MENIIT

NEET • IIT-JEE

MTSE

MENIIT TALENT SEARCH EXAM

2024

MTSE SAMPLE PAPER

Standard - VIII
(Moving to Standard - IX)

Code : A-SP

MERIT & APTITUDE TEST
(CODE: A)

Time: 90 Minutes **Maximum Marks: 220**

Instructions

(A) GENERAL

1. This booklet is your Question Paper. It contains **FIVE sections. Section-(A) has 9 questions of Physics, Section-(B) has 9 questions of Chemistry, Section-(C) has 9 questions of Biology, Section-(D) has 13 questions of Mathematics and Section-(E) contains 15 questions from Mental Aptitude.**
2. This booklet contains **55 questions of four mark each in all**. All the questions are COMPULSORY.
3. Blank papers, clip boards, log tables, slide rule, calculators, cellular phones and electronic gadgets in any form, are not allowed.
4. Write your **Name and Roll No**. in the space provided at the bottom of this sheet.

(B) FILLING IN THE OMR SHEET

5. On the OMR sheet, write in ink your Name, Roll No., name of the centre and put your signature in the appropriate boxes.
6. Every question has four choices for its answer (A), (B), (C) & (D). Only one of them is the right answer.
7. On the OMR sheet, for each question number, darken only one bubble with pen only corresponding to what you consider to be the most appropriate answer.

(C) MARKING SCHEME

8. (i) You will be awarded 4 marks if you have darkened the bubble corresponding to the right answer.
   (ii) In case you have darkened the wrong bubble no marks will be deducted for that response. There is **NO NEGATIVE MARKING**.

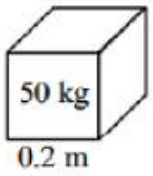
Name of the Candidate : ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Roll Number : ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Date of Examination : ☐☐☐☐☐ ***Centre:*** ☐☐☐☐☐☐☐☐☐☐

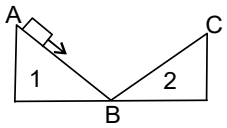
SECTION – (A) PHYSICS

1. How much force is required to lift a mass of 100g:
   (a) 10 N (b) 1 N (c) 100 N (d) 1000 N
2. A body is moving with certain velocity towards right. A force of 5N is applied on it towards right and a force of 6N is applied on it towards left then:
   (a) Speed of body increases towards right
   (b) Speed of body increases towards left
   (c) Speed of body remains the same
   (d) Speed of body decreases
3. A cube of side 0.2 m rests on the floor, as shown. Given that the cube has a mass of 50 kg, the pressure exerted by the cube on the floor is_____.
   (Take g = 10 N kg^{-1})



   (a) 25 N m^{-2} (b) 250 N m^{-2}
   (c) 1250 N m^{-2} (d) 12500 N m^{-2}

4. A block of mass M slides down the inclined plane 1 and then it moves on the inclined plane 2. The direction of frictional force acting on block is



   (a) along AB on 1 and along BC on 2
   (b) along BA on 1 and along BC on 2
   (c) along AB on 1 and along CB on 2
   (d) along BA on 1 and along CB on 2
5. Brakes of automobiles do not work well during rainy season because:
   (a) water acts as a lubricant between wheel drum and brake shoe
   (b) water destroys the wheel drum
   (c) we can't apply much force on brakes during rainy season
   (d) all are correct
6. What type of frictional force comes into play in case of a car moving on a straight road?
   (a) rolling friction (b) sliding friction
   (c) static friction (d) Both (a) and (b) are correct
7. In the sound waves _____ are formed:
   (a) Crests and troughs (b) Nodes and antinodes
   (c) Compressions and rarefactions (d) None of the above
8. Charge flows between two ends of a conductor when:
   (a) same electric potential is present at the two ends
   (b) equal and same type of charges are present at the two ends

(c) different electric potential exists at the two ends of a conductor
(d) the potential difference between the ends is zero

9. If 10 C charge flows through a conductor in 2s then the value of the current flowing through the conductor is
(a) 5A (b) 2A (c) 3A (d) 1A

SECTION – (B) CHEMISTRY

10. Bituminous coal has ____ % of coal.
(a) 10–39% (b) 77-87% (c) 62-70% (d) 90-95%

11. Which of the following is the purest form of carbon?
(a) Coal gas (b) Coal tar
(c) Coke (d) None of these

12. Which of the following is not a free state of carbon?
(a) Petrol (b) Coke (c) Diamond (d) All of these

13. Which of the following are examples of exhaustible natural resources?
(a) Water and sunlight (b) Wildlife and minerals
(c) Coal and sunlight (d) All of the above

14. Ignition temperature is the _____ temperature at which the substance catches fire.
(a) Highest (b) Lowest (c) Maximum (d) Room

15. Which of the following is the best fire extinguisher for electrical equipment and inflammable substances?
(a) Water (b) CO_2 (c) O_2 (d) All of these

16. Which of the following units expresses fuel efficiency in terms of calorific value?
(a) kg/kJ (b) kJ/kg (c) J/kg (d) J/g

