

**ASPIRE****IIT & MEDICAL**

AN INITIATIVE BY IITIANS



BRAIN OF HIMACHAL

ASPIRE TALENT HUNT EXAM

FOR

CLASS 7th - QUESTION PAPERTime: 120 MinutesMaximum Marks: 400

INSTRUCTIONS:

PLEASE FILL DETAILS CAREFULLY

NAME _____

FATHER NAME _____

SCHOOL NAME _____

CONTACT NUMBER _____

Read the instructions carefully. 5 minutes are allowed specifically for this purpose.

1. Answer all questions
2. This booklet is your question paper containing **100** questions
3. The question paper consist of **5 sections** I, II, III, IV, V.
4. Section-I **Physics** (Questions -1 to 14), Section-II **Chemistry** (15-26), Section-III **Biology** (27-40), Section-IV **Mathematics** (40-60), Section-V **Mental ability** (60-100).
5. Each question has **only one correct** answer. Once you have marked an option you can't mark a fresh option
6. For each **correct** answer **+4** marks will be awarded. For **wrong** answer **-1** mark will be deducted.
7. Fill your **OMR** sheet carefully.
8. All the Notations used in this paper are standard.
9. No use of electronic gadgets, calculators, mobile phones etc are allowed.
10. **In case of any discrepancy do not ask anyone one including your invigilator. Try to attempt question and mark the best possible answer.**

Roll No.										
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Website : www.aspireiit.in | Email ID : aspirehimla01@gmail.com

Section-I (PHYSICS)

1. Radiation

(A) does not require a material medium

(B) is the process of the transfer of heat in liquids

(C) is the process of the transfer of heat in which heat travels in one direction

(D) occurs in solids

2. Fahrenheit scale divides two fixed point into-

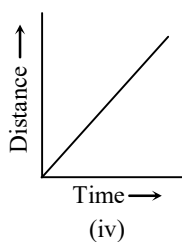
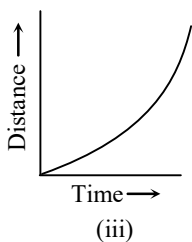
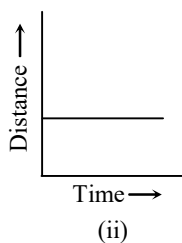
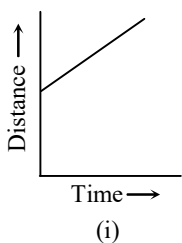
(A) 180 parts

(B) 212 parts

(C) 100 parts

(D) 32 parts

3. Which of the following distance-time graphs shows a truck moving with speed which is not constant?



Rough work

4. Nichrome is used for making
- (A) the filaments of bulbs
 - (B) fuse wires
 - (C) heater elements
 - (D) coils for electromagnets
5. To make a battery of 9 volts. How many 1.5 V cells are needed?
- (A) 6
 - (B) 5
 - (C) 4
 - (D) 3
6. We put glass piece on a printed page image of prints on the page has same size. The piece is-
- (A) Convex lens
 - (B) Glass slab
 - (C) Concave lens
 - (D) Prism
7. A car acceleration uniformly from 18 km/h to 36 km/h in 5s. The acceleration in ms^{-2} is-
- (A) 1
 - (B) 2
 - (C) 3
 - (D) 4
8. The brakes applied to a car produce a negative acceleration of 6ms^{-2} . If the car stops after 2 seconds, the initial velocity of the car is-
- (A) 6ms^{-1}
 - (B) 12ms^{-1}
 - (C) 24ms^{-1}
 - (D) Zero

Rough work

9. Which of the statements given below is correct?
- (A) In winter the winds flow from the land to the ocean
 - (B) In summer the winds flow from the land towards the ocean.
 - (C) A cyclone is formed by a very high-pressure system with very high-speed winds revolving around it
 - (D) The coastline of India is not vulnerable to cyclones
10. A black body with a rough surface is a good
- (A) Reflector and poor absorber of heat
 - (B) Good absorber and good radiator of heat
 - (C) Absorber and poor radiator of heat
 - (D) Reflector and poor radiator of heat
11. If the angle of incidence is 50° , then calculate the angle between the incident ray and the reflected ray-
- (A) 50°
 - (B) 80°
 - (C) 130°
 - (D) 100°
12. The capillary tube of a clinical thermometer has a kink
- (A) to increase the expansion of mercury
 - (B) so that the level of mercury does not fall as soon as the thermometer is taken out of the mouth
 - (C) to use less mercury
 - (D) to help us see it better

