Register Number:……..

KUMARAGURU
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B.E DEGREE EXAMINATIONS: MAY 2018

(Regulation 2015)

Sixth Semester

AERONAUTICAL ENGINEERING

U15AEE016: Air Traffic Control and Aerodrome Design

COURSE OUTCOMES

CO1: Describe the procedure of formation of aerodrome and its design.

CO2: Describe the functions of Air Traffic Control and their responsibilities.

CO3: Describe the functions of Radar in Air Traffic Control.

CO4: Interpret Radar Scope data.

CO5: Interpret Aerodrome data

CO6: Identify and describe the importance of visual aids in airports.

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match the following CO2 [K_1]

List I	List II
A. Class C	i. uncontrolled airspace
B. Class A	ii. up to 10,000 msl
C. Class B	iii. above 18,000 msl
D. Class G	iv. nation's busiest airport

	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. In aerodrome reference code 3C, C indicates _____ CO1 [K_2]

a) Wing span between 15 to 30 b) Wing span up to 15

c) Wing span between 24 to 35 d) Wing span between 37 to 44

3. Which of the following statements are correct? CO1 [K_2]

1. In aviation charts, the Grass surface type is represented by GRS
2. An aerodrome reference temperature shall be determined for an aerodrome in degrees Celsius
3. Primary surveillance radar (PSR) system which uses reflected radio signals.
4. Instrument landing system (ILS) uses UHIF for operation.

a) 1,3 b) 1,4

c) 1,2 d) 2,3

4. In the event of an aircraft radio receiver failure, a pilot shall select mode ____ CO5 [K_2]

a) A3 b) C

c) A5 d) B

5. Assertion (A): In the provision for the separation of controlled traffic, Larger separations than the specified minima should be applied whenever exceptional circumstances such as unlawful interference or navigational difficulties call for extra precautions. CO4 [K_3]

Reason (R): This separation should be done with due regard to all relevant factors so as to avoid impeding the flow of air traffic by the application of excessive separations.

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. Precision instrument runways provide _____for instrument approaches. CO5 [K_1]

a) both horizontal and vertical guidance b) horizontal guidance

c) vertical only d) will not give any guidance

7. Sequencing the parts based on the markings on the runways CO6 [K_2]

1. Blast pads
2. Displaced threshold
3. Runway number
4. Aiming point

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

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

8. Magnetic variation is the angular difference between — CO2 [K_1]

a) true north and the direction of the Earth's magnetic field
b) true north and the direction of the Earth's true field
c) true north and true south
d) true north and the direction of the magnetic field

9. Assertion (A): The secondary radar unit transmits and also receives high-frequency impulses
Reason (R): The transponder of an aircraft detects and decodes the radar pulses (interrogation signal) and emits a series of pulses which code the answer to the interrogation. — CO4 [K_2]

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. In VASI, when both sets appear white, the pilot is flying ____ — CO6 [K_2]

a) Too high
b) Too low
c) Relatively high
d) Correct path

PART B (10 x 2 = 20 Marks)
(Answer not more than 40 words)

11. What are the Objectives of the air traffic services? — CO2 [K_1]
12. Define victor airways. — CO2 [K_1]
13. Expand NOTAM and its usage. — CO4 [K_1]
14. Elaborate RNAV and RNP. — CO3 [K_2]
15. Name the different types of wind direction indicator. — CO6 [K_1]
16. Show the Aerodrome elevation with a neat diagram. — CO5 [K_1]
17. List the Visual aids of the aerodrome. — CO6 [K_1]
18. Differentiate apron and taxiway in the airport. — CO1 [K_2]
19. Why landing direction indicator required for an airport? — CO5 [K_2]
20. How do you determine the width of the runway? — CO5 [K_2]

Answer any FIVE Questions:-
PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

Q.No. 21 is Compulsory

21. Explain the Aerodrome information to be provided for a certified aerodrome. — CO5 [K_3]

22.	Demonstrate the procedure of Vertical, lateral and longitudinal separations of the aircraft based on time / distance.		CO4	[K_2]
23.	Describe the classification of air spaces.		CO2	[K_2]
24.	Illustrate the runway lighting and markings details with neat sketches.		CO6	[K_2]
25.	i. Interpret the use of radar in area and approach control services	(7)	CO3	[K_2]
	ii. Outline all the aerodrome charges for airlines and passengers.	(7)	CO1	[K_2]
26.	i. Discuss the types of runways with necessary figures.	(7)	CO6	[K_2]
	ii. Give details on airport obstructions.	(7)	CO1	[K_2]
27.	Develop the divisions of the responsibility of control in air traffic services.		CO2	[K_2]

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