Candidate's Examination Number_____

042

SMZ

ZANZIBAR EXAMINATIONS COUNCIL

FORM THREE ENTRANCE EXAMINATION

PHYSICS

TIME: 2.30 Hours WEDNESDAY 30th NOVEMBER 2016 AM.

INSTRUCTIONS TO CANDIDATES

1. This paper consists of THREE (3) sections A, B and C.
2. Attempt ALL questions in section A and B. In section C, attempt only two (2) questions. Question 9 is compulsory.
3. All answers must be written in the space provided.
4. Write your examination number on each page.
5. Cellular phones are not allowed in the examination room.
6. Where necessary the following constants may be used.
   i) Acceleration due to the gravity, $g=10m/s^2$ ii) Pie, $\pi = 3.14$

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	MARKS	SIGNATURE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10		
11.		
TOTAL		

THIS PAPER CONSISTS OF 18 PRINTED PAGES

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SECTION A: (30 Marks)

Answer ALL questions in this section

1. **Write the letter of the most correct answer in the table below**

i. The SI Unit of force is

A: kilogram B: Newton

C: Joule D: Pascal

ii. The shortest length that can be accurately recorded or measured by meter rule is

A: 0.02 mm B: 0.2mm

C: 0.2cm D: 0.02cm

iii. A lever which has its fulcrum between the effort and the load is said to be of

A: First class B: Second class

C: Third class D: No class

iv. The area under a speed against time graph represents

A: Distance B: Displacement

C: Velocity D: Speed

v. The human body temperature is 36°C. In the absolute temperature scale, this temperature is equivalent to

A: 309.9 C B: 309.9 K

C: 309.8 C D: 309.8 K

vi. The following are good examples of magnetic materials

A: Copper and glass B: Nickel and cobalt

C: Cobalt and glass D: Copper and nickel

vii. The principle of fluid of pressure which is used in hydraulic press is the

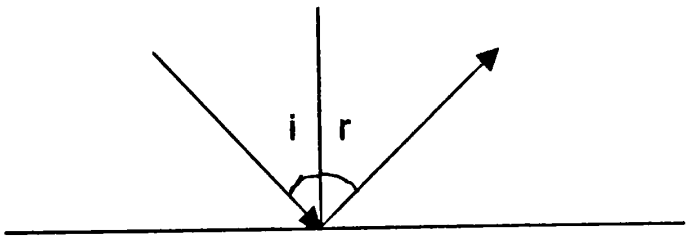
A: Pressure is the same level at all level in a fluid

B: Increase of pressure are transmitted equally to all part of the fluid

C: Increase of pressure can only be transmitted through solid

D: Pressure at the point act equally

viii. Which of the following is true about the figure below?



A: Angle i is not equal to the angle r

B: Angle i is greater than the angle r

C: Angle r is less than angle i

D: Angle of incident is equal to the angle of reflection

ix. Which of the following apparatus is used for measuring the volume of irregular solid?

A: Pipette B: Beaker

C: Measure ring cylinder D: Meter rule

x. The stable equilibrium condition has

A: Minimum K.E B: Maximum P.E

C: Minimum P.E D: Maximum K.E

ANSWERS

i	ii	iii	iv	v	vi	vii	viii	ix	x

2) Match the item in **LIST A** with responses in **LIST B** by writing the letter of correct response in the table below.

LIST A	LIST B
i) Hydrometer	A. Positive charged particles of the nucleus
ii) Proton	B. Extension of the spring is proportional to the applied force
iii) Turning effect	C. Measure specific gravity of liquids
iv) Push or pull	D. A point in magnetic field where the resultant field is zero
v) Neutral point	E. Uniform retardation
vi) Efficiency	F. Oil and natural gas
vii) The rate of decrease of constant velocity	G. Constant current
viii) Hook's law	H. The percentage of the ratio of output work to input work
ix) Non renewable energy	I. Newton's second law of motion'
x) Series connection	J. Moment
	K. Force

ANSWERS

i)	ii)	iii)	iv)	v)	vi)	vii)	viii)	ix)	x)