Rough work

13. For a concave mirror when the object is placed between the pole and the focus then the image formed will be-
- (A) Virtual (B) Real (C) Inverted (D) Diminished
14. Electric bell works on the principle of -
- (A) Chemical effect of current
- (B) Magnetic effect of current
- (C) Heating effect of current
- (D) All of the above

Rough work

Section-II (CHEMISTRY)

Q.15 Which of the following acids is present in sour milk?

- (a) Lactic acid (b) Formic acid
(c) Acetic acid (d) Citric acid

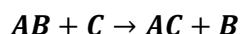
Q.16. Which of the following gases burns with a pop sound?

- (a) Hydrogen (b) Oxygen (c) Nitrogen (d) Carbon dioxide

Q.17. The process of arranging two sets of yarn together to make a fabric is called and the process of making yarn from fibres is called respectively.

- (a) knitting and weaving
(b) weaving and spinning
(c) spinning and ginning
(d) weaving and knitting

Q.18. Which type of the chemical reaction is the following reaction?



- (a) Decomposition reaction (b) Neutralisation reaction
(c) Displacement reaction (d) Combination reaction

Q.19. When phenolphthalein is added to acids, its colour

- (a) changes to pink (b) changes to green
(c) remains colourless (d) changes to orange.

Q.20. Which of the following options correctly represents the sequence of steps of wool production?

- (a) Scouring, sorting, shearing, carding, dyeing, spinning
(b) Shearing, scouring, carding, dyeing, sorting, spinning
(c) Shearing, spinning, dyeing, scouring, sorting, carding
(d) Shearing, scouring, sorting, carding, dyeing, spinning

Rough work

Q.21. Acidic soil can be neutralised by

- (a) vinegar
- (b) quick lime
- (c) orange juice
- (d) tamarind juice.

Q.22. When the air is heated it becomes

- (a) Lighter?
- (b) Heavier?
- (c) Colder?
- (d) None of these

Q.23. Spinning can be done with

- (a) takli
- (b) charkha
- (c) spinning machine
- (d) all of these.

Q.24. Which gas released in the atmosphere creates a greenhouse effect trapping the heat?

- (a) Carbon dioxide
- (b) Oxygen
- (c) Nitrogen
- (d) All of these

Q.25. Which gas is used by the green plants to make their food?

- (a) Oxygen
- (b) Carbon dioxide
- (c) Nitrogen
- (d) None of these

Q.26. Rain, snow sleet or hail are the different forms of:

- (a) Condensation
- (b) Evaporation
- (c) Precipitation
- (d) All of these

Rough work

Section-III (BIOLOGY)

27. Association of two different organisms in which both are benefited is called -
(a) Symbiosis (b) nutrition (c) saprophytic (d) parasitic
28. Which of the following regions of the alimentary canal of man does not secrete a digestive enzyme?
(a) Oesophagus (b) Stomach (c) Duodenum (d) Mouth
29. If the stomach did not produce any hydrochloric acid, which enzyme will not function?
(a) Ptyalin (b) Trypsin (c) Pepsin (d) Collagenase
30. Where is bile produced?
(a) In gall bladder (b) In blood (c) In liver (d) In spleen
31. The walls of the large intestine absorb -
(a) Cellulose (b) water (c) digested food (d) digested proteins
32. Which of the following is a friend of the farmer?
(a) Red worms (b) Earthworms (c) Moths (d) Mosquitoes
33. Choose the incorrect statements.
(a) Eating food that has been packaged in plastic is bad for our health.
(b) When heated, plastics release hazardous gases.
(c) The sewage drainage system benefits from the plastics that are dumped on the roads.
(d) Plastics jammed in drains or sewers may result in flooding during periods of severe rain.
34. Penguins are adapted to live in
(a) Desert climate (b) equatorial region (c) polar region (d) rainforests

