Roll No. _____ Annual 2018

Mathematics **(INTERMEDIATE PART – I , Class 11th) - (I)** **Paper : I**

Time: 30 Minutes **Objective** **Code : 6191** **Marks : 20**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

1. i. If $(x+iy)^2 = a+ib$ then $x^2 - y^2$ equals:

(A) a^2+b^2 (B) a^2-b^2 (C) $a-b$ (D) $a+b$

ii. If 'p' is a logical statement , then $p \wedge \sim p$ is always:

(A) absurdity (B) contingency (C) tautology (D) conditional

iii. If A is a square matrix and $A^t = A$, then A is called

(A) hermitian matrix (B) skew hermitian matrix (C) symmetric matrix (D) skew symmetric matrix

iv. Let $A = \begin{bmatrix} 1 & 2 & 3x \\ 2 & 3 & 6x \\ 3 & 5 & 9x \end{bmatrix}$ then $|A|$ is equal to:

(A) 1 (B) 3 (C) 2 (D) 0

v. The sum of all cube roots of unity equals:

(A) 1 (B) ω (C) 0 (D) ω^2

vi. If '$x-2$' is a factor of polynomial x^3+2x^2+kx+4 then k equals :

(A) 10 (B) -10 (C) 2 (D) 4

vii. $\frac{A}{x-1}+\frac{B}{x+1}$ is a partial fraction form of the proper fraction:

(A) $\frac{1}{x^2-1}$ (B) $\frac{1}{x^3-1}$ (C) $\frac{1}{x^2+1}$ (D) $\frac{1}{x^3+1}$

viii. Sum of n - arithmetic means between a and b is equal to :

(A) $\frac{a-b}{2}$ (B) $n(\frac{a-b}{2})$ (C) $\frac{a+b}{2}$ (D) $n(\frac{a+b}{2})$

ix. If 1/a , 1/b and 1/c are in G.P then common ratio is equal to:

(A) $\pm\sqrt{\frac{c}{a}}$ (B) $\pm\sqrt{\frac{a}{c}}$ (C) $\pm\sqrt{a+c}$ (D) $\pm\sqrt{a-c}$

x. $\frac{n!}{(n-r)!}$ is always equal to

(A) ${}^{n}p_{r}$ (B) ${}^{n}c_{r}$ (C) ${}^{r}p_{n}$ (D) ${}^{r}c_{n}$

xi. A coin is tossed twice then probability of getting all heads equal:

(A) 1/2 (B) 1/3 (C) 1/4 (D) 2/3

(Turn Over)

Roll No._____ Annual 2018

Biology (New Scheme) **(INTERMEDIATE PART- I) (III)** **Paper : I**

Time: 20 Minutes **Academic Session 2017 - 2019** **Marks : 17**

SAH

OBJECTIVE

Code: 6465

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

1- i. A monoecious plant is that in which:
(A) male and female sex organs on same plant (B) male and female sex organs on different plants
(C) only has male sex organ (D) only has female sex organ

ii. Mammals have only:
(A) right arotic arch (B) left arotic arch (C) both left and right arotic arches (D) no arotic arch

iii. The largest invertebrate is:
(A) earth warm (B) star fish (C) giant squid (D) ascarus

iv. Pyruvic acid is produced as a result of
(A) krebs cycle (B) citric acid cyle (C) respiratory chain (D) glycolysis

v. Accumulation of bile in blood causes the condition called:
(A) constipation (B) ulcer (C) jaundice (D) piles

vi. First action spectrum was obtained by
(A) T.W . Engelmann (B) Van neil (C) Malvin Calvin (D) Ernst Haeckel

vii. Respiratory organs in fish are
(A) lungs (B) gills (C) skin (D) Fins

viii. Water potential of pure water is:
(A) less than zero (B) more than zero (C) equal to zero (D) equal to one

ix The open circulatory system is present in
(A) periplaneta (B) pheretima (C) Rana tigrina (D) Amphioxus

x. The most recent era is
(A) Paleozoic (B) Cenozoic (C) Mesozoic (D) Protozoic

xi. Chemical nature of most cellular secretions is
(A) proteins (B) lipids (C) carbohydrates (D) glycoproteins

xii. If protein part of co-factor is covalently bonded to enzyme, it is called as
(A) co-enzyme (B) prosthetic group (C) activator (D) apoenzyme

xiii. Proteins are synthesized by
(A) polysome (B) nucleosome (C) lysosome (D) ribosome

xiv. Which one is an insect?
(A) Hag fish (B) Cuttle fish (C) Silver fish (D) Star fish

xv. Which one is microaerophilic bacterium?
(A) campylobacter (B) spirochet (C) mycoplasma (D) vibrio Comma

xvi. Conjugation in bacteria is promoted by the structure:
(A) Flagella (B) Pili (C) Cillia (D) Spores

xvii. Saccharomyces cerevisiae is a
(A) Yeast (B) Algae (C) Bacterium (D) Protozone

