Sahaj Adhyayan (सहज अध्ययन)

जर हे Practice Question Papers तुम्हाला खरंच फायदेशीर वाटत असतील तर तुमच्या सर्व मित्र मैत्रिणींना पाठवा.

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तर ते आम्हाला WhatsApp वर पाठवा,

इतर विद्यार्थी मित्रांना त्या सर्वांचा उपयोग होईल.

TERM – END EXAMINATION 2021-22

Class :- XI Science **Subject :- Mathematics** **Time :- 2 ½ Hrs** **Marks :- 50**

General Instructions :- The question paper divided into four sections
1) Section A :- Q. No. 1 contains five multiple choice type questions carrying two mark each. Q. No. 2 contains four very short answer type questions carrying one mark each.
2) Section B :- Q. No. 3 to 13 contains eleven short answer type of questions carrying Two marks each.
3) Section C :- Q. No. 14 to 19 contain six short answer type questions carrying Three marks each
4) Section D:- Q. No 20 to 23 contain Four long answer type question carrying Four marks each attempt any two
5) Use of Logarithmic Table is allowed. Use of calculator is not allowed
6) For each MCQ correct answer must be written along with its alphabets eg. a) ...../ b) ...../ c) ...../ d) ....
7) Figure to the right indicate full marks

Section A

Q. 1. Select and write most appropriate answer from the given alternatives 2 marks each (10)

i) If ω is a complex cube root of unity then the value of $\omega^9 + \omega^{10} + \omega^{11}$ *is*

a) – 1 b) 1 c) 0 d) 2

ii) The relation " > " in the set of N (natural number) is

a) symmetric b) Reflexive c) Transitive d) equivalence relation

iii) $\frac{\pi^c}{18}$ *is equal to*

a) 15^0 b) 10^0 c) 18^0 d) 20^0

iv) If $\theta = 60^0$ *then* $\frac{1+\tan^2\theta}{2\tan\theta}$ *is equal to*

a) $\frac{\sqrt{3}}{2}$ b) $\frac{2}{\sqrt{3}}$ c) $\frac{1}{\sqrt{3}}$ d) $\sqrt{3}$

v) The value of sin (495^0) is

a) 1 b) $-1/\sqrt{2}$ c) $1/\sqrt{2}$ d) $\sqrt{2}$

Q. 2. Answer the following (One mark each) (4)

i) Evaluate i^{35}

ii) For a G. P. 3 , 6 , 12 , 24 , ... find Sn

iii) Evaluate $\sin 30^0 + \cos 45^0 + \sin 180^0$

iv) Find the value of $\cos 75^0$

Section B

Attempt any EIGHT (2marks each) (16)

Q. 3. Find modulus of the complex number –3(1 – i)

Q. 4. Describe the set in Roster form $A = \{x | x \text{ is a letters of the word MOVEMENT}\}$

Q. 5. If A = { 1 , 2 , 3 } and B = { 2 , 4 } state the elements of AxB.

Q.6. Find a and b if a + 2b + 2ai = 4 + 6 i

Q. 7. Represent the complex number Z = –1 + i in Argand's diagram.

Q. 8. Determine whether the pair of angles 860^0 , 580^0 are coterminal or not

Q. 9. State quadrant in which θ lies if $\sin\theta < 0$ and $\tan\theta > 0$

Q. 10. Find the value of $\sin\frac{19\pi^c}{3}$

Q. 11. Prove that $\tan\left(\frac{\pi}{4} + \theta\right) = \frac{1-\tan\theta}{1+\tan\theta}$

Q. 12. For the G.P. if $r = \frac{1}{3}, a = 9$ *find* t_7

Q. 13. Write power set of A = { 1 , 2 , 3 }

Section C

(12)

Attempt any FOUR (3marks each)

Q. 14. Eliminate θ from the relation $x = 3sec\theta$, $y = 4tan\theta$

Q. 15. In ΔABC , if $mLA = \frac{7\pi^c}{36}$ $mLB = 120^0$ find mLC in degrees and radian

Q. 16. Prove that $tan50^0 = tan40^0 + 2tan10^0$

Q. 17. Express $\frac{i(4+3i)}{1-i}$ in the form of $a + ib$ where $a, b \in R$ and $i = \sqrt{-1}$

Q. 18. If A = { 1,2,3,4 } B = { 3,4,5,6 } and X = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 } then verify

$(A \cup B)' = A' \cap B'$

Q. 19. Find three numbers in G.P. such that their sum is 21 and sum of their squares is 189

Section D

(8)

Attempt any TWO (4 marks each)

Q. 20. If ω is a complex cube root of unity, show that i) $(2-\omega)(2-\omega^2)=7$ ii) $(1+\omega-\omega^2)^6 = 64$

Q. 21. If A and B are subsets of universal set X and n(X) = 50, n(A) = 35 n(B) = 20, n(A'∩B') = 5

find i) $n(A \cup B)$ ii) n(A∩B)

Q. 22. Find the angle between hour hand and minute hand in a clock at

i) ten past eleven ii) twenty past seven.

Q. 23. Prove that $cos2\theta = \frac{1-tan^2\theta}{1+tan^2\theta}$

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