

**YOUNG STAR DEFENCE ACADEMY, AMRITSAR**  
**Contact For Admission: +918101313136 Sainik School,**  
**Military School, RIMC**

**ALL INDIA SAINIK SCHOOLS ENTRANCE**  
**EXAMINATION: 2017**

**MATHS, ENGLISH, GENERAL SCIENCE, SOCIAL**  
**STUDIES AND INTELLIGENCE**

**Time: 3 Hrs.**

**Max. Marks: 400**

**Name of Full.....**

**Roll No. ....**

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**INSTRUCTIONS**

1. This question paper contains FIVE sections and you have to answer all questions in the OMR answer sheet. Section "A" Mathematics contains 50 questions of 4 marks each. Section "B" English, Section "C" General Science, Section "D" Social Studies and Section "E" Intelligence contain 25 questions each with 2 marks per question.
2. There is only one correct answer for each question. Darken only one bubble for each question. If you darken more than one bubble, your answer will be treated as wrong.
3. Evaluation of OMR answer sheet will be done on a computer. Ensure no unnecessary markings are made on the OMR answer sheet. Do not fold or attempt to deface the OMR answer sheet. OMR sheets with multiple folds or defaced OMR sheet will not be evaluated.
4. Rough work must be done on the additional two sheets only and NOT on the OMR answer sheet.

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5. Write your answer in Blue/Black ink only. Do not use pencil.
6. There are total 28 pages in the question paper including two pages for the rough work.

## Sainik School Entrance Exam, 2017

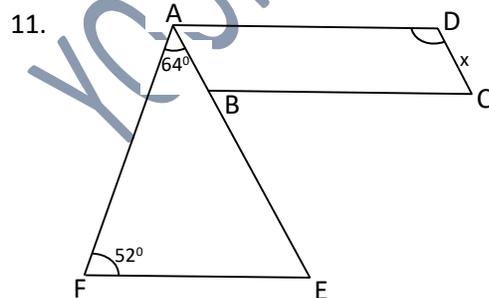
(Class-9)

PAPER-I

### Part-A : Mathematics

\*SECTION-I

1. Find the product of  $(a^2) \times (2a^{22}) \times (4a^{26})$ .
2. Using Euler's formula find the number of faces of polyhedron having 6 vertices & 12 edges.
3. Calculate the value of  $100 \times 8 + 10 \times 1 + 7$ .
4. What is the point of intersection of x-axis and y-axis called?
5. Find the value of x if  $x - \frac{8}{5} = -\frac{12}{9}$ .
6. Eleven bags of wheat flour, each marked 5 kg, actually contained the following weights of flour (in kg) 4.97, 5.05, 5.08, 5.00, 5.06, 5.08, 4.98, 5.04, 5.07, 5.00. what is the probability that any of these bags Chosen at contains more than 5 kg of flour?
7. If  $X = \left[ \left( \frac{56}{28} \right)^0 \div \left( \frac{2}{5} \right)^3 \times \left( \frac{16}{25} \right) \right]$ , then find the value of x.
8. Find cube root of 175616 by factorization method.
9. How many sides does a regular polygon have, if the measure of an exterior angle is  $12^\circ$ ?
10. Evaluate  $\left[ \left( \frac{1}{3} \right)^{-1} - \left( \frac{1}{4} \right)^{-1} \right]^{-1}$

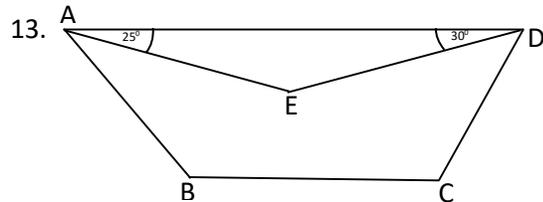


AD  $\parallel$  BC  $\parallel$  EF and AE  $\parallel$  DC

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$\angle AFE = 52^\circ$      $\angle EAF = 64^\circ$   
 $\angle X = \dots\dots\dots$

12. If a spinning wheel has 3 Green sectors, 1 Blue and 2 Red sectors. What is the probability of a getting Green sector?