Roll No._____ Annual 2019

Biology (New Scheme) **(INTERMEDIATE PART - I)** **Paper : I**

Time : 2 : 40 Hours **Academic Session 2017 - 2019** **Marks : 68**

SUBJECTIVE

Note :- Section I is compulsory. Attempt any three (3) questions from Section II.

(Section - I)

2. Write short answers to any Eight Parts. **(8 x 2 = 16)**

i. What is the difference between deductive reasoning and inductive reasoning?
ii. What is hydroponic culture technique?
iii. What are obligate intracellular parasites?
iv. What is lock and key model? Who proposed it?
v. Define co-factor. What is its function?
vi. Differentiate between activator and coenzyme.
vii. Name three sub classes of mammalia.
viii. Give beneficial effects of insects.
ix. Give some uses of shells of mollusca.
x. Define metamorphosis.
xi. What is histoplasmosis?
xii. Differentiate between conidia and spores.

3. Write short answers to any Eight parts. **(8 x 2 = 16)**

i. Differentiate between spore and cyst.
ii. Write two main characteristics of ciliates.
iii. Write two characters of giant amoeba.
iv. Give the ecological importance of dinoflagellates.
v. What are foraminiferans? Give their importance.
vi. Name living and extinct representatives of psilopsida.
vii. What are accessory pigments? Give two examples.
viii. Differentiate between essential and non essential parts of a flower.
ix. What is Rubisco? Write down its function.
x. Differentiate between bolus and chyme.
xi. Give the composition of saliva.
xii. What is botulism? Give its cause.

4. Write short answers to any Six parts. **(6 x 2 = 12)**

i. What are conjugated molecules? Give example.
ii. Write down functions of SER.
iii. Write down salient features of "Cell Theory".
iv. What is photorespiration? Give its products.
v. What is respiratory distress syndrome?
vi. Write down properties of respiratory surfaces in animals.

(Turn Over)

PAPER NO. 08

SARGODHA BOARD FIRST GROUP

ANNUAL 2018

Roll No. _____ (To be filled in by the candidate)

Maximum Marks: 20 **(OBJECTIVE TYPE)** Time Allowed : 30 Minutes

NOTE: Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen Ink. Cutting or filling two or more circles will result in zero mark in that question.

Q1. 20

1. The number π is
   (A) Whole number (B) A natural number
   (C) A rational number (D) An irrational number
2. If every element of a set A is also an element of set B, then
   (A) $A \subseteq B$ (B) $B \subseteq A$
   (C) $A \cap B = \phi$ (D) $A \cap B = B$
3. If the matrices $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$ then A^t, the transpose of A is
   (A) $\begin{bmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{bmatrix}$ (B) $\begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$
   (C) $\begin{bmatrix} 1 & 3 \\ 2 & 4 \\ 5 & 6 \end{bmatrix}$ (D) $\begin{bmatrix} 1 & 2 \\ 3 & 5 \\ 4 & 6 \end{bmatrix}$
4. If the determinant $\begin{vmatrix} k & 4 \\ 4 & k \end{vmatrix} = 0$ then k is equal to.
   (A) 16 (B) 0 (C) ± 4 (D) 8
5. A quadratic equation has degree.
   (A) 0 (B) 1
   (C) 2 (D) 3
6. The roots of the quation $x^2 + x - 6 = 0$ are
   (A) Real (B) Equal (C) Complex (D) Irrational
7. The given form $(x - 4)^2 = x^2 - 8x + 16$ is
   (A) A transcendental (B) Cubic equation
   (C) An identity (D) An equation
8. The third term of the sequence $a_n = (-1)^n (n - 7)$ is:

Sargodha Board 2018 (First Group)

Roll No. _____ (To be filled in by the candidate)

Maximum Marks: 80 **(SUBJECTIVE TYPE)** Time Allowed :2.30 Hours

PART-I

Q2. Attempt any eight parts. (16)

(i) Define Recurring or Periodic decimal. Give one example.

