

PREVIOUS YEAR QUESTION PAPER

PATH - 2019

Time Allotted : 2 Hours

Maximum Marks : 180

- Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.
- You are not allowed to leave the Examination Hall before the end of the test.

INSTRUCTIONS

A. General Instructions :

1. There are 1 to 45 Question. Attempt ALL the questions. Answers have to be marked on the OMR sheets
2. Rough spaces are provided for rough work inside the question paper. No additional sheets will be provided for rough work.
3. Blank Papers, clip boards, log tables, slide rule, calculator, cellular phones, pagers and electronic device in any form, are not allowed.

B. Filling of OMR Sheet :

1. Ensure matching of OMR sheet with the question paper before you start marking your answers on OMR sheet.
2. On the OMR sheet, darken the appropriate bubble with black/blue pen for each character of your Enrollment No. and write your Name, Test Centre and other details at the designated places.
3. OMR sheet contains alphabets, numerals & special characters for making answer.

C. Marking Scheme for All Three Parts :

1. This booklet contains 45 questions & all questions are compulsory.
2. For each question you will be **awarded 4 marks** if you have darkened **only** the bubble corresponding to the correct answer and **zero mark** if no bubbles are darkened. In all other cases, **minus one (-1) mark** will be awarded.

Name of Candidate :

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Registration No. :

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1. A car covers the 1st half of the distance between two places at a speed of 40 km h^{-1} and the 2nd half at 60 km h^{-1} . What is the average speed of the car ?
(A) 48 m/ s (B) 44 m/ s (C) 45 m/ s (D) 42 m/ s
2. A bag of wheat weighs 20 kg. To what height should it be raised so that its potential energy may be 9800 J ($g = 9.8 \text{ m/s}^2$) ?
(A) 5 m (B) 6 m (C) 10 m (D) 9 m
3. Find the value of 5°C in K scale respectively.
(A) 270 k (B) 278 k (C) 280 k (D) 290 k
4. Two liquid have the densities in the ratio of 1 : 2 and specific heats in the ratio of 2 : 1. Find the ratio of thermal capacity of equal volume of those liquids.
(A) 1:1 (B) 1:2 (C) 2:3 (D) 4:5
5. A sound wave has frequency 1000 Hz and wavelength 33cm. How long will it take to move through 1 km ?
(A) 3.03 s (B) 4.03 s (C) 5.03 s (D) 6.03 s
6. Two children are at the opposite end of an iron pipe. One strikes the end of the pipe with a stone. Calculate the ratio of the time taken by sound waves in air and in iron to reach the other child. Use speed of sound in (i) air = 344 m/s and (ii) iron = 5130 m/s .
(A) 11.9 (B) 14.9 (C) 15.9 (D) 19.9
7. A cook uses a 'fire tong' of length 35 cm to lift a piece of burning coal of mass 200g. If he applies his effort at a distance of 7 cm from the fulcrum, then the effort in SI unit is : [Take $g = 10 \text{ ms}^{-2}$]
(A) 10 N (B) 20 N (C) 40 N (D) 80 N
8. CO_2 reacts with _____ to form Na_2CO_3 .
(A) H_2O (B) NaOH (C) NaCl (D) Na_2O
9. Which of the following compounds is a base?
(A) Salt (B) Hydrochloric acid (C) Copper sulphate (D) Sodium hydroxide
10. 70% of sun's mass is- (A) He (B) H_2 (C) O_2 (D) Ar
11. Mercury is also called-
(A) liquid gold (B) liquid copper (C) liquid silver (D) none of these
12. Which of the following is/are used as bleaching agent?
(A) SO_2 (B) H_2S (C) Cl_2 (D) all
13. The percentage of gold present in 20 carat gold is-
(A) 83.33 (B) 100 (C) 50 (D) 73.3
14. The general formula of alkyne is-
(A) $\text{C}_n\text{H}_{2n+2}$ (B) C_nH_{2n} (C) $\text{C}_n\text{H}_{2n-2}$ (D) $\text{C}_n\text{H}_{2n-n}$
15. Which of the following state is the most populated state of India?
(A) Bihar (B) Rajasthan (C) Uttar Pradesh (D) Kerala