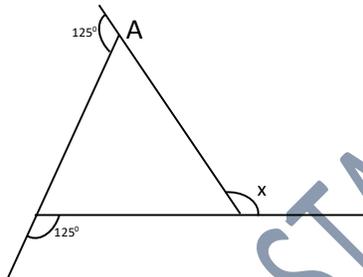
In trapezium  
 AE and DE bisect  $\angle CDA$  and  $\angle DAB$   
 Find  $\angle ABC$  and  $\angle DCB$

14. Two equal sides of an isosceles are each 3 m more than 3 times of third side. Find the length of sides, if perimeter is 34 m.

15. The area of a circle is given as  $\pi x^2 + 10\pi x + 25\pi$ . Find the radius as an algebraic expression.

16. Three numbers are in ratio 1 : 2 : 3 and sum of their cubes is 4500. Find numbers.

17. Find



$X = \dots\dots\dots$

18. A coin is tossed 2 times. What are the total number of possible outcomes?

19. What is the range of data 30, 61, 55, 25, 2, 12, 17, 81?

20. Find the value of  $x^{-2}$  if  $x = (100)^{1-4} / (100)^0$ .

**SECTION (II)**

21. A DVD player and TV were bought for ₹ 8,000 each. The shopkeeper made a loss of interest is 4%. On the DVD player and a profit of 8% on the TV. Find the gain or loss per cent on the whole Transaction.

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22. Arif took a loan of ₹ 80,000 from a bank. If the rate of interest is 10% per annum, find the difference in amounts he would be paying after 1.5 years, if the interest is (a) compounded annually (b) Compounded half yearly.

23. Find the value of:

(i)  $\left[\left(\frac{1}{2}\right)^{-2} + \left(\frac{1}{3}\right)^{-2}\right] + \left(\frac{1}{4}\right)^{-2}$

(ii)  $(3^0 + 4^{-1}) \times 2^2$

24. What least number must be subtracted from 7250 to get a perfect square? Also, find the square root of this perfect square.

25. If  $\left(y^2 + \frac{1}{y^2}\right) = 83$ . Find  $y^3 - \frac{1}{y^3}$

26. A motor boat covers a certain distance downstream in a river in 5 hours. It covers the same distance upstream in 6 hours. The speed of water is 2 km/hr, find the speed of the boat in still water.

27. A dealer buys an article for ₹ 380. At what price must he mark it so that after allowing a discount of 5%, he still makes a profit of 25%?

28. The population of village is 20000. If the birth rate is 5%p.a. and death rate is 3% p.a., find the population after 2 years.

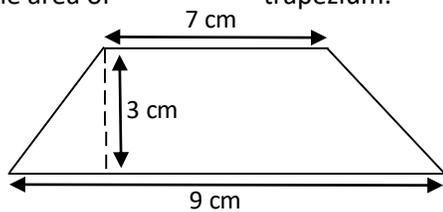
29. The distance between two stations is 550 km. Two trains start at the same time from the two stations on parallel tracks to cross one another. The speed of one train is 10 km/hr more than the other. If after 3 hours, the trains are 40 km apart, find the respective speed.

30. Simplify:  $\frac{(5)^3 \times (10)^{-5} \times 3^{-5}}{5^{-7} \times 6^{-5}}$

31. Show that  $\left(\frac{4}{3} - \frac{3}{4y}\right)^2 + 2xy = \frac{16}{9x^2} + \frac{9}{16y^2}$

32. The ratio between interior and exterior angle of a regular polygon is 8 : 1. Find the number of sides of the polygon.