17. Which of the following describes a type of combustion in which a substance suddenly bursts into flame without any apparent cause?
(a) Rapid (b) Explosion
(c) Spontaneous (d) None of these

18. Which of the following fuels has a calorific value of 45000 kJ/kg?

(a) Cow dung cake (b) Petrol

(c) LPG (d) Biogas

SECTION – (C) BIOLOGY

19. What is the role of the placenta in mammalian reproduction?
(a) To provide a protective barrier
(b) To exchange nutrients and waste between mother and fetus
(c) To produce milk for the offspring
(d) To facilitate egg fertilization

20. Endemic species are:
(a) those which are facing the dangers of extinction
(b) exclusively found in a particular area only
(c) found everywhere (d) None of these

21. Sperms contribute to the development of zygote by providing:
(a) cytoplasm (b) centrioles
(c) nutrients (d) required activation enzymes.

22. The microorganism used for the production of alcohol is
(a) *Saccharomyces* (b) *Azotobacter*
(c) *Lactobacillus* (d) *Streptococcus*

23. Fauna means
(a) Wild animals (b) domesticated animals
(c) all type of plants (d) Both (a) and (c)

24. Which of the following practices helps in soil conservation?
(a) Overgrazing (b) Slash-and-burn agriculture
(c) Contour ploughing (d) Monoculture

25. What is the main purpose of curing in post-harvest processing of crops?
(a) To improve seed germination
(b) To reduce moisture content for storage
(c) To enhance the nutritional value (d) To protect crops from pests

26. What is the key principle of organic farming?
(a) Use of genetically modified organisms
(b) Heavy reliance on chemical fertilizers
(c) Integration of natural practices to maintain soil fertility
(d) Mechanization of all farming activities

27. Set the correct correlation-
Hermaphrodite: _____: Budding: _____
(a) Snails, Yeast (b) Amoeba, Hydra
(c) Snails, Birds (d) Lices, Amoeba

SECTION – (D) MATHEMATICS

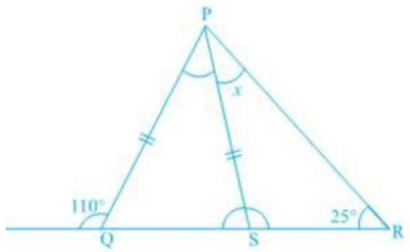
28. Consider the two statements given below:
Statement 1: Two supplementary angles are always obtuse angles.
Statement 2: A linear pair may have two acute angles.
(a) Statement 1 is true, and Statement 2 is false.
(b) Statement 1 is false, and Statement 2 is true.
(c) Both statements are true.
(d) Both statements are false.

29. The sides of a triangle have lengths 10, 6.5 and a, where a is a whole number. The minimum value that 'a' can take is:
(a) 6 (b) 5 (c) 4 (d) 3

30. Calculate the value of $\left[\left\{\left(\frac{-1}{3}\right)^{2}\right\}^{-2}\right]^{-1}$

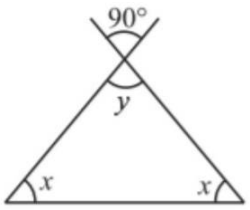
(a) 81 (b) – 81 (c) $-\frac{1}{81}$ (d) $\frac{1}{81}$

31. Find the value of x from the following figure:



(a) 35° (b) 45° (c) 55° (d) 70°

32. Find the value of (y – x) from the following figure:



(a) 90° (b) 60° (c) 45° (d) 30°

33. What is the probability of a number selected from the numbers 1, 2, 3, ..., 20 such that it is a prime number?

(a) $\frac{3}{5}$ (b) $\frac{7}{20}$ (c) $\frac{2}{5}$ (d) $\frac{9}{20}$

34. A rectangular straight road is constructed between points A and B. The breadth of the road is 4 m. If Mukul starts from point A and reaches point B in 2 hours with a

speed of 40 km/hr. The area of surface of road is

(a) 3,20,000 m^2 (b) 32,000 m^2

(c) 6,40,000 m^2 (d) 64,000 m^2

35. If 'a' is the side of an equilateral triangle, then its area is

(a) $\frac{\sqrt{3}}{4}a^2$ (b) $\frac{\sqrt{3}}{2}a^2$ (c) $\frac{3}{4}a^2$ (d) None of these

36. Find the speed of the train, if a train 142 m long passes a pole in 6 seconds.

(a) 77.2 km/hr (b) 79.6 km/hr

(c) 84.9 km/hr (d) 79.2 km/hr

37. Sachin scored twice as many runs as Rahul. Together, their runs fell two short of a double century. How many runs did Rahul score?

(a) 66 (b) 122 (c) 132 (d) 164

38. The decimal 23.45 can be written as $23.45 = 2\times10 + 3\times1 + 4\times\left(\frac{1}{x}\right) + 5\times\left(\frac{1}{y}\right)$

Then, the value of (y – x) is:

(a) 80 (b) 90 (c) 100 (d) 110

39. A is two years older than B who is twice as old as C. If the total of the ages of A, B and C be 27, then how old is B?