16. Which one of the following number is exactly divisible by 11 ?
(A) 235641 (B) 245642 (C) 315624 (D) 415624
17. Change $0.74\overline{35}$ in the form of p/q.
(A) $\frac{7361}{9900}$ (B) $2\frac{7361}{9900}$ (C) $3\frac{7361}{9900}$ (D) $4\frac{7361}{9900}$
18. Simplify : $\left[3\frac{1}{3} \div \left\{ 1\frac{1}{2} - \frac{1}{2} \left(2\frac{1}{2} - \frac{1}{4} - \frac{1}{6} \right) \right\} \right]$
(A) 78 (B) 24 (C) 31 (D) 72.7
19. Find the cube root of .000216.
(A) 0.06 (B) 0.006 (C) 0.0006 (D) 0.6
20. Find the total number of prime factors in the expression $(4)^{11} \times (7)^5 \times (11)^2$
(A) 41 (B) 42 (C) 29 (D) 414
21. On dividing 4150 by certain number , the quotient is 55 and the remainder is 25. Find the divisor.
(A) 75 (B) 78 (C) 77 (D) 71
22. $P(x) = x^3 + x^2 + 2x + 3$ is divided by $x + 2$, then find its remainder.
(A) -5 (B) -7 (C) -10 (D) -6
23. Solve : $3x - 2y = 4$, $x + y - 3 = 0$ Find x, y
(A) 2 & 1 (B) 2 & 4 (C) 3 & 1 (D) 4 & 1
24. If the manufacture gains 10% on an article, the wholesale dealer gain 15% and the retailer 25%, then find the cost of production of a table whose retail price is Rs. 1265 ?
(A) Rs. 500 (B) Rs. 800 (C) Rs. 600 (D) Rs. 700
25. A man bought toffees at 3 for a rupee. How many toffees for a rupee must he sell to gain 50% ?
(A) 3 (B) 5 (C) 54 (D) 2
26. A man bought a horse and a carriage for Rs. 3000. He sold the horse at a gain of 20% and the carriage at a loss of 10%, there by gaining 2% on the whole. Find the cost of the horse.
(A) 1200 (B) 1000 (C) 1400 (D) 1500
27. A tradesman sold an article at a loss of 20%. If the selling price had been increased by Rs. 100, there would have been a gain of 5%. What was the cost price of the article ?
(A) 200 (B) 300 (C) 400 (D) 500
28. If Rs. 782 be divided into three parts, proportional to $\frac{1}{2} : \frac{2}{3} : \frac{2}{4}$, then find the first part.
(A) 204 (B) 205 (C) 206 (D) 202
29. A starts business with Rs. 3500 and after 5 months, B joining with A as his partner. After a year, the profit is divided in the ratio 2 : 3. What is B's contribution in the capital ?
(A) 9000 (B) 5000 (C) 6000 (D) 7000

30. In what time a sum of Rs.2700 amounts to Rs. 3240 at a rate of $6\frac{2}{3}\%$ at S.I.?

- (A) 35 (B) 8 (C) 4 (D) 3

31. If $\sqrt{3} = 1.732$, find the value of $\frac{1}{\sqrt{3}-1}$

- (A) 1.366 (B) 2.366 (C) 4.366 (D) 6.366

32. 0, 5, 22, 57, 116, ?

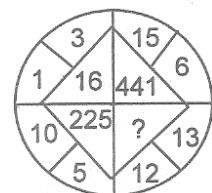
- (A) 205 (B) 216 (C) 192 (D) 207

33. F3X, H7U, J15R, L31O, ?

- (A) M46L (B) N44L (C) N63L (D) N44M

34. ? IS

- (A) 125 (B) 25
(C) 625 (D) 156



35. Arrange the following group of letters such that when arranged in a specific order, meaningful word is formed.

V A H Y E

1 2 3 4 5

- (A) 2,3,4,5,1 (B) 3,2,5,1,4 (C) 3,5,2,1,4 (D) 1,5,2,3,4

36. Find which one word can not be made from the letters of the given word. TEMPERAMENT

- (A) METER (B) PETER (C) TENTER (D) TESTER

37. If JAPAN is coded as KCSES, then the code for CASTLE will be -

- (A) DCIJOB (B) DCJKRD (C) DCKMSG (D) DCVXQK

38. In a certain code, C is coded as 0, E as 7, T as 4, I as 9, P as 1, R as 3, and U as 5. How is 1904537 coded in that code?

- (A) PICTRUE (B) PICTURE (C) RICTPUE (D) PCTUREI

39. A man walks 9 km due East and then 12 km due South. How far is he from the starting point?

- (A) 15 km (B) 6 km (C) 7 km (D) None of these

40. What is the value of $(48 - 12) \div 4 + 6 \div 2 \times 3 = ?$

- (A) 10 (B) 0.6 (C) 2 (D) 18

41. $a - b - c$ implies –

(A) $a - b - c$

(B) $b + a - c$

(C) $c \times b + a$

(D) $b + a \div c$

42. Find the days of the week on 16 January, 1969.

(A) Tuesday

(B) Thursday

(C) Friday

(D) Monday

43. 3, 6, 24, 30, 63, 72, ?, 132

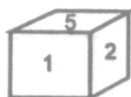
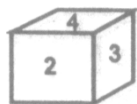
(A) 30

(B) 40

(C) 80

(D) 120

44. From the following figures of dice, find which number will come in place of ‘?’



(A) 4

(B) 5

(C) 2

(D) 3

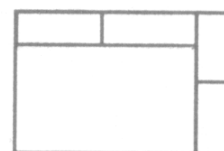
45. What is the number of rectangles in the following figure ?

(A) 6

(B) 7

(C) 8

(D) 9



ROUGH WORK