33. Find the area of trapezium.



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34. Find the height of cuboid whose base area is  $360 \text{ cm}^2$  and volume is  $1800 \text{ cm}^3$ .
35. Represent  $-\frac{3}{7}$ ,  $-\frac{1}{7}$  and  $\frac{2}{7}$  on a number line.
36. Find the length of longest pole that can be kept in a room of  $12 \text{ m} \times 4 \text{ m} \times 3 \text{ m}$ .
37. The diameter of base of a cylinder is  $140 \text{ cm}$  and the volume is  $1.54 \text{ m}^3$ . Find its height.
38. Express  $21^2$  as sum of two consecutive integers.
39. If  $21y5$  is a multiple of 9, where  $y$  is a digit, what is the value of  $y$ ?
40. Divide:  $7(x^3y^2z^2 + x^2y^3z^2 + x^2y^2z^3)$  by  $4(x^2y^2z^2)$

**SECTION-III**

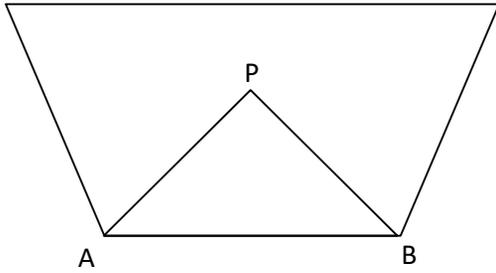
41. The hour hand of a circular clock is  $10 \text{ cm}$  long. How much distance will it cover in 2 days or 48 hrs.
42. A collage is made up of 400 rhombus shaped pieces and 200 trapezium. The diagonals of the Rhombus are  $6 \text{ cm}$  and  $4 \text{ cm}$  long. Lengths of the parallel sides of the trapezium are  $4 \text{ cm}$  and  $8 \text{ cm}$  And the height is  $10 \text{ cm}$ . Find the area of the collage and also the cost of painting it at the rate of ₹  $250$  per  $\text{m}^2$ .
43. The rainwater falling on a roof  $40 \text{ m} \times 25 \text{ m}$  is collected in a cylindrical tank with diameter  $7 \text{ m}$  and Height  $10 \text{ m}$ . If the tank is completely filled, find the height of the rainwater on the roof.
44. MNOPQ is a regular pentagon. The bisector of angle M meets side OP at K. Find measure of  $\angle MKO$ .
45. How many wooden blocks of size  $22 \text{ cm} \times 10 \text{ cm} \times 7 \text{ cm}$  are required to make a wooden partition Of  $11 \text{ m} \times 3.5 \text{ m} \times 40 \text{ cm}$ , if the glue and filling material used occupies one tenth of the wooden Partition?
46. The sides of a swimming pool are  $7 \text{ m}$ ,  $6 \text{ m}$ , and  $15 \text{ m}$ . If  $8400$  litres of water is pumped out, what Is the decrease in water level?
47. Ajit bought  $150 \text{ kg}$  sugar at ₹  $50$  per kg. he sold  $70\%$  of sugar at ₹  $70$  per kg and balance at ₹  $40$  Per kg. Find overall profit/loss on the whole deal.
48. The following table gives the marks scored by 100 students in a Entrance Examination.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	4	10	16	22	20	18	8	2

Represent this data in the form of histogram.

49. Find the number of coins,  $1.5 \text{ cm}$  in diameter and  $0.2 \text{ cm}$  thick, to be melted to form a right Circular cylinder of height  $10 \text{ cm}$  and diameter  $4.5 \text{ cm}$ .
50. In the adjoining figure, the bisectors of A & B meet at a point P.  
If  $C = 96^\circ$  and  $D = 30^\circ$ , find  $\angle APB$ .

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Part-B : Science

Select the correct answer of the following questions.

