ALOHA® J&K

Question Paper

MAINS ALOHA GAT 2016-17

Class: **10th**
Max Marks: **200**
Total Number of Printed Pages: **7**

Total No. of Questions: **14**
Time Allowed: **2 hr 50 min**

SECTION 1-SCIENCE

LONG ANSWER TYPE

1. An object of 5cm length is held 25cm away from a converging lens of focal length 10cm. Draw a ray diagram and find position, size and the nature of the image formed.

   OR

   A copper wire has diameter 0.5mm and resistivity of 1.6×10^{-8} Ωm. What will be the length of this wire to make its resistance 10Ω? How much does the resistance change if the diameter is doubled?

2. What are the different chemical properties of Carbon Compounds? Illustrate your answer with examples?

   OR

   Describe the structure of nephron. Write down their role in excretion.

[10 x2 = 20 marks]

3. **SHORT ANSWER TYPE** (Do any three)
   i. Calculate the number of electrons constituting one coulomb of charge.

ii. What is Atomic radius? How does the atomic radii of the of the elements change in a group?

iii. What are decomposition reactions? Write one equation each for decomposition reactions where energy is supplied in the form of heat, light and electricity.

iv. How does the embryo get nourishment inside the mother's body?

v. How does the creation of variations in a species promote survival?

[6 x 3 = 18 marks]

4. **VERY SHORT ANSWER TYPE**

a. Define refractive index?

b. The number of joules in 1kWh is _____?

c. What type of connection is used in house hold circuits.

d. Write the balanced equation for the following chemical reaction:

Barium Chloride + Aluminum Sulphate →Barium Sulphate + Aluminum Chloride

e. Why is carbon tetravalent?

f. Name three alkaline earth metals which form a Dobereiner's triad.

g. What is scum?

h. Development of ovum from an unfertilized egg is called _____.

i. Name the harmone that controls the water and electrolyte balance in our body.

j. What is homeostasis?

k. The process common to aerobic and anaerobic respiration is _____.

[2 x 11 = 22 marks]

SECTION 2a-SOCIAL STUDIES

LONG ANSWER TYPE

5. What did the print culture in the 19th century India mean to women & the poor?

OR

What was Civil Disobedience Movement? What were its aims?

6. Human activities affected the depletion of flora & fauna? Explain.

Or

Write down the basic objective of forest policy in Jammu & Kashmir?

[10 x2 = 20 marks]

7. **SHORT ANSWER TYPE** (Attempt any three questions)
   i. Write a short note on resource development?
   ii. Why women workers in Britain attracted the spinning jenny?
   iii. What is meant by land degradation?
   iv. Enumerate the difference between a national party & a regional party?
   v. What is the status of women's representation in India's legislation bodies?

[6 x 3 = 18 marks]

SECTION 2b-CURRENT AFFAIRS

8. Write a short note on the following: (any two)
   a. Demonetization
   b. Jammu and Kashmir Parliamentary by-polls
   c. Cow vigilantism in India
   d. Flood Control measures in J&K

[5 x 2 = 10 marks]

9. **MCQ/Objective Type Questions:**
   i. Which Indian personality has joined UNICEF's 'Super Dads' campaign?
      a. Amitabh Bachchan b. Sachin Tendulkar
      c. Shah Rukh Khan d. Rajyavardhan Singh Rathore
   ii. Which country has officially become the new member of North Atlantic Treaty Organization (NATO)
      a. Mozambique b. Cuba
      c. Montenegro d. Austria

iii. Adnan Khashoggi, the world famous arms dealer passed away. He hailed from which country?

a. Iran b. Israel
c. Italy d. Saudi Arabia

iv. India's first underwater metro tunnel will come up in which city?

a. Mumbai b. Kolkata
c. Kochi d. Pune

v. Which Indian state has highest number of child Labourers, as per latest Child Rights and You (CRY) report 2017?

a. West Bengal b. Uttar Pradesh
c. Maharashtra d. Bihar

vi. Who has become the new brand ambassador to promote Goods and Services Tax (GST)?

a. Aamir Khan b. Amitabh Bachchan
c. Sachin Tendulkar d. P T Usha

vii. Which city has become the India's first city to use robot to control unruly traffic?

a. Indore b. Pune c. Kochi d. Raipur

viii. Which city has become the India's first city to deliver diesel at home?

a. Guwahati b. Shillong c. Bengaluru d. Pune

ix. SAS is a :

a. Geostationary Communication Satellite
b. Remote Sensing Satellite
c. Weather forecast Satellite
d. Spy Satellite

x. India's longest road bridge inaugurated by PM Modi connects Assam to_____.

xi. India's first Bio-GNG fuel plant was inaugurated on 14th August , 2016 at _____.

xii. When was demonetization announced by the Modi government.

[12 x 1 = 12 marks]

SECTION 3-MATHEMATICS

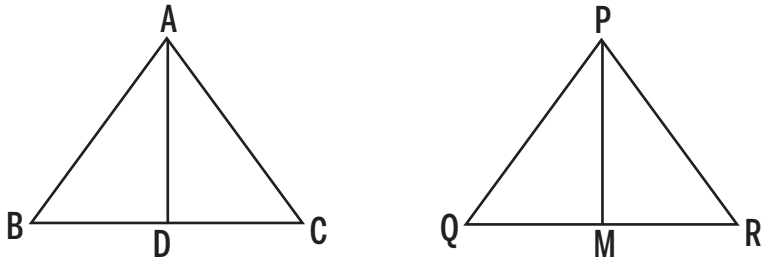
10. A statue, 1.6 m tall, stands on the top of a pedestal. From a point on the ground, the angle of elevation of the top of the statue is 60^0 and from the same point the angle of elevation of the top of the pedestal is 45^0. Find the height of the pedestal.

