2016 (S) Roll No: _____

INTERMEDIATE PART-I (11th CLASS)

MATHEMATICS PAPER-I TIME ALLOWED: 2.30 Hours

SUBJECTIVE MAXIMUM MARKS: 80

NOTE: - Write same question number and its part number on answer book, as given in the question paper.

SECTION-I

2. Attempt any eight parts. **8 × 2 = 16**

(i) Prove $\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$ by rules of addition.

(ii) Simplify $(0, 3) . (0, 5)$

(iii) Simplify i^{101}

(iv) Write down power set of set $\{ a, \{b, c\}\}$

(v) Show that statement is a tautology $(p \wedge q) \rightarrow p$

(vi) Define Semi-group.

(vii) If $A = \begin{bmatrix} i & 0 \\ 1 & -i \end{bmatrix}$ show that $A^4 = I_2$

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

(ix) Without expansion show that $\begin{vmatrix} 2 & 3 & -1 \\ 1 & 1 & 0 \\ 2 & -3 & 5 \end{vmatrix} = 0$

(x) Show that $x^3 - y^3 = (x - y)(x - wy)(x - w^2 y)$

(xi) If α, β are the roots of $3x^2 - 2x + 4 = 0$ Find the value of $\alpha^2 - \beta^2$.

(xii) Show that the roots of equation $x^2 - 2\left(m + \frac{1}{m}\right)x + 3 = 0, \ m \neq 0$ will be real.

3. Attempt any eight parts. **8 × 2 = 16**

(i) Define Proper Rational Fraction with one example.

(ii) Find the next two terms of the sequence 1, 3, 7, 15, 31, _____.

(iii) Find the sum of geometric series $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} +$ _____

(iv) If 5 is harmonic mean between 2 and b. Find b.

(v) If $\frac{1}{a}$, $\frac{1}{b}$ and $\frac{1}{c}$ are in A.P, show that $b = \frac{2ac}{a+c}$

(vi) Pakistan and India play a cricket match. Find the probability that Pakistan will win.

(vii) How many necklaces can be made from 6 beads of different colours?

(viii) A die is rolled. Find the probability that the top shows dots less than 5.

(ix) Find the number of diagonals of a 6 sided figure.

(x) Prove that $1 + 2 + 4 +$ _____ $+ 2^{n-1} = 2^n - 1$ is true for $n = 1, 2$.

(xi) State Binomial Theorem.

(xii) Expand $(8 - 5x)^{-\frac{2}{3}}$ up to two terms only.

P.T.O.

4. Attempt any nine parts. **$9 \times 2 = 18$**

(i) Define the Angle.

(ii) Convert 120^o into Radians and convert $\frac{7\pi}{12}$ into degree.

(iii) Show that $Cos^4\theta - Sin^4\theta = Cos^2\theta - Sin^2\theta$

(iv) Show that $Cos(\alpha + \beta)\, Cos(\alpha - \beta) = Cos^2\alpha - Sin^2\beta$

(v) Without using calculator and table find the value of $Sin75^o$.

(vi) Express as sum or difference $2Cos5\theta Sin3\theta$

(vii) Define the Period.

(viii) State the Law of Sines.

(ix) Solve the right triangle ABC, in which $\gamma = 90^o$, $\alpha = 37^o.20'$, $a = 243$

(x) Find the area of triangle ABC $a = 32.65$, $b = 42.81$, $c = 64.92$

(xi) Find the value of $Sin\left(Cos^{-1}\frac{\sqrt{3}}{2}\right)$

(xii) Solve the equation $1 + Cos\theta = 0$ if $\theta \in [0, 2\pi]$

(xiii) Solve the equation $Sec\theta = -2$ if $\theta \in [0, 2\pi]$

SECTION-II

NOTE: - Attempt any three questions. **$3 \times 10 = 30$**

5.(a) Show that $\begin{vmatrix} a+\ell & a & a \\ a & a+\ell & a \\ a & a & a+\ell \end{vmatrix} = \ell^2(3a + \ell)$

(b) Solve the equation $4^x - 3.2^{x+3} + 128 = 0$

6.(a) Resolve $\frac{2x+1}{(x-1)(x+2)(x+3)}$ into Partial Fractions.

(b) Insert 7 A.Ms between 4 and 8.

7.(a) How many numbers greater than 1000,000 can be formed from the digits 0, 2, 2, 2, 3, 4, 4?

(b) Show that the middle term of $(1 + x)^{2n}$ is $\frac{1.3.5------(2n-1)}{n!}\, 2^n x^n$

8.(a) Find the values of all the trigonometric functions of $\frac{19\pi}{3}$.

