

Admission Test 2013

Sample Questions

The enclosed set of questions is meant to give an idea of the level of the Admission Test. The Admission Test comprises questions based on the Pakistani Intermediate level Physics and Mathematics in Part A and question on English comprehension in Part B.

GENERAL INSTRUCTION

- Please read all the instructions carefully and do not start the paper unless told to do so.
- Please count the number of pages before starting to write. You must have a ***total number of 12 pages in question paper including this page***. In case of a missing page contact the supervisory staff near you. Please note that ***answer sheet is provided separately***.
- This test is divided into Part A and Part B.
- Calculators and mathematical tables are not allowed.
- Answers must be given *only on the answer sheets* provided separately.
- Fill in your particulars (name, father's name) in BLOCK letters in the space provided on the answer sheets using ball point pen. *These should be written exactly as they were on your application form.*
- Use only the provided pencil to fill the correct choice circle on ***answer sheet***.
- Write down your Admit Card number on every page of the question paper and answer sheet.
- You are not allowed to change your seat during the test.
- Hand over your question paper along with your answer sheet to the invigilator at the end of the test and keep seated until allowed to leave the center.
- ***Use of unfair means will lead to disqualification.***

INSTRUCTION FOR PART A

- There are sixty multiple choice questions (MCQs) in this Part. You are expected to spend about one and half hour on this Part. *Do not spend too much time on any one question.*
- Use only the question paper, *not the answer sheet* for rough work.
- Beware of negative marking is Part A only. For each correct answer the score is '+3' and for each wrong answer '-1'. Unanswered question will be marked '0'.

INSTRUCTION FOR PART B

- There are three sections (I, II & III) in this part containing a total of twenty questions. You are expected to spend about half an hour on this part.
- For each correct answer the score is '+1' and for each wrong answer or unattempted question the score is '0'.

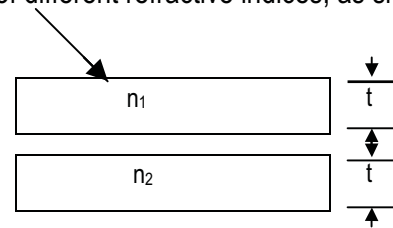
Part A

- If α, β are the roots of the equation $px^2 + qx + r = 0$, then what is the value of $(\alpha - \beta)^2$?
(a) $\frac{q^2 - 4pr}{p^2}$ (b) $\frac{q^2 - 2pr}{p^2}$ (c) $\frac{q^2 - 4pr}{q^2}$ (d) none of these
- Simplify the expression $\frac{\sin x}{1 + \cos x} + \frac{1 + \cos x}{\sin x}$
(a) $2 \tan x$ (b) $2 \sec x$ (c) $\cos x$ (d) $2 \operatorname{cosec} x$
- The sum of the infinite geometric series $\frac{2}{3} + \frac{1}{3} + \frac{1}{6} + \dots$ up to 8 terms is
(a) $\frac{85}{64}$ (b) $\frac{95}{64}$ (c) $\frac{75}{64}$ (d) $\frac{65}{64}$
- The area under the curve $f(x) = x^2$ for $-2 \leq x \leq 3$ is
(a) 5 (b) $\frac{35}{2}$ (c) $\frac{35}{3}$ (d) 19
- The coefficient of x^3 in the binomial expansion of $(2-x)^8$ is
(a) 56 (b) -1792 (c) 448 (d) -448
- If $f(x) = 2x - 3$, $f^{-1}(x)$ is
(a) $\frac{x-2}{2}$ (b) $\frac{x-3}{2}$ (c) $\frac{x+3}{2}$ (d) $\frac{3}{x-2}$
- The value of $(-i)^{-19} = ?$
(a) $-i$ (b) -1 (c) i (d) 1
- $\lim_{\theta \rightarrow \frac{\pi}{2}} \frac{\sin \theta}{\theta} =$
(a) 0 (b) $\frac{\pi}{2}$ (c) $\frac{2}{\pi}$ (d) 1
- Two lines: $a_1x + b_1y + c_1 = 0$, $a_2x + b_2y + c_2 = 0$, intersect only if
(a) $a_1a_2 - b_1b_2 = 0$ (b) $a_1a_2 - b_1b_2 \neq 0$ (c) $a_1a_2 - b_1b_2 = 1$ (d) $a_1a_2 - b_1b_2 \neq 1$
- A dice is rolled, what is the probability of getting a number greater than 4?
(a) $\frac{1}{4}$ (b) $\frac{1}{3}$ (c) $\frac{1}{2}$ (d) $\frac{1}{6}$

11. In field effect transistor (FET) current is due to
- minority carriers and there is only one p-n junction.
 - majority carriers and there are two p-n junctions.
 - majority carriers and there is only one p-n junctions.
 - minority carriers and there are two p-n junctions.