(a) 7 (b) 8 (c) 9 (d) 10

40. What is the unit digit in 2^{30}?

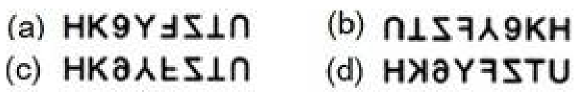
(a) 3 (b) 4 (c) 1 (d) 2

SECTION – (E) APTITUDE

41. Pointing to Ravindra, Manish said, "I am the only son of one of the sons of his father." How is Ravindra related to Manish?

(a) Nephew (b) Uncle (c) Father or Uncle (d) Father

42. Choose the correct water-image of the given code **UTZFY6KH** from among the alternatives:

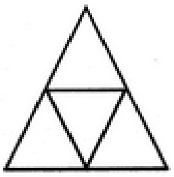


Instructions for Q 43 to Q 45: Here, the questions are based on relationship between two words. In these kind of questions three words are followed by a blank space, which you have to fill up in such a way that the **third** and the **fourth words** have the **same relationship** between them as the **first** and the **second words** have:

43. QIOK : MMKO :: YAWC : ?
    (a) UESG (b) USGA (c) VUES (d) SUEG
44. PASS : QBTT :: FAIL : ?
    (a) GJBM (b) GBJM (c) LABOR (d) LAUNCH
45. BLOCKED : YOLXPVW :: ? : OZFMXS
    (a) DEBATE (b) RESULT (c) LABOR (d) LAUNCH

Instructions for Q 46 to Q 48: Here the coding scheme is A = Z, B = Y, C = X and so on. Using this coding scheme answer the following:

46. The word ‘LIMIT’ will be coded as:
    (a) KNRNG (b) JKOKG (c) ORNRG (d) MHLHS
47. The word ‘SOUR’ will be coded as:
    (a) HLFI (b) IFLT (c) IHIF (d) FLTI
48. The word ‘POCKET’ will be coded as:
    (a) KLXPUG (b) KLXVPG (c) KLXPUC (d) KLXPVG
49. Find the number of triangles in the given figure



    (a) 4 (b) 5 (c) 6 (d) 7
50. While facing East you turn to your left and walk 10 m then turn to your left and walk 10 m¸ and now you turn 45° towards your right and go straight to cover 25 m, Now, in which direction are you from your starting point?
    (a) North-East (b) South-West (c) South-East (d) North-West
51. A and B start walking in opposite directions. A walked 5 km, B walked 6 km. Thereafter both turned to their right and walked 2 km. They turned to right again and walked 3 km, again turned to right and walked 2 km. How much distance apart are they from each other?
    (a) 2 km (b) 13 km (c) 3 km (d) 5 km
52. Siva, Sathish, Amar and Praveen are playing cards. Amar is to the right of Sathish, who is to the right of Siva. Who is to the right of Amar?
    (a) Praveen (b) Sathish (c) Siva (d) Can’t be determined
53. In a cricket season, India defeated Australia twice, West Indies defeated India twice, Australia defeated West Indies twice, India defeated New Zealand twice and West

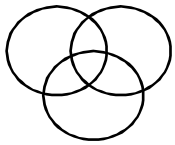
Indies defeated New Zealand twice which country has lost the greatest number of times?

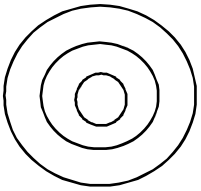
(a) India (b) Australia (c) New Zealand (d) West Indies

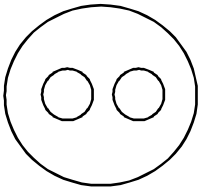
54. In a chess tournament each of the seven players will play every other player exactly once. How many matches will be played during the tournament?

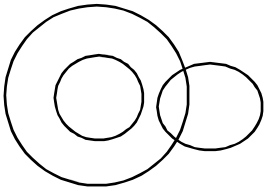
(a) 12 (b) 21 (c) 14 (c) 13

55. Which of the following diagram correctly represents India, Pakistan and Asia?

(a) 

(b) 

(c) 

(d) 

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ANSWER KEY | SAMPLE PAPER

Standard – VIII Moving to Standard – IX • (Code : A-SP)

1.	(b)	20.	(b)	39.	(d)
2.	(b)	21.	(b)	40.	(b)
3.	(d)	22.	(a)	41.	(b)
4.	(d)	23.	(c)	42.	(d)
5.	(a)	24.	(c)	43.	(a)
6.	(a)	25.	(b)	44.	(b)
7.	(c)	26.	(c)	45.	(d)
8.	(c)	27.	(a)	46.	(c)
9.	(b)	28.	(d)	47.	(a)
10.	(b)	29.	(c)	48.	(d)
11.	(c)	30.	(d)	49.	(b)
12.	(a)	31.	(b)	50.	(d)
13.	(b)	32.	(c)	51.	(d)
14.	(b)	33.	(c)	52.	(a)
15.	(b)	34.	(a)	53.	(c)
16.	(b)	35.	(a)	54.	(b)
17.	(c)	36.	(c)	55.	(c)
18.	(b)	37.	(a)		
19.	(b)	38.	(b)		