

**SMARTPREP**

ACADEMY

STEPS - 2023

***SAMPLE PAPER***

***PRESENTLY STUDYING IN CLASS - 10<sup>th</sup>***

**MEDICAL**

**IMPORTANT INSTRUCTIONS**

1. Duration of Test is **2 Hours** and Question paper Contains **60 Questions**. The **Max. Marks are 240**.
2. Student cannot use log tables and calculators or any other material in the examination hall.
3. Student must abide by the instructions issued during the examination, by the invigilators or the centre in charge.
4. Each correct answer carries **4 marks** and **1 marks** will be deducted for incorrect response of each question

NAME :- \_\_\_\_\_ SCHOOL \_\_\_\_\_

**SCIENCE**

1. A sheet of paper is placed on a table and a jug full of water is kept on it while pulling the paper suddenly, it is observed that the water does not spill out of jug. It is due to the inertia of the  
(A) paper sheet      (B) jug & water in it      (C) hard surface      (D) table
2. "Every Action has equal & opposite reaction" was discovered by  
(A) Pascal      (B) Newton      (C) Edison      (D) Copernicus
3. If a car travels a distance of 100km & it takes 25 minutes to reach its destination, the speed of the car is  
(A) 4 km/min      (B) 4 mt/min      (C) 400 mt/min      (D) None of these
4. A 1500 w electric geyser used every day for 2 hrs. Calculate the energy consumed in the month of April?  
(A) 90 kwh      (B) 30 kwh      (C) 750 Kwh      (D) None of these
5. The instrument for measuring electric current is known as  
(A) Ammeter      (B) Voltmeter      (C) Galvanometer      (D) Chromometer
6. A person using convex lens must be suffering from  
(A) Myopia      (B) Astigmatism      (C) Hypermyopia      (D) None of these
7. The mass of an object is 10 Kg on earth, So we can say-  
(A) Its weight on earth is 10 N.      (B) Its weight on earth is 1.67 N.  
(C) Its weight on moon is 10 N.      (D) Its mass on moon is 10 Kg.
8. You are provided with a concave lens having focal length 15 cm. If it diminishes the image by one-third, calculate the distance of image from lens?  
(A) 5 cm      (B) 10 cm      (C) 5 m      (D) 10 m
9. Calculate the electricity bill for 30 days of a house in which a bulb 100 W operates for 6 hours/day, a fan rated 80 W operates for 10 hours/day and a refrigerator rated 400 W operates for 24 hours/day. Assume the cost of energy is Rs 8.00 per kWh.  
(A) Rs 26.40      (B) Rs 264.00      (C) Rs 2640.00      (D) Rs 26400.00
10. Choose the material most suitable for the core of electromagnets  
(A) air      (B) soft iron      (C) wood      (D) steel

**Rough Work**

11. Atom that can neither gain nor lose electrons is said to be  
(A) Inert (B) Reactive (C) Metallic (D) Non-metallic
12. Which one of the following is known as “king of Chemicals”  
(A) Hydrochloric acid (B) Sulphuric acid (C) Nitric acid (D) Phosphoric acid
13. The common gas used in our refrigerator  
(A) marsh gas (B) producer gas (C) freon (D) Water gas
14. Alum is added with muddy water to  
(A) Kill bacteria (B) Make filtration of milk  
(C) Make the sedimentation process quick (D) None of these
15. To protect the metal from corrosion it is some times coated with a thin layer of  $Al_2O_3$  (Aluminium oxide) and the process is called  
(A) Electroplating (B) Electroforming (C) Aluminizing (D) None of these
16. When two liquids in a mixture differ by their boiling points, which of the following is the best method to separate these liquids?  
(A) Evaporation (B) Distillation (C) Chromatography (D) Filtration
17. Which of the following is a chemical change?  
(A) Melting of ice (B) Dissolving salt in water  
(C) Rusting of iron (D) Boiling of water into steam
18. The gas used in welding and cutting metal is-  
(A) Ethyne (B) Ethene (C) Ethane (D) Propane
19. When a burning splinter is brought near the gas jar containing hydrogen gas, a popping sound is observed. It is because the reaction is  
(A) exothermic (B) endothermic (C) exothermic and endothermic (D) None of these
20. When copper sulphate solution reacts with iron metal, copper metal is formed. This reaction comes under which of the following category?  
(A) Decomposition reaction (B) Single displacement reaction  
(C) Double displacement reaction (D) Combination reaction