Rough work

35. Two organisms are good friends and live together. One provides shelter, water and nutrients while the other three prepares and provides food. Such an association of organisms is termed as: saprophyte parasite autotrophs Symbiosis
- (a) Saprophyte (b) Parasite (c) Autotrophs (d) Symbiosis
36. Which is an example of an animal found in mountain region ?
- (a) Leopard (b) Yak (c) Mountain goat (d) All of these
37. Which is an aquatic adaptation?
- (a) Streamlined body (b) Light and hollow bones
(c) Hair on body (d) Gills
38. Types of leaf venation in tap roots is
- (a) Reticulate (b) Parallel (c) Both a and b (d) None of the above
39. What is the role of x-ray image
- (a) Displays picture of skeleton (b) Helps to know about injuries
(c) Helps to know about injuries (d) Both b & c
40. How many muscles work together for contraction?
- (a) 2, One contracts & one relaxes (b) 2, Both, contract
(c) 1, It contracts (d) 1, it relaxes

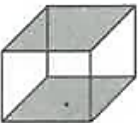
Rough work

Section-IV (MATHEMATICS)

41. In a quiz, team P scored - 50, 10, 20 and team Q scored 20, -10, 0 in three rounds. Which team scored more and by how much?
 (a) - 10, team P (b) 20, team P (c) 10, team Q (d) 30, team Q

42. Arrange the following numbers in descending order: $2, \frac{4}{5}, \frac{11}{20}, \frac{3}{4}$
 (a) $\frac{3}{4} > 2 > \frac{11}{20} > \frac{4}{5}$ (b) $2 > \frac{4}{5} > \frac{3}{4} > \frac{11}{20}$ (c) $\frac{3}{4} > \frac{4}{5} > 2 > \frac{11}{20}$ (d) $\frac{3}{4} > \frac{4}{5} > \frac{11}{20} > 2$

43. Select the correct match.

Figure	Fraction of unshaded part
(a) 	$\frac{2}{9}$
(b) 	$\frac{2}{3}$
(c) 	$\frac{1}{6}$
(d) 	$\frac{2}{3}$

44. You spin the spinner at right, which is divided into equal parts. Which of the following statements is correct?

- (a) Probability of pointer lands on the shaded part is 0.5.
 (b) Probability of pointer lands on an even number is 0.75.
 (c) Probability of pointer lands on a prime number is 0.375.
 (d) All of these



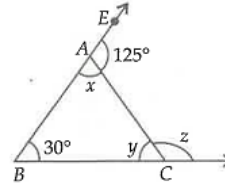
Rough work

45. 184 is divided into two parts such that one-third of one part exceeds one-seventh of the other part by 8, then the greatest part is
 (a) 72 (b) 110 (c) 112 (d) 114

46. If an angle is its own supplementary angle, then its measure is
 (a) 30° (b) 45° (c) 60° (d) 90°

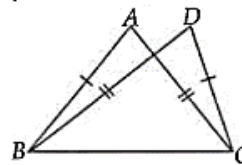
47. Find the value of z in the given figure.

- (a) 95° (b) 85°
 (c) 55° (d) 75°



48. If $\triangle ABC$ and $\triangle DBC$ are on the same base BC , $AB = DC$ and $AC = DB$ in the given figure, then which of the following gives a congruence relationship?