(b) Prove that $Sin\left(\frac{\pi}{4} - \theta\right) Sin\left(\frac{\pi}{4} + \theta\right) = \frac{1}{2}Cos2\theta$

9.(a) Prove that in an equilateral triangle $r : R : r_1 : r_2 : r_3 = 1 : 2 : 3 : 3 : 3$

(b) Prove that $\sin^{-1}\frac{5}{13} + \sin^{-1}\frac{7}{25} = \cos^{-1}\frac{253}{325}$

Paper Code Number: 6191	2016 (S)	Roll No: _____

INTERMEDIATE PART-I (11th CLASS)

MATHEMATICS PAPER-I

TIME ALLOWED: 30 Minutes

MAXIMUM MARKS: 20

OBJECTIVE

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. Attempt as many questions as given in objective type question paper and leave others blank. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

(1) If $a > 0$ then:- (A) $2a < 0$ (B) $\frac{1}{a} < 0$ (C) $-a > 0$ (D) $-a < 0$

(2) The number of subsets of a set having 3 elements is:- (A) 4 (B) 6 (C) 8 (D) 10

(3) A square matrix $A = [a_{ij}]$ with complex entries is called Skew Hermitian if $(\overline{A})'$ is:-

(A) A (B) $-A$ (C) $|A|$ (D) $-|A|$

(4) If $\begin{bmatrix} x & 1 \\ 1 & 1 \end{bmatrix}$ is singular matrix then x is equal to:- (A) Zero (B) 1 (B) 2 (D) 3

(5) If a polynomial $f(x)$ is divided by $x - a$, then the remainder is:-

(A) Zero (B) $f(a)$ (C) $-f(a)$ (D) $\frac{1}{f(a)}$

(6) Roots of equation $x^2 - 5x + 6 = 0$ are:-

(A) 2, 3 (B) 2, −3 (C) −2, −3 (D) −2, 3

(7) $(x-1)^2 = x^2 - 2x + 1$ is called:-

(A) Equation (B) Conditional (C) Identity (D) Fraction

(8) If $r = \frac{1}{3}$ and $a = 9$ then $\frac{a}{r}$ equals:- (A) 3 (B) 27 (C) $\frac{1}{27}$ (D) $\frac{26}{3}$

(9) The 5th term of sequence 3, 6, 12, _____ is:- (A) $\frac{1}{48}$ (B) -48 (C) $-\frac{1}{48}$ (D) 48

(10) The factorial form of 6.5.4 is:- (A) $\lfloor 6$ (B) 6 (C) $\frac{\lfloor 6}{\lfloor 3}$ (D) $\frac{\lfloor 6}{\lfloor 2}$

(11) ${}^{16}C_{11} + {}^{16}C_{10}$ equals:- (A) ${}^{16}C_{12}$ (B) ${}^{17}C_{10}$ (C) ${}^{16}C_{13}$ (D) ${}^{17}C_{11}$

(12) Index of $(a+b)^5$ is:- (A) 3 (B) 4 (C) 5 (D) 6

(13) Expansion of $(1+x)^{-\frac{1}{4}}$ is valid only if:-

(A) $|x| > 1$ (B) $|x| < 1$ (C) $|x| < -1$ (D) $|x| > -1$

(14) If $Sin\theta < 0$ and $Cot\theta > 0$ then θ lies in _____ quadrant.

(A) 1st (B) 2nd (C) 3rd (D) 4th

(15) $\tan\left(\frac{\pi}{2} - \alpha\right)$ is equal to:- (A) $Cot\,\alpha$ (B) $Tan\,\alpha$ (C) $-Cos\,\alpha$ (D) $-Sin\alpha$

(16) _____ is period of $Sin\frac{x}{2}$. (A) 4π (B) 2π (C) π (D) $\frac{\pi}{2}$

(17) For any triangle ABC, with usual notations r_2 is equal to:-

(A) $\frac{\Delta}{s-a}$ (B) $\frac{\Delta}{s-c}$ (C) $\frac{\Delta}{s-b}$ (D) $\frac{\Delta}{s}$

(18) With usual notations, R is equal to:-

(A) $\frac{abc}{4\Delta}$ (B) $\frac{abc}{\Delta}$ (C) $\frac{\Delta}{abc}$ (D) $\frac{4\Delta}{abc}$

(19) $Sin\left(Sin^{-1}\frac{1}{2}\right)$ is equal to:- (A) $-\frac{1}{2}$ (B) $\frac{\pi}{3}$ (C) $\frac{\pi}{6}$ (D) $\frac{1}{2}$

(20) The solution of equation $\frac{1}{\sqrt{3}}\tan x = 1$, where $x \in [0, \pi]$ is:-

(A) $\left\{\frac{\pi}{6}\right\}$ (B) $\left\{\frac{\pi}{3}\right\}$ (C) $\left\{\frac{\pi}{2}\right\}$ (D) $\left\{\frac{3\pi}{4}\right\}$

Paper Code Number: 6193

2016 (S) Roll No: _____

INTERMEDIATE PART-I (11th CLASS)

MATHEMATICS PAPER-I

TIME ALLOWED: 30 Minutes

OBJECTIVE

MAXIMUM 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. Attempt as many questions as given in objective type question paper and leave others blank. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

(1) ____ is period of $Sin\frac{x}{2}$. (A) 4π (B) 2π (C) π (D) $\frac{\pi}{2}$

(2) For any triangle ABC, with usual notations r_2 is equal to:-
(A) $\frac{\Delta}{s-a}$ (B) $\frac{\Delta}{s-c}$ (C) $\frac{\Delta}{s-b}$ (D) $\frac{\Delta}{s}$