- The synthetic fibre that appears to resemble wool is:  
(a) PET (b) acrylon  
(c) rayon (d) nylon
- A prominent constellation looking like a distorted form of the letter W or M, is the:  
(a) Cassiopeia (b) Big dipper  
(c) Orion (d) Ursa minor
- An example of a plastic which cannot be remoulded again by simple heating is:  
(a) Polythene (b) PVC  
(c) Polystyrene (d) Bakelite
- Cellulose is made up of a large number of ..... units.  
(a) amide (b) amino  
(c) glucose (d) sucrose
- Relationship between a biotic community and an abiotic environment is called:  
(a) Biodiversity (b) Ecosystem  
(c) Symbiosis (d) Survival
- Lactobacillus bacteria help to make:  
(a) Bread (b) Pastries  
(c) Cake (d) Curd
- World Water day is observed on:  
(a) 24 March (b) 23 March  
(c) 21 March (d) 22 March
- The place meant for conservation of biodiversity in their natural habitat are:  
(a) Zoological gardens  
(b) Botanical gardens  
(c) Wildlife sanctuary  
(d) National Park
- Which of the following is considered a clean fuel?

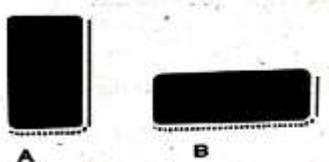
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- (a) Cowdung cake                      (b) Petrol  
(c) Kerosene                            (d) Hydrogen
10. Solution of which of the following oxides in water will change the colour of Blue litmus to Red?  
(a) Sulphur dioxide                      (b) Magnesium oxide  
(c) Iron oxide                              (d) Copper oxide
11. Which one of the following metals does not react with dilute HCl?  
(a) Magnesium                            (b) Aluminium  
(c) Iron                                        (d) Copper
12. The material used for making kitchen container is .....  
(a) PVC                                        (b) Arcylic  
(c) Teflon                                    (d) PET
13. Which of the following will not conduct electricity?  
(a) Lemon juice                            (b) Vinegar  
(c) Tap water                                (d) Vegetable oil
14. Which of the following is not part of solar system?  
(a) Asteroid                                 (b) Satellite  
(c) Constellation                            (d) Comet
15. The phenomenon of 'Marble Cancer' is due to:  
(a) Soot particles                            (b) CFCs  
(c) Log                                         (d) Acid rain

Write answers of the following questions.

16. Why a crackling sound is heard while taking off a sweater during winters?  
17. Differentiate between "Spontaneous and Explosive combustion".  
18. Calorific value of wood is 1800 kJ/kg. How much wood is required to produce heat energy of 144,000 kJ?  
19. A force of 150 N is applied to an object of area 5 m<sup>2</sup>. Calculate the pressure.  
20. How reproduction of Hydra differs from that of Amoeba?  
21. Explain why sliding friction is less than static friction.  
22. How do vaccines work?  
23. Hens and frogs are both oviparous exhibiting different types of fertilization. Explain.  
24. What is meant by Water table?  
25. Distinguish between 'Speedometer' and 'Odometer'.  
26. What is freezing mixture? How common salt helps to clean pavements covered with snow?  
27. Mention the effect of iodine in water on the growth of tadpoles.  
28. Write short note on Adam's apple.  
29. Eyes of nocturnal birds have large cornea and large pupil. How does it help them?  
30. Explain how will you make a tester for testing electric current using a magnetic compass and empty Matchbox, a battery of two cells and connecting wire.  
31. Make sketch of human nerve cell. What functions nerve cell performs?  
32. A block is kept in two different ways on a table as shown in figure. Explain in which positions the Pressure exerted by the block on the table will be maximum.

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33. Do all the stars in sky move? Explain.
34. Explain the process which enables us to perceive motion in a cartoon film.
35. Why CFCs are considered pollutants?
36. Explain 'SOIL PROFILE' using a neat and labeled diagram.
37. Distinguish between metals and non- metals. What are metalloids? Give any two examples of Metalloids.