- (a) $\triangle ABC \cong \triangle DBC$
 (b) $\triangle ABC \cong \triangle CBD$
 (c) $\triangle ABC \cong \triangle DCB$
 (d) $\triangle ABC \cong \triangle BCD$



49. What should be added to $\left(\frac{3}{4} + \frac{2}{5}\right)$ to get $\frac{-8}{15}$?
 (a) $\frac{-103}{60}$ (b) $\frac{103}{60}$ (c) $\frac{-101}{60}$ (d) $\frac{101}{60}$

50. Find the sum of $\frac{-3}{4}$ and $\frac{3}{4}$ and represent it on number line.

- (a) $\frac{-3}{4}$ and (b) $\frac{0}{4}$ and
 (c) $\frac{3}{4}$ and (d) $\frac{-6}{4}$ and

51. Find the altitude of a triangle whose base is 40 cm and area is 240 cm^2 .
 (a) 8 cm (b) 12 cm (c) 14 cm (d) 10 cm

52. Riya wants to put a lace on the boundary of a circular table cover of diameter 2.1 m. find the cost of the lace at the rate of Rs 15 per meter. ($\pi = 3.14$)
 (a) Rs 99 (b) Rs 990 (c) Rs 95 (d) Rs 109

Rough work

53. Find the value of $\frac{8g^2}{3} - 2g + 7$ when $g = 3$.
(a) 9 (b) 25 (c) 17 (d) 26
54. By what number should $\left(\frac{3}{5}\right)^2$ be multiplied so that the product is $\frac{3}{7}$?
(a) $\frac{25}{9}$ (b) $\frac{25}{21}$ (c) $\frac{25}{7}$ (d) $\frac{25}{3}$
55. If $5^{(x+3)} = (25)^{(3x-4)}$, then the value of x is
(a) $\frac{5}{11}$ (b) $\frac{11}{5}$ (c) $\frac{11}{3}$ (d) $\frac{13}{5}$
56. A piece of wire is of length $12\frac{3}{4}m$. If it is cut into two pieces in such a way that the length of one piece is $5\frac{1}{4}m$, what is the length of other piece?
(a) $x = 7\frac{1}{2}m$ (b) $x = 2\frac{1}{7}m$ (c) $x = 7\frac{1}{3}m$ (d) None of these
57. If the integers p and q have no common divisor other than 1 and q is positive, then the rational no. (p/q) is said to be in the
(a) complex form (b) standard form (c) rational form (d) None
58. By how much should 34.79 be increase to get 70.15?
(a) 35.36 (b) 33.36 (c) 35.33 (d) 35.31
59. Ashish studies for 4 hours, 5 hours and 3 hours on three consecutive days. How many hours does he study daily on an average?
(a) 4 hour (b) 6 hour (c) 8 hour (d) 2 hour
60. Express the number appearing in the following statement in standard form:
The distance between Earth and Moon is 384, 000,000 m.
(a) 38.4×10^8m (b) 3.84×10^7m (c) 38.4×10^9m (d) 3.84×10^8m

Rough work

Section-V (MENTAL ABILITY)

61. In a certain code, 15789 is written as XTZAL and 2346 is written as NPSU. How is 23549 written in that code?
(a) NPTUL (b) PNTSL (c) NPTSL (d) NBTSL
62. If Delhi is coded as 73541 and CALCUTTA as 82589662 how can CALCUT be coded?
(a) 5279431 (b) 5978213 (c) 8251896 (d) 8543691
63. In a certain language, 'CHAMPION' is coded as 'HCMAIPNO' how is 'NEGATIVE' written in that code?
(a) BGAETVIE (b) ENAGITEV (c) EGAITEVN (d) NEAGVEIT
64. If 'TEAM' is coded as 'VGCO', then 'LIFE' will be coded as
(a) NJGE (b) NLIH (c) NKHH (d) NKHG
65. Which one of the following pair is different from the other groups?
(a) ABC : CBA (b) JKL : KLJ (c) XYZ : ZYX (d) MNO : ONM
66. Which of the following pair of numbers is different from the others?
(a) 14, 28 (b) 30, 60 (c) 25, 50 (d) 15, 35
67. In the following question, three are alike in certain way and so form a group. Which is one that does not belong to that group?
(a) Lock – key (b) Motorcycle – fuel (c) Book – copy (d) River – water

Directions: (Ques no. 68-70) in the following given questions, two words are given, they have a relationship to each other, four alternatives each with one pair of words are given. Select the pair which has same relationship as the original pair of words has.