OR

Draw a triangle ABC with side BC = 7 cm, $\angle B = 45^0$, $\angle A = 105^0$. Then, construct a triangle whose sides are ¾ of the corresponding side of the trangle ABC.

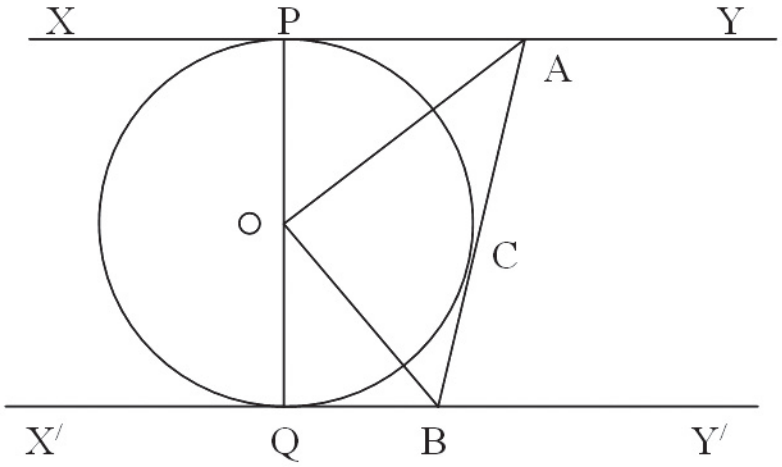
11. Side AB and AC and median AD of a trangle ABC are respectively proportional to side PQ and PR and median PM of another trangle PQR.

Show that ABC ~ PQR.



OR

In XY and X' Y' are two parallel tangents to a circle with center O and other tangent AB with point of contact C intersecting XY at A and X' Y' at B. Prove that $\angle AOB = 90^0$.



[10x2=20 marks]

12. **Attempt any three questions:**

i. Find all the zeroes of $2x^4 - 3x^3 + 6x - 2$, if you know that two of its zeroes are $\sqrt{2}$ and $-\sqrt{2}$

ii. Use Euclid's division lemma to show that the square of any positive integer is either of the form 3m or 3m + 1 for some integer m.

iii. A well of diameter 3m is dug 14 m deep. The earth taken out of it has been spread evenly all around it in the shape of a circular ring of width 4 m to form an embankment. Find the height of the embankment.

iv. If A, B and C are interior angles of a triangle ABC, then show that

$$\sin\left(\frac{B+C}{2}\right) = \cos\frac{A}{2}$$

v. The altitude of a right triangle is 7 cm less than its base. If the hypotenuse is 13 cm, find the other two sides.

[6x3=18 marks]

13. **MULTIPLE CHOICE QUESTIONS**

i) The probability of an event E lies between

a. $0 > P(E) \leq 1$ b. $0 \leq P(E) > 1$

c. $0 \leq P(E) \leq 1$ d. None of the above.

ii) The circumcenter of a triangle is the point of intersection of the:

a) Angle bisectors of the triangle. b) Altitudes of the triangle

c) Perpendicular bisectors of the sides. d) None of the above.

iii) Which of the following points lies in the third quadrant?

a. (4, 6) b. (-1, -2) c. (-4, 5) d. (-4, -3)

iv) Two dependent simultaneous linear equations will have

a. One solution b. Two solutions

c. no solution d. Infinite solutions

v) If $\sin\Theta = \cos\Theta$, then value of Θ is

a. 0^0 b. 45^0 c. 30^0 d. 90^0

vi) Which of the following is correct?

a. $1 + \tan^2\Theta = \sec^2\Theta$ b. $1 + \sec^2\Theta = \tan^2\Theta$

c. $1 - \tan^2\Theta = \sec^2\Theta$ d. $1 - \sec^2\Theta = \tan^2\Theta$

vii) If p,q are two consecutive natural numbers, then HCF (p,q) is:

a. q b. p c. 1 d. pq

viii) When the length of the shadow of a pillar is equal to its height, the elevation at source of sight is:

a. 30^0 b. 45^0 c. 60^0 d. 90^0

ix) The circle which touches all the sides of a triangle is called

a. Incircle b. Circumcircle

c. excircle d. none of these

x) If in two triangles ABC and DEF

$$\frac{AB}{EF}=\frac{AC}{FD}=\frac{BC}{ED}$$

Then $\triangle ABC \sim$

a. $\triangle FED$ b. $\triangle EDF$ c. $\triangle DEF$ d. $\triangle EFD$

xi) Number 2 is

a. an odd number b. a composite number

c. a prime number d. None of the above

[11x2=22 marks]

14. **SECTION 4-GENERAL ESSAY**

Write an essay on any one of the following (200-250 words)

1. Muhammad (SAW) the best role model for humanity.
2. Muhammad (SAW) at Madinah
3. Albert Einstein
4. Non Violence and M.K. Gandhi

[20 marks]