

Code
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Time : 45 Min

MM : 60

Date:

SENIOR GROUP (IX & X) SAMPLE PAPER

GENERAL INSTRUCTIONS :

- Fill in your complete detail in the space provided on first page of **Question Paper** & in **Answer Sheet**, before starting the paper.
- Each question has only one correct answer.
- There is (+3) marking for each right answer & (– 1) negative marking for each wrong answer. So attempt each question carefully.
- All questions are correct and no queries will be entertained during the examination.
- Blank paper, clipboards, log tables, slide rulers, calculators, cellular phones, pagers and any other electronic gadgets are not allowed.
- Use the space provided in the question paper for the rough work.

INSTRUCTIONS FOR ANSWER SHEET (ORS):

- Fill in all the details given in the Answer Sheet properly.
- DO NOT TAMPER the Answer Sheet.
- Use only BLUE or BLACK ball point pen to fill the answer sheet.

NAME OF THE CANDIDATE :ROLL NO. :

I have read all the instructions
and shall abide by them

I have verified the identity, name and roll number
of the candidate.

Signature of the Candidate

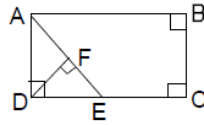
Signature of the Invigilator

- PCCP Head Office :

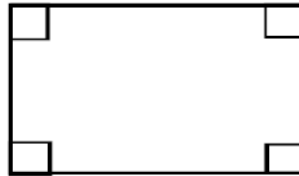
Address : Plot No. A-51 [A], IPIA, Near Resonance CG Tower,
Behind City Mall, Jhalawar Road, Kota (Rajasthan)-324005
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1. In the given figure, $DF = 4$ units, Area of $\triangle DFE = 6$ sq. units, $DE = \frac{1}{2}$, then area ABCD is



- (A) 100 Square unit (B) $90\sqrt{3}$ Square units (C) $60\sqrt{3}$ Square units (D) None of these
2. Maximum value of k , so that 2^k divides $13^4 - 11^4$
 (A) 3 (B) 4 (C) 5 (D) 6
3. If $f(x) = \frac{9^x}{9^x + 3}$, then what is the sum of $f\left(\frac{1}{2016}\right) + f\left(\frac{2}{2016}\right) + f\left(\frac{3}{2016}\right) + \dots + f\left(\frac{2015}{2016}\right)$
 (A) 1007.5 (B) 2017.5 (C) 503.5 (D) Cannot be determined
4. If "a G b" is the square root of greatest square number between a and b. : "a L b" is the square root of the least square number between a and b and "a M b" is the square root of the product of the greatest square and the least square between a & b, then (500 G 1088) L (10 M 120) is
 (A) 4 (B) 6 (C) 10 (D) 16
5. One inch square are cut from the corners of this 5 inch square. What is the area in square inches of the largest square that can be fitted into the remaining space.



- (A) 9 (B) $12\frac{1}{2}$ (C) 15 (D) $15\frac{1}{2}$
6. $f(x) = x^2 + bx + c$ where b, c are integers. If $f(x)$ is the factor of both $x^4 + 6x^2 + 25$ & $3x^4 + 4x^2 + 28x + 5$ then $f(1)$ is
 (A) 3 (B) 4 (C) 5 (D) 6

Space for Rough Work

7. One train starts from point A with speed S_A and other start from point B with speed S_B at same time and after meeting they reach at B and A respectively in time t_A and t_B , then

(A) $\frac{S_A}{S_B} = \sqrt{\frac{t_B}{t_A}}$ (B) $\frac{S_A}{S_B} = \sqrt{\frac{t_A}{t_B}}$ (C) $\frac{S_A}{S_B} = \frac{t_A}{t_B}$ (D) $\frac{S_A}{S_B} = \frac{t_B}{t_A}$

8. A reservoir is filled with water through two valves. The first valves open for one third of the time needed for the second valves to fill the reservoir then the second valves alone was open for half the time needed for the first valves alone to fill the reservoir. As a result, the reservoir was filled $\frac{5}{6}$ of its capacity. Both valves together can fill by the reservoir in 2.4 hr. What time will it take each valves separately to fill up the reservoir ?

(A) 2 hr. and 3 hr. (B) 1 hr. and 2 hr. (C) 2 hr. and 4 hr. (D) 4 hr. and 6 hr.