(ii) Factorize: $a^2 + 4b^2$

(iii) Find multiplicative inverse of "$-3 - 5i$".

(iv) Write $\{x|x \in Z \wedge -5 < x < 5\}$ in the descriptive and tabular form.

(v) Write inverse and contra positive of $\sim P \rightarrow q$.

(vi) Define (1-1) and onto function.

(vii) Find x and y if $\begin{bmatrix} x+3 & 1 \\ -3 & 3y-4 \end{bmatrix} = \begin{bmatrix} 2 & 1 \\ -3 & 2 \end{bmatrix}$

(viii) If $A \begin{bmatrix} 1 & 2 & -3 \\ 0 & -2 & 0 \\ -2 & -2 & 1 \end{bmatrix}$, find cofactors A_{12} and A_{22}.

(ix) Without expansion verify that: $\begin{vmatrix} bc & ca & ab \\ \frac{1}{a} & \frac{1}{b} & \frac{1}{c} \\ a & b & c \end{vmatrix} = 0$

(x) State two basic techniques for solving a quadratic equation.

(xi) Solve the equation: $2x^4 - 32 = 0$

(xii) Discuss the nature of the roots of $2x^2 - 7x + 3 = 0$

Q3. Attempt any eight parts. (16)

(i) Write the partial fraction form of $\frac{2x^3 - 3x^2 - 4x}{(x^2+2)^2(x+1)^2}$

(ii) Write the first four terms of the sequence if $a_n = a_{n-1} + n \; ; \; a_1 = 2$

(iii) Sum the series upto 10^{th} term $1.11 + 1.41 + 1.71 + \_\_\_\_$

(iv) If $\frac{1}{a}, \frac{1}{b}$ and $\frac{1}{c}$ are in G.P show that the common ratio is $\pm\sqrt{\frac{a}{c}}$

(v) Find Vulgar fraction equivalent to the recurring decimal. $1.3\overline{.4}$.

(vi) Find A, G, H and show that $G^2 = A.H$ if $a = -2$, $b = -6$ (with usual notation)

(vii) Find the value of n when ${}^nP_2 = 30$ with usual notation.

(viii) Find the value of n when ${}^nC_{n-2} = {}^nC_2$ with usual notation.

(ix) A box contains 10 red, 30 white and 20 black marbles. A marble is drawn at random. Find the probability that it is either red or white.

(x) Show that the formula is true for n = 1, 2. $1^3 + 3^3 + 5^3 + \_\_\_\_\_ + (2n-1)^3 = n^2[2n^2-1]$

(xi) Using Binomial theorem expand $(9.9)^5$.

(xii) Expand upto 4 terms, taking the value of x such that the expansion is valid $(4-3x)^{\frac{1}{2}}$

Q4. Attempt any nine parts. **(18)**

(i) Express the angle 75° 6' 30" in radian measure.

(ii) In rightangled triangle ΔABC Prove that $\cos^2\theta + \sin^2\theta = 1$.

(iii) If $\cot\theta = \frac{15}{8}$ and terminal arm of angle is not in 1st quadrant then find the value of cosθ and cosecθ.

(iv) Prove that $\cos306° + \cos234° + \cos162° + \cos18° = 0$

(v) Show that $\cot(\alpha-\beta) = \frac{\cot\alpha\cot\beta+1}{\cot\beta-\cot\alpha}$

(vi) Show that $\frac{1-\cos\alpha}{\sin\alpha} = \tan\frac{\alpha}{2}$

(vii) Find the period of cosec10x

(viii) A ladder leaning against a vertical wall making an angle of 24° with the wall. If its foot is 5cm from the wall then find the length of ladder.

(ix) Solve the triangle ΔABC *if* $\alpha = 53$, $\beta = 88° 36'$ and $\gamma = 31° 56'$.

(x) Find the smallest angle of triangle ΔABC if sides of triangle are a = 37.34, b = 3.24, c = 35.06

(xi) Show that $\tan^{-1}A + \tan^{-1}B = \tan^{-1}\left(\frac{A+B}{1-AB}\right)$

(xii) Find the solutions of $\cot\theta = \frac{1}{\sqrt{3}}$ if $q \in (0, 2\pi)$.