68. **Star : Constellation**
(a) Soldier : Regiment (b) Patch : Thread
(c) Hand : Clock (d) Struggle : Wrestle
69. **Red fort : Delhi**
(a) Eiffel Tower : France (b) India : Madras
(c) Pakistan : China (d) New York : Kremlin

Rough work

70. **Spring : Summer**
 (a) Wednesday : Monday (b) Monday : Wednesday
 (c) Friday : Sunday (d) Thursday : Wednesday
71. **If we make a meaningful word of the first, fourth, ninth and fourteenth letters of the word 'ADMINISTRATION', which of the following will be second letter of the word from the left end of that word?**
 (a) R (b) A (c) I (d) N
- Direction: (Ques. No. 72-73)** In each of the following questions, arrange the given words in the sequence in which they occur in the dictionary and then choose the correct sequence.
72. (1) Page (2) Palisade (3) Pageant (4) Parrot
 (d) Peacock
 (a) (1), (3), (2), (5), (4) (b) (1), (2), (3), (4), (5)
 (c) (1), (3), (2), (4), (5) (d) (5), (4), (1), (2), (3)
73. (1) Mechanical (2) Mechanist (3) Mechanism
 (4) Mechanician (5) Mechanic
 (a) (5), (4), (3), (2), (1) (b) (5), (1), (4), (2), (3)
 (c) (5), (1), (4), (3), (2) (d) (1), (2), (3), (4), (5)
74. **Find one word which cannot be made from the letters of the given word.**
QUESTIONNAIRE
 (a) QUINATE (b) QUEUE (c) QUESTOR (d) QUERIES
75. **Find the number in the given series, which is incorrect.**
1, 2, 4, 8, 16, 32, 64, 96
 (a) 16 (b) 96 (c) 64 (d) 32
76. **Complete the given series.**
OTE, PUF, QVG, RWH,
 (a) SYJ (b) TXI (c) SXJ (d) SXI
77. **Find the missing term in the following question of series**
7, 11, 13, 17, 19, 23, ?
 (a) 27 (b) 29 (c) 26 (d) 24

Rough work

Directions: (78-79) In the following questions, arrange the given words in a meaningful sequence and then choose the most appropriate sequence from the options given below in question.

78. (1) Deepawali (2) Independence day (3) Christmas
(4) Holi (5) Republic day
(a) (5), (4), (2), (3), (1) (b) (5), (4), (3), (2), (1)
(c) (5), (4), (2), (1), (3) (d) (4), (1), (2), (3), (5)
79. (1) Graduate education (2) secondary education (3) Pre-primary education
(3) Middle education (d) Primary education
(a) (5), (4), (3), (2), (1) (b) (4), (5), (3), (2), (1)
(c) (3), (5), (4), (2), (1) (d) (3), (5), (4), (1), (2)
80. Arrange the given word in a meaningful sequence and then choose the most appropriate sequence from the options given below
(1) Index (2) Content (3) Title (4) Chapter
(5) Introduction
(a) (2), (3), (4), (5), (1) (b) (3), (2), (5), (4), (1)
(c) (3), (2), (1), (4), (5) (d) (3), (4), (2), (1), (5)
81. Radha is the niece of Alok. Alok's mother is Priya. Seema is Priya's mother. Seema's husband is Hari. Rita is the mother-in-law of Hari. How is Alok related to Hari?
(a) Daughter (b) Daughter's son
(c) Grandniece (d) Great grandson's daughter
82. A is the father of C and D is the son of B. E is the brother of A. If C is the sister of D, how is B related to E?
(a) Daughter (b) Brother-in-law (c) Husband (d) Sister-in-law
83. Sheela walks from A to B, which is 2 km away turns right at 90° and walks for 3 km to point C, turns right at 90° and walks to D, Which is 8 km away, turns 90° right and goes 3 km to point K. Then, once again she turns right 90° and walks 4 km to point F. How far is she from A?
(a) 2 km (b) 4 km (c) 6 km (d) 8 km
84. Ashish walks 40 m towards North. He then turns left and walks 40 m. He again turns left and walks 40 m. Further, He moves 40 m after turning to the right. How far is he from his original position?
(a) 20 m (b) 30 m (c) 50 m (d) 80 m

