Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Highway Engineering

Subject Code: 4TE04HYE1 **Branch: B.Tech (Civil)**

Semester: 4 **Date: 17/05/2017** **Time: 02:00 To 05:00** **Marks: 70**

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1		**Attempt the following questions**	**(14)**
	a)	What is road alignment?	(1)
	b)	What do you understand by degree of curves?	(1)
	c)	AASHO stands for……..	(1)
	d)	What is soil stabilize road?	(1)
	e)	Draw a neat sketch of simple circular curve.	(1)
	f)	What is mud pumping?	(1)
	g)	Define design speed.	(1)
	h)	Define flexible pavement.	(1)
	i)	What do you understand by word dead man?	(1)
	j)	Define widening of road on curves.	(1)
	k)	What is screening?	(1)
	l)	Draw a sketch showing component parts of road pavement structure.	(1)
	m)	What is super elevation?	(1)
	n)	Define road camber.	(1)

Attempt any four questions from Q-2 to Q-8

Q-2		**Attempt all questions**	**(14)**
	A)	Give some reasons for the poor state of road development in India?	**(3)**
	B)	What is mean by minimum gradient in highway? Why it is provided?	**(4)**
	C)	Explain the necessity of soil investigation and subsoil exploration.	**(7)**
Q-3		**Attempt all questions**	**(14)**
	A)	Why joints are provided in cement concrete pavement?	**(3)**
	B)	Explain PIEV theory.	**(4)**
	C)	Explain the engineering surveys needed for locating a new highway.	**(7)**
Q-4		**Attempt all questions**	**(14)**
	A)	Explain the procedure for calculating the length of valley curves.	**(7)**
	B)	Explain the method of construction of cement concrete road.	**(7)**

Q-5		**Attempt all questions**	**(14)**
	A)	A valley curve is formed due to two gradients +3.5% and -2.75%. if the design speed of this highway is 80kmph, determine the stopping sight distance and design the valley curve to fulfill both comfort and head light distance condition.	**(7)**
	B)	Derive an expression for the extra widening of road.	**(7)**
Q-6		**Attempt all questions**	**(14)**
	A)	Explain the detail about second twenty year road plan.	**(7)**
	B)	Discuss briefly various requirement of an ideal highway alignment. What are obligatory points? Discuss how these control the alignment.	**(7)**
Q-7		**Attempt all questions**	**(14)**
	A)	For a two lane straight level road, calculate the length of OSD for design speed of 96kmph. Assume necessary data.(A=2.5kmph/sec)	**(7)**
	B)	State the use of signals in road traffic.	**(3)**
	C)	What are the significant recommendations of jaykar committee report?	**(4)**
Q-8		**Attempt all questions**	**(14)**
	A)	Calculate the SSD required to avoid head on collision of two cars approaching opposite direction at a speed of 75kmph and 85kmph.assume that the reaction time of driver be 2.5 secs and co-efficient between road surface and tyres be 0.4.	**(4)**
	B)	What are the requirements of good aggregate?	**(3)**
	C)	What is WBM? Explain the construction method of WBM.	**(7)**