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3) For each of the item **(i – x)** fill in the spaces by writing the correct answer.

i. In an oil or kerosene lamp _____ drawn the fuel up into the wick where it can be burnt.

ii. Attraction force between the molecules of different substance is called _____.

iii. According to Archimedes principle upthrust is equal to _____.

iv. Mass is the quantity_____ in an object and measured by using _____.

v. The objects or bodies that emit their own light are known as _____.

vi. If the acceleration of the object is zero, its velocity must be _____.

vii. Wheel barrow and bottle opener are in _____ class leaver.

viii. The point of an object, where the force of gravity is concerned to be acting is called_____.

ix. The presence of electric charge in a body can be detected by means of _____.

x. The resultant force obtained by summing up individual force acting on a body or in a given direction is called _____.

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SECTION B: (50 Marks)

Answer ALL questions in this section

4. a) Define the following terms

i. Sinking

_____

_____

_____

_____

ii. Floating

_____

_____

_____

_____

b) Explain briefly why a body weighs more in air than when immersed in liquid.

_____

_____

_____

_____

_____

_____

_____

c) A body weighs 30N in air but when it is completely immersed in water the body weighs 12N

Calculate

i. The apparent loss in weight of body

ii. The volume of water displaced

5. a) Define the term force and state its SI unit.

b) Distinguish between stretching force and restoring forces.

c) A rocket moves upward with a force of 1000N. if its mass is 200kg.

Calculate

i. its weight

ii. its acceleration

6. a) Define the term moment of force and state its SI unit.

b) State the conditions for body to be in equilibrium when subjected to the number of parallel force.

c) A body of mass 10 kg sits at a distance of 1.5m from the pivoted of the see saw. If another body of mass 20kg sits at the distance 1m from the pivot. Will the see saw balance horizontally?

_____

_____

_____

_____

_____

_____

_____

7. a) State the laws of reflection.

_____

_____

_____

_____

b) Describe the four (4) characteristics of image formed by a plane mirror.

_____

_____

_____

_____

_____

c) When two plane mirrors are placed at angle of 60^0. How many images are formed?

_____

_____

8. a) State the basic law of magnetisms.

b) Distinguish between the magnetic and non magnetic material and give two (2) examples in each.

c) Explain how you can determine the position of the North Pole of a bar magnet.

SECTION C: (20 Marks)

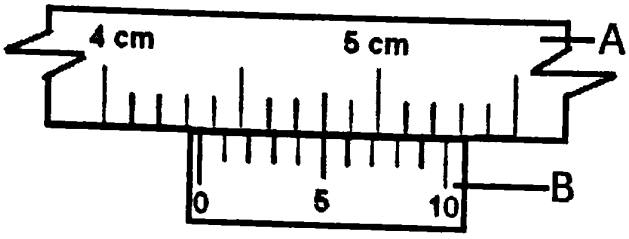
Choose any two (2) questions in this section. Question 9 is COMPULSORY; answer either 9(a) or 9(b).

9. a) An experiment made by two students from Mtakuja Secondary School to determine the resistance of the given conductor was carried out and part of the results were as follows:

Voltage (v)	2	6	10	14	18
Current (I)	0.1	0.4	0.7	1.0	1.3

i. Plot the graph of V against I (on the graph paper at the back).
ii. Find the slope of the graph.
iii. What does the slope represent?
iv. State the law that obeys this experiment.

b) I. The diagram below shows parts of the instrument used for measuring the length of the object.



Referring to the above figure, answer the following questions:

i. Write the name of the scale labeled A and B.

_____

_____

ii. Record the reading registered by this instrument if the scale B is calibrated in mm.

_____

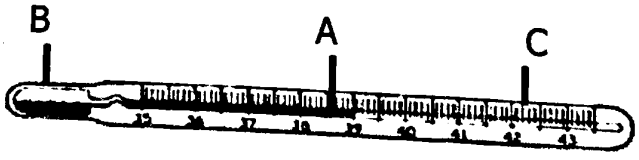
_____

iii. Write the name of this instrument.

_____

_____

II. Referring to the figure below, answer the following questions:



i. Name the type of the thermometer shown above.

