Register Number:……..

KUMARAGURU
college of technology
character is life

B.E DEGREE EXAMINATIONS: MAY 2017

(Regulation 2014)

Sixth Semester

CIVIL ENGINEERING

U14CET604**:** Railways, Airport and Harbour Engineering

COURSE OUTCOMES

CO1: Perform Geometric Design of Permanent Way

CO2: Plan for location of Railway Station, Yards and other amenities

CO3: Prepare layout for Airport and classify the Airport

CO4: Perform the Geometric design of Airport Components

CO5: Prepare the plan for various Harbour Structures

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match the Following terms CO1 [K_1]

List I	List II
A. Flat – Footed	i. Suspended Joint
B. Rails are fixed to the wooden sleepers with the help of	ii. Supported Joint
C. Sleeper is placed exactly below a rail joint	iii. Rail Section
D. A rail joint when placed at the centre of two consecutive sleepers	iv. Spikes

	A	B	C	D
a)	ii	i	iii	iv
b)	iii	iv	ii	i
c)	ii	iv	iii	i
d)	iii	i	ii	iv

2. As per the Indian Railways Standard the rail length for Broad Gauge will be CO1 [K_2]

a) 13m b) 12m

c) 10m d) 18m

3. Which of the following statement is correct CO2 [K_2]

1. Plate laying consists of laying rails, sleepers and fastenings
2. Measured shovel packing is the modern method of track maintenance
3. Track re-laying does not require survey of sections
4. Way side station is also called the flag stations

a) 1,3 b) 1,4

c) 1,2 d) 2,3

4. In Indian Railways the extensively used new technique in improving soil properties is CO2 [K_3]

a) Sand Piling b) Geo textile

c) Packing up slack d) Track Machines

5. Assertion (A): Runway is oriented in the direction of prevailing winds CO3 [K_2]

Reason (R): This enables the aircraft come to halt early during landing

a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A

c) A is true but R is false d) A is false but R is true

6. Federal Aviation Organization (FAA) was formed in CO3 [K_1]

a) India b) China

c) Japan d) USA

7. Correction to runway takeoff length requires CO4 [K_4]

1. Correction for elevation
2. Correction for Gradient
3. Correction for Temperature
4. Correction to Runway Landing Length

a) 2-3-4-1 b) 1-3-2-4

c) 3-4-2-1 d) 4-1-3-2

8. The orientation of the runway is in the direction of CO4 [K_5]

a) NE-SW b) NW-SW

c) N – S d) E – W

9. Assertion (A): The satellite port is a port which reduces the thrust of a main port/Harbour. CO5 [K_2]
Reason (R): Ennore port is the Satellite port of Chennai port/ Harbour

a) Both A and R are Individually true and R is the correct explanation of A
b) Both A and R are Individually true but R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

10. The structure for berthing of vessels for loading and unloading cargo and passengers CO5 [K_2]

a) Jethy
b) Pier
c) Quay
d) Breakwater

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11.	Define Sleeper Density. State its Importance	CO1	[K_1]
12.	Define term 'Grade Compensation'.	CO1	[K_2]
13.	Differentiate between gravity yard and hump yard	CO2	[K_2]
14.	List out the essentials of Track Maintenance	CO2	[K_1]
15.	What are the components of Airport?	CO3	[K_1]
16.	List the types of Parking.	CO3	[K_2]
17.	Name the geometric design elements of Runway	CO4	[K_4]
18.	Name the different types of Marking in Runway	CO4	[K_3]
19.	What is the necessity of Docks?	CO5	[K_5]
20.	Distinguish between Quay walls and Piers	CO5	[K_3]

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 300 words)

Q.No. 21 is Compulsory

21.	(i) What is the function of sleepers? Describe the different types of sleepers used.	(7)	CO1	[K_1]
	(ii) Discuss briefly the various types of gradient in railway track	(7)	CO1	[K_1]
22.	Discuss the different methods for improving the poor subgrade		CO2	[K_3]

23.	How are railway stations classified based on operational and functional characteristics? Explain.	CO2	[K_2]
24.	Describe the various factors to be considered for selection of site for an airport	CO3	[K_4]
25.	Summarize briefly the various Taxiway geometric as recommended by ICAO	CO4	[K_3]
26.	What is wind rose diagram? And explain the procedure for different types of wind rose diagrams	CO4	[K_1]
27.	What is breakwater? What are the causes for failure of breakwater and suggest remedies? Enlist the types of breakwaters commonly used.	CO5	[K_2]

****