## Part-A : English Language

1. Read the following passage and answer the questions that follow.

Prafulla Chandra Ray was born on 2 August 1861 in the district of Jessore, now in Bangladesh, close to the birth place of Madhusudan Dutt, widely regarded as the Milton of Bengal. It was the best of times and the worst. The British had by now perfected their role as masters and British values permeated the Indian upper classes to the very last detail like table manners. That of course, was not the worst of the British influence, there were several. What was far more demeaning to the educated Indians was the fact that senior Government positions were closed to them. Being forfeited of one's right in one's land of birth would become the rallying point for the Indian intelligentsia in the years to come.

Ray's father Harish Chandra Ray, a man of learning and taste, was closely associated with the cultural and intellectual leaders of the time and exerted great influence on his son. Ray had his early schooling in the village school founded by his father but soon his father shifted to Calcutta and at the age of nine, little Prafulla set eyes for the first time, on the bustling city that would be his home for many years to come. He was filled with wonder at ever-changing sights and sounds the city seemed to change moods ever so often! His formal schooling was interrupted due to illness but that did not effect his education.

- (a) How did the British perfect their role as masters?
- (b) Educated Indians felt insulted because .....
- (c) Prafulla was greatly influenced by his father because .....
- (d) Prafulla's illness could not stop his learning because .....
- (e) Intelligentsia in the paragraph means .....

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2. Write a paragraph in about 100 words on any one of the following.

- (a) Scene at the Railway Station
- (b) A Day with my Grandparents

3. You are Abhinav a resident of House No. 99, Swachh Street, Sector-9, Bhopal. You feel concerned to see the modern children spending most of their time on the computer and mobile phones and including less in letter to the Editor of 'The Times of India', Fort, Mumbai-400001 expressing your concern about the negative aspects of computer and mobile phones. Write the letter in about 150 Words.

4. Fill in the blanks with appropriate prepositions or adverbs given in the brackets.

- (a) The boy was walking .....(in/along/at) the road when he saw an old man standing ..... (beside/besides/into) a tree.
- (b) When the police searched ..... (for, from, No prepositions) the house, they found the smuggled items were looking ..... (up/for/with) hidden in the kitchen.
- (c) Mohan's brother caught him .....(from/by/at) the neck when Mohan tried to run away ..... Home(across, to, from).
- (d) He spoke ..... (at, in, to) Marathi.
- (e) ..... (At, in, for) the evening, the old man looked out of his window at the children walking One ..... (after/on/behind) the other.

5. Complete the following sentences by choosing the correct phrases from the brackets.

By leaps and bounds , touch down , heart and soul ,  
bring the thieves to book , mend one's way

- (a) The aeroplane will ..... At 2 o' clock.
- (b) The profits of his company are increasing .....
- (c) It took several weeks for the police to .....
- (d) She devoted herself ..... to the pursuit of music.
- (e) Parents' advice always helps one to .....

6. Change the following sentences into Passive or Active Voice as the case may be.

- (a) Did you waste money?
- (b) I was telling you a story.
- (c) She dropped her son at the school.
- (d) Flowers are plucked by Mary.
- (e) The problem was solved.

7. The following sentences are incorrect. Find out the error and write the sentences correctly.

- (a) I went to Goa the last year.
- (b) Is she agree with us?
- (c) I'm not very good for cooking.
- (d) More you read less you understand.
- (e) She dances good.

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8. Write one word for the following group of words.

- (a) An animal living both on land and in water.
- (b) The crime of killing a king.
- (c) A building where animals are killed for meat.
- (d) A great lover of books.
- (e) An unmarried woman.

9. Frame meaningful sentences by using each word.

- |           |            |
|-----------|------------|
| (a) Site  | (b) Incite |
| Cite      | Insight    |
| (c) Alter | (d) Need   |
| Altar     | Knead      |
| (e) Navel |            |
| Naval     |            |

10. You are Ajeet. You feel quite distressed to see that man has been cutting trees indiscriminately for Centuries to fulfill his selfish interest. Increasingly urbanization, rapid industrialization and growing Population are leading to depletion of natural resources, hence, threatening the survival of mankind. You decide to write an article for your school magazine highlighting your views on the need to Conserve nature. Using your own ideas, write the article in about 100-150 words on the topic 'Nature Conservation'.