(xiii) Solve the equation $\sin^2 x + \cos x = 1$.

PART - II

Note: Attempt any THREE questions.

Q5. (a) Show that the set {1, ω, ω²}, When $\omega^3 = 1$, is an Abelian group w.r.t. ordinary multiplication. 5

(b) Without expansion, show that: $\begin{vmatrix} x & a+x & b+c \\ x & b+x & c+a \\ x & c+x & a+b \end{vmatrix} = 0$ 5

Q6. (a) If a, b are the roots of equation $5x^2 - x - 2 = 0$, form the equation whose roots are $\frac{3}{\alpha}$ and $\frac{3}{\beta}$ 5

(b) Split the given Rational Fraction into Partial Fractions $\frac{3x^2-4x-5}{(x-2)(x^2+7x+10)}$ 5

Q7. (a) Find n So that $\frac{a^n + b^n}{a^{n-1} + b^{n-1}}$ may be the A.M (arithmetic Mean) between a and b. 5

(b) Find the term independent of x in the expansion of $\left(\sqrt{x} + \frac{1}{2x^2}\right)^{10}$ 5

Q8. (a) Prove that $\frac{\tan\theta + \sec\theta - 1}{\tan\theta - \sec\theta + 1} = \tan\theta + \sec\theta$. 5

(b) If $\alpha + \beta + \gamma = 180°$, prove that $\cot\alpha.\cot\beta + \cot\beta.\cot\gamma + \cot\alpha.\cot\gamma = 1$ 5

Q9. (a) Find the area of the triangle ΔABC in which $c = 32$, $\alpha = 47° 24'$, $\beta = 70° 16'$ 5

(b) Without using calculator prove that $\sin^{-1}\frac{77}{85} - \sin^{-1}\frac{3}{5} = \cos^{-1}\frac{15}{17}$ 5

(C) $r = \frac{s}{A}$

(D) $r = \frac{s-a}{A}$

19. Cos (tan^{-1} $\sqrt{3}$) is equal to

(A) $\frac{1}{2}$

(B) $\frac{-1}{2}$

(C) $\frac{\sqrt{3}}{2}$

(D) $\frac{-\sqrt{3}}{2}$

20. If sin x = $\frac{1}{2}$ then x =

(A) $\frac{\pi}{6}, \frac{5\pi}{6}$

(B) $\frac{-\pi}{6}, \frac{5\pi}{6}$

(C) $\frac{-\pi}{6}, \frac{-5\pi}{6}$

(D) $\frac{\pi}{3}, \frac{2\pi}{3}$

(A) 8 (D) 4

(C) -8 (D) -4

9. Let A, G, H be arithmetic, geometric and harmonic means between "a" & "b" respectively then G^2 =

(A) A + H (B) $\sqrt{ab}$

(C) A/H (D) A H

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10. $9 \times 8 \times 7$ is equal to

(A) 9! (B) $9!/7!$

(C) $3!/2!$ (D) $9!/6!$

11. The probability that a slip of numbers is divisible by "4", picked from the slips bearing the numbers 1, 2, 3, ..., 10 is

(A) $1/5$ (B) $5/2$

(C) $2/5$ (D) $-1/5$

12. $n^2 > n + 3$ holds for all integral values of

(A) $n \leq 3$ (B) $n \geq 3$

(C) $n \leq 2$ (D) $n \geq 2$

13. The Expansion of $(8 - 2x)^{-1}$ is valid if

(A) $x > 4$ (B) $|x| < 4$

(C) $|x| > 0$ (D) $|x| = 4$

14. The central angle of an arc of a circle whose length is equal to the radius of the circle is called the

(A) degree (B) radian

(C) minute (D) second

15. $\sin\left(\pi/2 - \theta\right)$ =

(A) Cos θ (B) Sin θ

(C) -Cos θ (D) -Sin θ

16. The period of 2 cos x is

(A) $\pi/2$ (B) 4π

(C) π (D) 2π

17. In any right angled triangle no angle is greater than

(A) 90° (B) 80°

(C) 60° (D) 45°

18. Radius of inscribed circle is

(A) $r = \Delta/s$ (B) $r = \frac{abc}{4\Delta}$