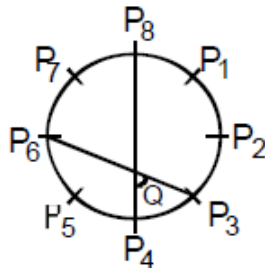
9. Suppose $f(x)$ is a rational function such that $3f\left(\frac{1}{x}\right) + \frac{2f(x)}{x} = x^2$ for $x \neq 0$, find $f(2)$.

(A) $\frac{67}{20}$ (B) $\frac{37}{12}$ (C) $\frac{25}{12}$ (D) $\frac{12}{7}$

10. The LCM of $(5\pi, \pi^2)$ is

(A) 1 (B) 5π (C) $5\pi^2$ (D) does not exist.

11. Eight points $P_1, P_2, P_3, \dots, P_8$ divide the circle in 8 equal arcs. The measure of $\angle Q$ is .



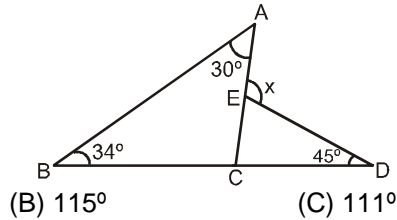
(A) 67.5° (B) 77.5° (C) 60° (D) 72.5°

Space for Rough Work

12. A, B, C are employed to do the piece of work and they completed the work in 10 days. C has worked only for the first 3 days along with A and B. In these 3 days they completed only 37% of the work. A and B worked for the remaining 7 days. The amount of work done by B in 4 days is equal to the amount of work done by A in 5 days. In how many days can C separately do the entire work ?
(A) 20 (B) 25 (C) 30 (D) 35
13. One half of the water is poured out of a full container. Then one third of the remainder is poured out continue the process. One fourth of the remainder for the third pouring, one fifth of the remainder for the fourth pouring etc. After how many pouring does exactly one tenth of original water remain ?
(A) 5 (B) 7 (C) 9 (D) 10
14. Quadrilateral ABCD is inscribed inside a circle with $\angle BAC = 70^\circ$, $\angle ADB = 40^\circ$, $AD = 4$, and $BC = 6$. What is AC.
(A) $3 + \sqrt{5}$ (B) 6 (C) $\frac{9}{2}\sqrt{2}$ (D) $8 - \sqrt{2}$
15. Let S (n) equal the sum of the digits of positive integer n. For ex, $S(1507) = 13$. For a particular positive integer n, $S(n) = 1274$. Which of the following could be the value of $S(n+1)$?
(A) 12 (B) 3 (C) 1239 (D) 1265
16. A bag contains 100 tickets numbered 1, 2, 3,, 100. If a ticket is drawn out of it at random, what is the probability that the ticket drawn has the digit 2 appearing on it ?
(A) $\frac{19}{100}$ (B) $\frac{20}{100}$ (C) $\frac{32}{100}$ (D) $\frac{23}{100}$
17. If the remainder when the polynomial $f(x)$ is divided by $x - 1$, $x + 1$ are 6,8 respectively then the remainder when $f(x)$ is divided by $(x - 1)(x + 1)$ is
(A) $7 - x$ (B) $7 + x$ (C) $8 - x$ (D) $8 + x$

Space for Rough Work

18. In the given figure, the value of x is.



- (A) 120° (B) 115° (C) 111° (D) 109°

19. Find the value of $\frac{\cot(90^\circ - \theta)}{\tan \theta} + \frac{\operatorname{cosec}(90^\circ - \theta) \cdot \sin \theta}{\tan(90^\circ - \theta)}$.

- (A) $\sin^2 \theta$ (B) $\cos^2 \theta$ (C) $\sec^2 \theta$ (D) $\operatorname{cosec}^2 \theta$

20. If the n^{th} term of the A.P. 9, 7, 5, ... is same as the n^{th} term of the A.P. 15, 12, 9, Find n.

- (A) 8 (B) 7 (C) 6 (D) 5

Answer key

Ques.	1	2	3	4	5	6	7	8	9	10
Ans.	A	C	A	B	C	B	A	D	A	D
Ques.	11	12	13	14	15	16	17	18	19	20
Ans.	A	C	D	B	C	A	A	D	C	B

Space for Rough Work

Space for Rough Work