Kennedy's theory, to carry a discharge of 45cumecs. Take $N=0.0225$ and $m=1.05$. The channel has a bed slope of 1 in 5000.	5	K3 Applying	CO4
(b)	Enumerate on restoration and rejuvenation of water bodies	5	K2 Understanding	CO5
	OR			
4(a)	A channel section has to be designed for the following data: Discharge = 30cumecs. Silt factor = 1.00 Side slope= 1/2:1 Find also the longitudinal slope.	5	K3 Applying	CO4
(b)	Discuss in detail the causes of drought.	5	K2 Understanding	CO5

Course Incharge

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IQAC- Coordinator

Principal Dr. K. RAMA NARASIMHA Principal/Director K S School of Engineering and Manageme Bengaluru - 560 109



K.S. SCHOOL OF ENGINEERING AND MANAGEMENT

First Internal	Test					2	
Q.No.	Marks	со	Q.No.	Marks	со	СО	Total
1(a)			3(a)				
1(b)			3(b)			(0)	10
1(c)			3(c)			0	
	OR			OR		102	10
2(a)	Б	lo_1	4(a)	5	001		
2(b)	5	\mathcal{O}_{2}	4(b)	5	Co,		
2(c)			4(c)			Grand Total	20

Second Internal Test

Q.No.	Marks	СО	Q.No.	Marks	СО	СО	Total
1(a)			3(a)			<u> </u>	
1(b)		:	3(b)			. Co2	10
1(c)	1940 A		3(c)			Cm	
	OR			OR		3	l
2(a)	5	602	4(a)	5	Co_2		
2(b)	5	(02	4(b)	5	Co		
2(c)		0	4(c)		25	Grand Total	20

Third Internal Test

Q.No.	Marks	СО	Q.No.	Marks	СО	CO	Total
1(a)			3(a)			10.	10
1(b)			3(b)			4	10
1(c)			3(c)			0	15
l.	OR			OR		(3	[0
2(a)	5	Coy	4(a)	5	Coy		
2(b)	5	(05	4(b)	5	(6.		
2(c)			4(c)		~ ,	Grand Total	20

Signature of the Staff