_____

_____

ii. Record the reading registered by this instrument.

iii. Name the parts labeled A, B and C in the above figure.

10. a) How is electricity produced from

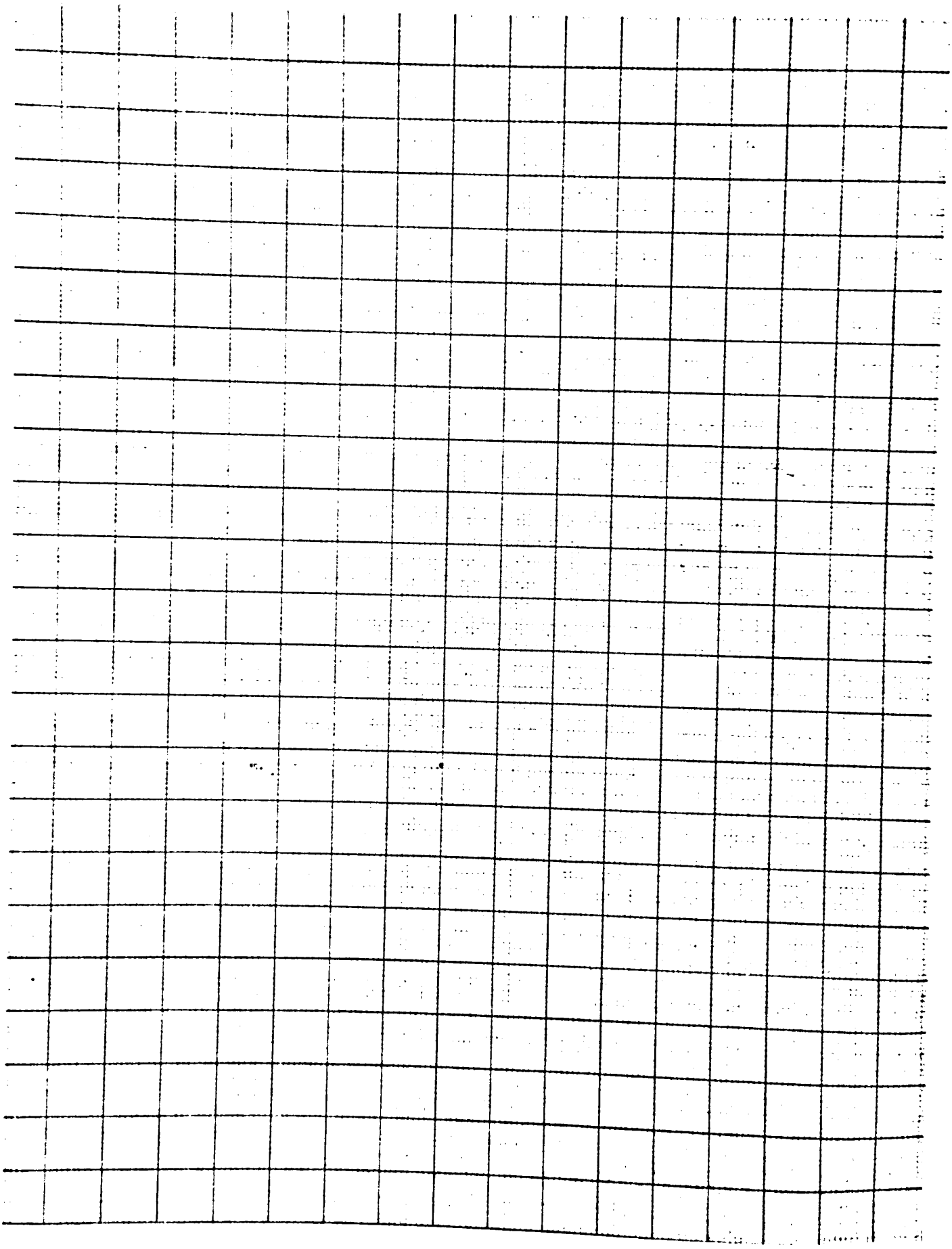
i. Water

ii. Wind

b) Explain the application of solar energy.

