ST. THOMAS' COLLEGE (AUTONOMOUS), THRISSUR
DEPARTMENT OF MATHEMATICS
PG   BRIDGE COURSE SCORE SHEET: 2019-2020

NAME OF STUDENT	SCORE/60
ANJANA K	36
SONY BABU	24
ARYALAKSHMI C D	42
HASNA N S	42
KEERTHANA THILAKAN	33
SNEHA N J	27
DISHA K DAVIS	36
ATHUL B	24
BEJOY JAISON	39
ANJANA K ARAVINDAN	21
ARDRA SUNNY	21
JISHA A S	21
JOVIN JOY P	24
ABEL S PAUL	24
ROBIN T J	30
JITHIN PRAPHUL E	18
ATHUL KRISHNA	15

ADVANCED LEARNERS
NIL
AVERAGE LEARNERS
ARYALAKSHMI C D
HASNA N S
BEJOY JAISON
ANJANA K
DISHA K DAVIS
SLOW LEARNERS
KEERTHANA THILAKAN
ROBIN T J
SNEHA N J
ABEL S PAUL
ATHUL B
JOVIN JOY P
SONY BABU
ANJANA K ARAVINDAN
ARDRA SUNNY
JISHA A S
JITHIN PRAPHUL E
ATHUL KRISHNA

Antony John C F
Class Teacher
1st Sem M.Sc. maths

P. B. Vincent
H.O.D (maths)

Time   : 1 Hour

Name :

Marks : 60

Roll No:

1. The remainder of 2^{1000} divided by 17 is ....

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

2. Let G be a cyclic group of order 6.The number of generators of G is
   a) 5   b) 4   c) 3   d) 2

3. The smallest odd order for non-abelian group is
   a) 9   b) 15   c)21   d) 23

4. Which of the following function is not analytic at $z = 0$?
   a) tan z b) cot z c)e^z d)z^2

5. The function $\frac{\sin z}{z^2}$ at $z = 0$ has ...

   a)Simple pole   b) Pole of order 2   c) A removable singularity   d)An essential singulatity

6. $\int_C \bar{z}\, dz$, where C is the semi circular arc $|z| = 1$ above the real axis from -1 to -1 has the value
   a) $\frac{\pi i}{2}$ b)πi c) $-\pi i$ d) $\frac{\sqrt{\pi}}{2}$

7. $\int_{|z|=2} \frac{z^2}{z+3}\, dz =..$
   a)0   b)$2\pi i$ c) $4\pi i$ d)None of the above

8. $\int_{|z|=2} \frac{1+z^2}{z-1}\, dz =$

   a)$2\pi i$ b)0   c)$10\pi i$ d)$4\pi i$

9. Which of the following functions are entire

   a) tan z b)e^z c)$\frac{z+1}{z}$ d)$|z^2|$

10. Which is the dimension of the vector space $\mathbb{C}$ over the field $\mathbb{R}$?

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

11. Which one of the following is correct?

    (a) $\mathbb{R}$ is a vector space over $\mathbb{N}$ (b) $\mathbb{R}$ is a vector space over $\mathbb{C}$
    (c) $\mathbb{R}$ is a vector space over $\mathbb{Z}$ (d) None of these.

12. Let $S = \{(1,2,3), (1,0,-1)\}$. The value of k for which the vector $(2,1,k)$ belongs to the linear span of S is

 (a) 1 (b) -1 (c) 2 (d) 0

13. If V and W are subspaces of $\mathbb{R}^n$, then

 (a) $V \cup W$ is necessarily a subspace of $\mathbb{R}^n$
 (b) $V \cup W$ is never a subspace of $\mathbb{R}^n$
 (c) $V \cup W$ is a subspace of $\mathbb{R}^n$ if and only if one of the V,W is contained in the other
 (d) $V \cup W$ is a subspace of $\mathbb{R}^n$ if and only if one of the V,W in $\{0\}$

14. Let $S = \{(x_1, x_2, \dots x_{100}) \in \mathbb{R}^{100} : x_1 = x_2 = \cdots = x_{50}, \ x_{51} + x_{52} + \cdots + x_{100} = 0\}$. Then dim S is

 (a) 49 (b) 50 (c) 47 (d) 51

15. Which of the following arithmetical function is completely multiplicative

 (a) $\emptyset$ function   (b) μ function   (c) σ function   (d) None of these

16. If $G = \{1, -1, i, -i\}$ is a multiplicative group, then order of $-i$ is

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

17. In the additive group of integers, the order of every elements $a \neq 0$ is

 (a) Infinite   (b) one   (c) zero   (d) None of these

18. Which of the following is not correct?
 (a) The set of interior points of $\mathbb{N}$ is empty
 (b) The set of interior points of $\mathbb{Q}$ is empty
 (c) The set of interior points of $\mathbb{Z}$ is empty
 (d) The set of interior points of $\mathbb{R}$ is empty

19. The intersection of any collection of closed set is
 (a) Closed set   (b) open set   (c) null set   (d) None of the above

20. Every open set of real numbers is the union of
 (a) Countable collection of disjoint open intervals
 (b) Uncountable collection of disjoint open intervals
 (c) Countable collection of disjoint closed intervals
 (d) Uncountable collection of disjoint closed intervals

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SECTION I: LINEAR ALGEBRA

Vector Space, Sub space, Linear combination, Subspace spanned by a subset, Basis, Dimension.

SECTION II: ABSTRACT ALGEBRA

Binary operations, Groups, Subgroups, Cyclic groups, Permutations

SECTION III: COMPLEX ANALYSIS

Analytic functions, Cauchy Goursat Theorem, Cauchy integral formula & extension, Taylors series, Laurent Series, Zeors, Singulat points, Residues & Cauchy Residue theorem.

SECTION IV: REAL ANALYSIS

Set theory, functions, Limit, Continuity, Differentiation, Sequence and series of functions, Open and closed sets.

SECTION V: NUMBER THEORY

Divisibility Theory, Congruences, Fermat's Theorem, Euler's Theorem, Wilson's Theorem