Rough work

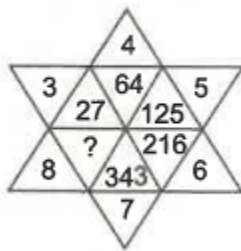
85. One evening before sunset, two friends Ram and Shyam were talking to each other face to face. If Shyam's shadow was exactly to his right side, which direction was Ram facing?
 (a) North-East (b) South (c) South-West (d) South-East
86. If X is to the South of Y and Z is to the East of Y. In what direction is X with respect to Z?
 (a) North-East (b) North-West (c) South-East (d) South-West
87. Insert the missing letter.

Z	B	X	D	?	F	T
A	Y	C	W	E	U	G

- (a) V (b) F (c) G (d) X

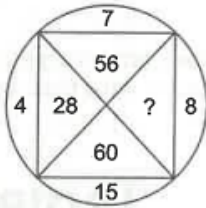
Direction: (Ques. No. 88-90) Insert the missing numerical value in following questions.

88.



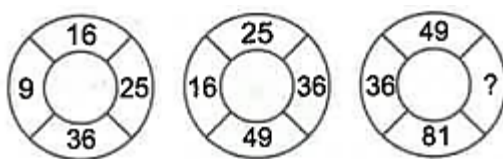
- (a) 640 (b) 512 (c) 16 (d) 24

89.



- (a) 33 (b) 145 (c) 120 (d) 18

90.



- (a) 64 (b) 144 (c) 169 (d) 25

Rough work

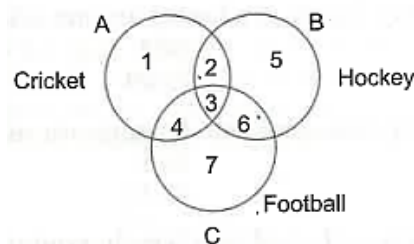
91. If + means $\times$, - means $\div$, $\times$ means - and $\div$ means +, then the value of $9 + 8 \div 8 - 4 \times 9$ is
 (a) 56 (b) 65 (c) 66 (d) 55
92. If A means '+', B means '-', C means ' $\times$ ' and D means ' $\div$ ', then $18 C 14 A 6 B 16 D 4$ is equal to
 (a) 63 (b) 288 (c) 254 (d) 1208

Direction: (Ques. No. 93-94) Read the following instruction carefully and answer the questions that follow.

Archana is elder than Suman. Aarti is elder than Archana but younger than Kusum. Kusum is elder than Suman. Suman is younger than Aarti and Gita is the eldest.

93. Who is youngest?
 (a) Archana (b) Suman (c) Aarti (d) Kusum
94. Agewise, who is in middle?
 (a) Suman (b) Archana (c) Aarti (d) Kusum
95. How many months are there in 5 yr 7 months?
 (a) 60 (b) 65 (c) 67 (d) 70

Directions: (Ques. No. 96-99) These questions are based on the following diagram. Answer the questions given below.



96. Which numeral represents the set of persons, who play all three games?
 (a) 3 (b) 4 (c) 6 (d) 7
97. Which numeral represents the set of persons, who play football and hockey but not cricket?
 (a) 7 (b) 2 (c) 3 (d) 6
98. Which numeral represents the set of persons, who play cricket and hockey but not football?
 (a) 2 (b) 3 (c) 1 (d) 4
99. Which numeral represents the set of persons, who play hockey but neither cricket nor football?
 (a) 5 (b) 4 (c) 6 (d) 7
100. Choose from the four diagrams given below, the one that illustrates the relationship among language, Hindi and English.



Rough work



RESULTS PRIZE DISTRIBUTION DETAILS

ANSWER KEY
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RESULT DECLARATION
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PRIZE DISTRIBUTION
FUNCTION

05
NOV.2023

RESULT DECLARATION
OF ALL PARTICIPANTS

18
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