1. State True/False.

- (a) Viveka Vardhini magazine was started by Kandukuri Veeresalingam.
- (b) The partition of Bengal was ordered by Lord Cornwallis.
- (c) The Vice-President is elected by only the elected members of the Lok Sabha and Rajya Sabha.
- (d) Sikhs from the largest single minority community in India.
- (e) Animal husbandry is the main production activity in the villages of India.
- (f) Sariska Tiger Reserve is situated in Alwar, Rajasthan?
- (g) The rubber plantation vegetation belongs to Tropical Evergreen forest.
- (h) Death rate is also known as moortality rate.
- (i) The prosecution is the legal party which an individual accused of breaking of law.
- (j) Ruhr region of Germany is famous for rich deposits of coal.
- (k) Protection of Woman from Domestic Violence Act, 2000 is an act of the Parliament of India.
- (l) Mother Dairy is the cooperative which has brought about the white revolution in the country.
- (m) BPL stands for Behind Poverty Level.
- (n) Every person has a Fundamental Right to be defended by a lawyer under the Article 22.
- (o) Rowlatt Acts (February 1919), empowered the British to put Indian people in jail without a Trail.

2. Fill in the blanks.

- (a) The first Deputy Prime Minister of Independent India was .....
- (b) The ..... shepherds of Himachal Pradesh is a nomadic community.
- (c) The author who described the revolt of 1857 as " the first war of independence" was .....
- (d) The game of badminton originated in .....
- (e) The highest mountain peak in the Karakoram Range is .....

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- (f) Narrow valleys between Shivalik and Himachal are known as .....
- (g) ..... is the largest coffee-producing nation in the world.
- (h) Hampi is located within the ruins of Vijaynagara, beside the river .....
- (i) In Lok Sabha there are ..... Seats.
- (j) Emperor Ashoka belonged to ..... dynasty.
- (k) ..... is a weather phenomenon caused when warm water from the Western Pacific Ocean flows eastward.
- (l) The Delhi Police is under ..... Government.
- (m) In India, Forest Research Institute is situated in .....
- (n) The Battle of Buxar was fought in ..... year.
- (o) Governor of RBI is .....
- (p) The river which joins Chenab in Pakistan is .....

**3. Write the full form of the following abbreviations:**

- |           |               |
|-----------|---------------|
| (a) LBW   | (f) UNESCO    |
| (b) IMHO  | (g) PIN       |
| (c) FBI   | (h) SPCA      |
| (d) EPABX | (i) SPICMACAY |
| (e) GAIL  | (j) PVSM      |

**4. Match the following:**

- |                         |  |
|-------------------------|--|
| (a) Lord Dalhousie      | (a) 1914                               |
| (b) Osaka               | (b) Bauxite                            |
| (c) Criminal Tribes Act | (c) Criminal Court                     |
| (d) First World War     | (d) Manchester of Japan                |
| (e) Jet stream          | (e) Chairman of the Drafting committee |
| (f) Odisha              | (f) 1984                               |
| (g) Dr BR Ambedkar      | (g) Chief Judge                        |
| (h) Qazi                | (g) Doctrine of Lapse                  |
| (i) Bhopal Gas Tragedy  | (i) High altitude western winds        |
| (j) Faujdari adalat     | (j) 1871                               |

**5. Write short notes on any five of the following topics (limit 50 words)**

- . National Food Security Bill
- . Public Interest Litigation
- . Describe the lifestyle of Gujjar Bakarwals
- . India is a secular state
- . River disputes in India
- . Doctrine of Lapse
- . Jan Lokpal Bill

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