**Rough Work**

21. Genes are made of  
(A) Histones (B) Poly nucleotides (C) Hydrocarbon (D) Lipoproteins
22. The cell membrane is made of  
(A) Phospho Proteins (B) Proteins  
(C) Phospholipid Proteins (D) None of these
23. What is weed?  
(A) Unwanted plant along with crops (B) The root protein of the plants  
(C) The disease cause to plants (D) None of these
24. Protein catalysts of chemical reactions in biological systems are  
(A) Hormones (B) Enzymes (C) Vitamins (D) Both Haromones & enzymes
25. Which of the following are non - biogradable  
(A) Egg shell (B) Butter (C) Detergents (D) Leather
26. Malaria is transmitted by  
(A) Male anopheles (B) Female anopheles (C) Anopheles (D) Mosquitoes
27. Prokaryotes are the organisms which are characterized by-  
(A) Well defined nucleus  
(B) Absence of cell wall  
(C) Absence of chlorophyll  
(D) Absence of nuclear envelope, nucleolus and nucleoplasm
28. Which of the following is not present in an animal cell?  
(A) Ribosome (B) Plastids (C) Mitochondria (D) Endoplasmic reticulum
29. These are heterotrophic, eukaryotic organism having the cell wall made up of a complex sugar called chitin-  
(A) Algae (B) Fungi (C) Bryophytes (D) Gymnosperms
30. The gap between two neurons is called:-  
(A) Axon (B) Intermode (C) Synapse (D) Dendrite
31. Buds produced in the notches along the leaf margins of Bryophyllum, develop into new plants when they fall on soil. This is a mode of-  
(A) Sexual reproduction (B) Asexual reproduction  
(C) Vegetative reproduction (D) Parthenocarpy
32. Which of the following cell organelle does not possess a double layered covering?  
(A) Chloroplast (B) Nucleus (C) Mitochondria (D) Vacuole
33. Fluid mosaic model is given for  
(A) Mitochondria (B) Chloroplast (C) Cell wall (D) Plasma membrane

**Rough Work**

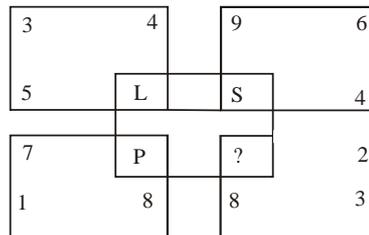
34. The use of disposable paper-cups is more beneficial over disposable plastic cups, because  
(A) it is cheaper  
(B) it is easily available  
(C) it can be reused  
(D) its recycling process has no harmful impact on environment
35. Which of the following enzymes is related with digestion of protein?  
(A) Lipase (B) Pepsin (C) Sucrase (D) Amylase
36. Which of the following diseases is not related with sexual transmission?  
(A) Syphills (B) Gonorrhoea (C) Allergy (D) AIDS
37. The structure that connects a bone with muscles is known as  
(A) Tendon (B) Cartilage (C) Ligament (D) Areolar tissue.
38. Cell organelle that allows certain substances to enter or come out from the cell is  
(A) Ribosome (B) Plasma membrane (C) Centrosome (D) Golgi body
39. Connective tissue with a fluid matrix is:  
(A) ligament (B) tendons (C) blood (D) Cartilage
40. Sperm formation requires \_\_\_\_\_ temperature as in the normal body temperature.  
(A) same (B) high (C) low (D) not sure

