

NAME.....INDEX NO.....ADM.NO.....

CLASS.....CANDIDATE'S SIGNATURE.....DATE.....

450/1

AVIATION

PAPER 1

TIME: 2 ½ HOURS

KAMDARA JET - 2016

INSTRUCTIONS TO CANDIDATES

- Candidates should have the following materials for this examination.
Drawing instruments
Drawing paper size A3
- This paper consists of TWO sections A and B
- Answer ALL the questions in section A on the spaces provided.
- All dimensions are in millimeters unless otherwise stated.

For examiners only

section	Question	Maximum score	Candidates score
A	1-10	44	
B	11	14	
	12	14	
	13	14	
	14	14	
	15	14	
Total			

This paper consists of 14 printed pages candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.

SECTION A (44 MARKS)

Answer all questions in this section.

1. Outline three roles of aircraft dispatcher in airport operations. (3mks)

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2. a) Explain four precautions to be observed when working with compressed gases in bottles. (2mks)

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- b) State four perceived reasons for aircraft general accidents (2mks)

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3. a) state four reasons of using composite materials in modern aircraft construction. (2mks)

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4. Differentiate between the following

a) Apron and hangar

(2mks)

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b) Ramp and parking

(2mks)

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5. a) Differentiate between laminar and turbulent boundary layers.

(2mks)

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b) Using sketches discuss the forces which act on aircraft in flight.

(4mks)

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c) Explain the following types of drag

(4mks)

(i) Skin friction

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(ii) Form drag

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6. Explain four mechanical properties of metals that make them qualify to be used on the
airframe

(4mks)

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7. a) Outline four properties that a good hydraulic system should have.

(2mks)

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b) State the functions of each of the following components in an aircraft hydraulic system. (4mks)

(i) Actuating cylinder

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(ii) Selector valve

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8. a) Describe the behavior of a totally stable aircraft. (1mk)

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b) Explain two design features which promote lateral stability. (2mks)

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c) Explain the methods of balancing control surfaces.

(2mks)

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9. State the meaning of the following aircraft flight systems.

(2mks)

(i) RMI

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(ii) VOR

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(iii) GPS

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(iv) ILS

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10. Draw the following types of line and explain their function on technical drawing.

(4mks)

(i) Centre line

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(ii) Dotted line

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(iii) Bold line

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(iv) Border line

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SECTION B

*Answer any **four** questions from this section.*

11. Draw in first angle projection the :

(14 marks)

- i) Plan
- ii) End elevation
- iii) Front elevation

Viewed from shown direction.

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12. With the aid of a sketch explain the construction and operation of air speed indicator.

(14 marks)

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13. With aid of a graph diagrams explain how air flows in :-

(14 marks)

- a) Axial flow compressor
- b) Centrifugal compressor

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14. Using sketches explain how to pitch an aircraft:

(14 marks)

- (i) Nose up
- (ii) Nose down

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15. With the aid of sketches explain the following types of aircraft structures.

- (i) Truss (4 marks)
- (ii) Monocoque (5 marks)
- (iii) Semi – monocoque (5 marks)

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