11. a) Draw a well labeled diagram of a bicycle pump.

b) Explain the mode of action of the bicycle pump.



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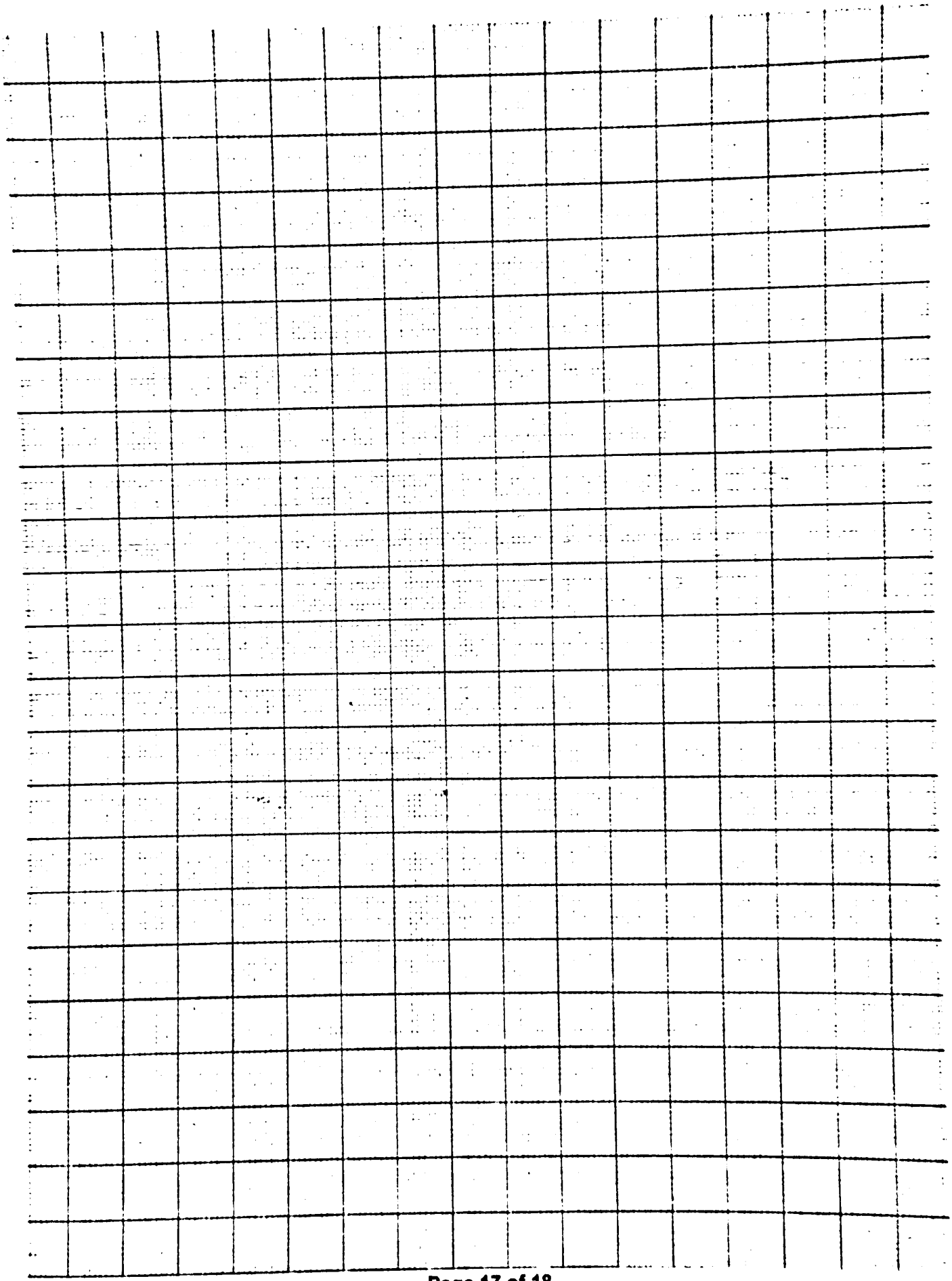

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FOR ROUGH WORK