### **MENTAL ABILITY**

41. Engineer : Machine : : ?  
(A) Doctor : Disease (B) Doctor : Medicine (C) Doctor : Hospital (D) Doctor : Body
42. A person took a loan of Rs 1500 from his employer for 3 months at 12% per annum simple interest. The amount he has to return is  
(A) Rs 45 (B) Rs 1500 (C) Rs 1545 (D) Rs 1455
43. A wholesaler allows a discount of 20% on the list price to a retailer. The retailer sells at 8% discount on the list price. The profit percent of the retailer is  
(A) 20% (B) 15% (C) 12% (D) 8%
44. A can complete a piece of work in 12 days and B is 60% more efficient than A. In how many days B will complete the same work?  
(A) 5 Days (B) 7.5 Days (C) 6 Days (D) 8 Days

### **Rough Work**

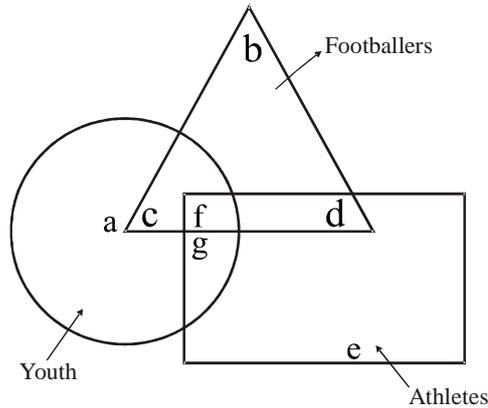
45. A, B & C can complete a piece of work in 6, 12 and 24 days, respectively, Working together, they will complete the same work in  
 (A) 1/24 Days                      (B) 7/24 Days                      (C) 24/7 Days                      (D) 4 Days
46. Find the next number in the sequence 0, 2, 24, 252, \_\_\_\_\_  
 (A) 620                              (B) 1040                              (C) 3120                              (D) 5430
47. The average age of three persons is 27 years. Their ages are in the proportion of 1:3:5. What is the age in years of the youngest one among them.  
 (A) 10                              (B) 12                              (C) 9                              (D) 8
48. D-4, F-6, H-8, J-10, ?  
 (A) M-14                              (B) K-13                              (C) L-12                              (D) S-21
49. AB, BA, ABD, DBA, PQRS, ?  
 (A) SRQP                              (B) OYRB                              (C) RPOS                              (D) SXRG
50. 25, 49, 89, 145, 217, ?  
 (A) 305                              (B) 327                              (C) 309                              (D) 303
51. Find the letter to be placed in '?' of the figure given.



- (A) Q                              (B) N                              (C) M                              (D) R

**Rough Work**

52. In the figure, the circle represents youth, the triangle represents footballers and the rectangle represents athletes. Which letter(s) represent(s) athletes among youths who are not footballers?



- (A) g                                      (B) g and c                                      (C) f                                      (D) f and d
53. Amongst five friends, Lata, Alka, Rani, Asha and Sadhana, Lata is older than only three of her friends. Alka is younger to Asha and Lata. Rani is older than only Sadhana. Who amongst them is the eldest ?
- (A) Alka                                      (B) Lata                                      (C) Asha                                      (D) Sadhana
54. Mother was asked how many gifts she had in the bag. She replied that there were all dolls but six, all cars but six, and all books but six. How many gifts had she in all ?
- (A) 9                                      (B) 18                                      (C) 27                                      (D) 36
55. In a certain code, MONKEY is written as XDJMNL. How is TIGER written in that code ?
- (A) QDFHS                                      (B) SDFHS                                      (C) SHFDQ                                      (D) UJHFS

**Rough Work**

**Question 56-57:** Answer the questions based on the following information.

Six men R, S, T, U, V and W sat around circular table playing cards. It was noticed that no two men, the initial letters of whose names are adjacent in the alphabetical order, sat next to each other. U was opposite of R.

V was not to the immediate right of R.