12. A ray of light passing through air is incident on two glass plates of different refractive indices, as shown in the figure. It will:

- be reflected back totally from the top plate
- emerge parallel to the original direction
- go straight through
- emerge at an angle to the original direction



13. If resistances R_1 , R_2 and R_3 are connected in parallel then which of the following statement is correct?
- the voltage across each resistance is different
 - the voltage across each resistance is the same
 - the total resistance R is $R_1 + R_2 + R_3$
 - the current through each resistance is the same

14. A stone is thrown into a quiet pool of water. With no fluid friction, the amplitude of the waves falls off with distance ' r ' from the impact point as

- (a) $\frac{1}{r^{1.5}}$ (b) $\frac{1}{r^2}$ (c) $\frac{1}{r^{0.5}}$ (d) $\frac{1}{r^3}$

15. Each second a rabbit moves half the remaining distance from his nose to a head of lettuce 10m away. When does he get to the lettuce?

- After 25 sec.
- After 100 sec.
- After 50 sec.
- Never

16. A boy of mass 10 kg is standing on a weighing balance in an elevator. The balance reads his weight as 49N. The elevator is

- going up with uniform velocity.
- going down with uniform acceleration.
- stationary.
- going up with constant acceleration.

17. A 2KW iron is used on a 100V AC mains. The current in the iron is

- 25 A
- 20 A
- 15 A
- 10 A

18. An object moving at 4 m/sec falls on top of a spring and compresses it by 4 mm. If the object was moving at 8 m/sec it would compress the spring by:

- 16 mm
- 8 mm
- 5.6 mm
- 2 mm

19. Which of the following materials would prefer to use for making cables for household electrical wiring:

- nichrome
- tungsten
- gold
- copper

20. If the earth was at one half of its present distance from the sun and had the same orbital speed, the number of days in one year would be approximately.

- 730
- 182
- 365
- 129

Part B

Total Marks: 20

Section I Read the following passage and choose the appropriate option from the statements given below.

Please encircle correct choices on the answer sheet only.

Another critical factor that plays a part in susceptibility to colds is age. A study done by the University of Michigan School of Public Health revealed particulars that hold true for the general population. Infants are the most cold-ridden group, averaging more than six colds in their first year. Boys have more colds than girls average three colds a year to boys` two.

The general incidence of colds continues to decline into maturity . Elderly people who are in good health have as few as one or two colds annually. One exception is found among people in their twenties, especially women, who show a rise in cold infections, because people in this age group are most likely to have young children.

The study also found that economics plays an an important role. As income increases the frequency at which colds are reported in the family decreases. Families with the lowest income suffer about a third more colds than families at the lower end. Lower income generally forces people to live in more cramped quarters than those typically occupied by weather people, and crowding increases the opportunities for the cold virus to travel from person to person. Low income may also adversely influence diet. The degree to which poor nutrition affects susceptibility to colds is not yet clearly established, but an inadequate diet is suspected of lowering resistance generally.

1. Which of the following is closest in meaning to the word “particulars” in para 1?
 - a. specific facts
 - b. minor errors
 - c. small distinctions
 - d. individual people

2. What does the author claim about the study discussed in the passage?
 - a. It contains many inconsistencies.
 - b. Its results apparently are relevant for the population as whole.
 - c. It specializes in children.
 - d. It contradicts the results of earlier studies in the field.

3. Which of the following groups of people is most likely to catch colds?
 - a. Teenage boys
 - b. Young girls
 - c. Infant boys
 - d. Elderly women

4. The author’s main purpose in writing the last paragraph of the passage is to
 - a. prove that a poor diet causes colds
 - b. explain how cold viruses are transmitted
 - c. discuss the relationship between income and frequency of colds.
 - d. discuss the distribution of income among the people in the study

5. Pair 1
 a. Do you know when the movie starts?
 b. Do you know when does the move start?
6. Pair 2
 a. The more you practice, you will get better.
 b. The more your practice, the better you will get.
7. Pair 3
 a. Unaccustomed to getting up easily, he found it difficult to get to work on time.
 b. Unaccustomed to getting up early, it was difficult for him to get to work on time.
8. Pair 4
 a. My words had no affect on him.
 b. My words had no effect on him.

Section III Choose among the suggested answers which best completes the given sentences.

9. The new government has introduced tough laws to _____ the role of guns in the province.
 a. Register b. oppose c. abolish d. regulate
10. The scientists, _____ accepted the prize gratefully.
 a. selected as the best b. were the best
 c. the best d. to select
11. _____ primary colors are red, blue, and yellow.
 a. That the three b. Three of them
 c. There are three d. The three
12. _____ gas tanks connected to welding equipment, one full of oxygen and the other full of acetylene.
 a. There are two b. Of the two
 c. It is two d. Two

Section IV Choose the most appropriate antonym for the following:

13. Esteem
 a. cause harm b. scorn c. persist d. subdue
14. Appropriate
 a. similar b. admirable c. unsuitable d. obvious
15. Heed
 a. ignore b. initiate c. unify d. control
16. Manifest
 a. alter b. manipulate c. obstruct d. conceal