56. Who sat to the immediate left of R ?  
(A) S                      (B) T                      (C) V                      (D) W
57. Who sat to the immediate right of R ?  
(A) S                      (B) T                      (C) V                      (D) W
58. I am facing South. I turn right and walk 20 m. Then I turn right again and walk 10 m. Then I turn left and walk 10 m and then turning right walk 20 m. Then I turn right again and walk 60 m. In which direction am I from the starting point ?  
(A) North                      (B) North west                      (C) East                      (D) North east
59. A walks 10 metres towards East and then 10 meters to his right. Then every time turning to his left, he walks 5, 15 and 15 meters respectively. How far is he now from his starting point?  
(A) 5 meters                      (B) 10 meters                      (C) 15 meters                      (D) 20 meters
60. Heart : Blood :: Lung : ?  
(A) Oxygen                      (B) Chest                      (C) Purification                      (D) Air

**Rough Work**

## Rough Work

# OUR TOP PERFORMERS

# IIT - JEE / NEET



JEE MAIN - 2022  
**Rank - 1**  
BOKARO TOPPER

**AIR 261**

**ARVIND KR. SHARMA**  
4-Years Arete Batch

**AIR 1736\***

**RAVI KR. VERMA**  
2-Year Classroom Program



**AIR 4076\***

**KUMAR SUBIGYA**



**AIR 5401\***

**ROSHAN KR. GUPTA**  
2-Year Classroom Program



**93.6 Percentile**

**RAVI ADITYA**  
2-Year Classroom Program



**94.45 Percentile**

**SNEHA**  
2-Year Classroom Program



**93.5 Percentile**

**KUMAR ARPIT**  
2-Year Classroom Program



and 30+ Students scored above 90%ile

**AIR-11** JEE MAIN - 2021

**AIR-76** JEE Advanced - 2011 (OBC)

**AIR-981** KVPY



JEE MAIN (2021)

**KUMAR SATYADARSHI**



NEET (2021)

**SUDHANSHU KESHRI**

**621 / 720**

## RESULTS

## NEET ( 2021 )



**620 / 720**

**SALONI SINGH**



**606 / 720**

**ARYAN RAJ**



**604 / 720**

**GUDIA SINGH**



**603 / 720**

**PAWANI BHARDWAJ**



**596 / 720**

**SRISHTI KUMARI**



**563 / 720**

**SUDHANSHU RAJ**



**563 / 720**

**SUMANTOSH**



**540 / 720**

**ANKITA MUKHERJEE**

## JEE ADVANCED ( 2021 )



**AIR 2701**  
(OBC - 411)

**ROHIT RAJ**



**AIR 3413**

**SATYAJEET**



**AIR 6642**

**ABHISHEK**

## JEE ADVANCED ( 2020 )



IIT MADRAS  
**RANK 563**

**ULLAS KUMAR MANDAL**



IIT KHARAGPUR  
**RANK 2675**

**AKASH ARYAN**



IIT KANPUR  
**RANK 5977**

**SWETA KUMARI**



IIT DELHI  
**RANK 596**

**SURBHI KHARAKIYA**

## JEE MAIN ( 2021 )

## 12th BOARD (2020)



CBSE **96.6%**

**SWETA KUMARI**



CBSE **96.4%**

**NAIICY GHIRIA**



CBSE **96.2%**

**M.K. BHASKAR**



CBSE **95.8%**

**JYOTI KUMARI**



CBSE **95.4%**

**NISHA RANJAN**



CBSE **95.4%**

**ULLAS KR. MANDAL**



CBSE **95%**

**MOHINI**



**AIR 1034**  
(OBC - 411)

**ROHIT RAJ**



**AIR 1682**

**SATYAJEET**



**AIR 4591**

**ADITYA**



**AIR 5715**

**ABHISHEK**

**60+ Selections in JEE Main.**

## 12<sup>th</sup> BOARD (2022)



CBSE **97.8%**

**JYOTSANA KUMARI**



CBSE **96.4%**  
MATHEMATICS  
100/100

**ARVIND KR. SHARMA**



CBSE **95.6%**

**RAVI ADITYA**



CBSE **95.4%**

**ANSHIKA**



CBSE **92.6%**

**RAVI VERMA**



CBSE **91%**

**KUMAR ARPIT**



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