(3) With usual notations, R is equal to:-
(A) $\frac{abc}{4\Delta}$ (B) $\frac{abc}{\Delta}$ (C) $\frac{\Delta}{abc}$ (D) $\frac{4\Delta}{abc}$

(4) $Sin\left(Sin^{-1}\frac{1}{2}\right)$ is equal to:- (A) $-\frac{1}{2}$ (B) $\frac{\pi}{3}$ (C) $\frac{\pi}{6}$ (D) $\frac{1}{2}$

(5) The solution of equation $\frac{1}{\sqrt{3}}\tan x = 1$, where $x \in [0, \pi]$ is:-
(A) $\left\{\frac{\pi}{6}\right\}$ (B) $\left\{\frac{\pi}{3}\right\}$ (C) $\left\{\frac{\pi}{2}\right\}$ (D) $\left\{\frac{3\pi}{4}\right\}$

(6) If $a > 0$ then:- (A) $2a < 0$ (B) $\frac{1}{a} < 0$ (C) $-a > 0$ (D) $-a < 0$

(7) The number of subsets of a set having 3 elements is:- (A) 4 (B) 6 (C) 8 (D) 10

(8) A square matrix $A = [a_{ij}]$ with complex entries is called Skew Hermitian if $(\bar{A})^t$ is:-
(A) A (B) $-A$ (C) $|A|$ (D) $-|A|$

(9) If $\begin{bmatrix} x & 1 \\ 1 & 1 \end{bmatrix}$ is singular matrix then x is equal to:- (A) Zero (B) 1 (B) 2 (D) 3

(10) If a polynomial $f(x)$ is divided by $x - a$, then the remainder is:-
(A) Zero (B) $f(a)$ (C) $-f(a)$ (D) $\frac{1}{f(a)}$

(11) Roots of equation $x^2 - 5x + 6 = 0$ are:-
(A) 2, 3 (B) 2, −3 (C) −2, −3 (D) −2, 3

(12) $(x-1)^2 = x^2 - 2x + 1$ is called:-
(A) Equation (B) Conditional (C) Identity (D) Fraction

(13) If $r = \frac{1}{3}$ and $a = 9$ then $\frac{a}{r}$ equals:- (A) 3 (B) 27 (C) $\frac{1}{27}$ (D) $\frac{26}{3}$

(14) The 5th term of sequence 3, 6, 12, _____ is:- (A) $\frac{1}{48}$ (B) −48 (C) $-\frac{1}{48}$ (D) 48

(15) The factorial form of 6.5.4 is:- (A) $\lfloor 6$ (B) 6 (C) $\frac{\lfloor 6}{\lfloor 3}$ (D) $\frac{\lfloor 6}{\lfloor 2}$

(16) ${}^{16}C_{11} + {}^{16}C_{10}$ equals:- (A) ${}^{16}C_{12}$ (B) ${}^{17}C_{10}$ (C) ${}^{16}C_{13}$ (D) ${}^{17}C_{11}$

(17) Index of $(a+b)^5$ is:- (A) 3 (B) 4 (C) 5 (D) 6

(18) Expansion of $(1+x)^{-\frac{1}{4}}$ is valid only if:-
(A) $|x| > 1$ (B) $|x| < 1$ (C) $|x| < -1$ (D) $|x| > -1$

(19) If $Sin\theta < 0$ and $Cot\theta > 0$ then θ lies in _____ quadrant.
(A) 1st (B) 2nd (C) 3rd (D) 4th

(20) $\tan\left(\frac{\pi}{2} - \alpha\right)$ is equal to:- (A) $Cot\alpha$ (B) $Tan\alpha$ (C) $-Cos\alpha$ (D) $-Sin\alpha$

Paper Code Number: 6195	2016 (S) INTERMEDIATE PART-I (11th CLASS)	Roll No: _____

MATHEMATICS PAPER-I

TIME ALLOWED: 30 Minutes

OBJECTIVE

MAXIMUM 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. Attempt as many questions as given in objective type question paper and leave others blank. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

(1) ${}^{16}C_{11} + {}^{16}C_{10}$ equals:- (A) ${}^{16}C_{12}$ (B) ${}^{17}C_{10}$ (C) ${}^{16}C_{13}$ (D) ${}^{17}C_{11}$

(2) Index of $(a+b)^5$ is:- (A) 3 (B) 4 (C) 5 (D) 6

(3) Expansion of $(1+x)^{-\frac{1}{4}}$ is valid only if:-

(A) $|x|>1$ (B) $|x|<1$ (C) $|x|<-1$ (D) $|x|>-1$

(4) If $Sin\theta<0$ and $Cot\theta>0$ then θ lies in _____ quadrant.

(A) 1st (B) 2nd (C) 3rd (D) 4th

(5) $\tan\left(\frac{\pi}{2}-\alpha\right)$ is equal to:- (A) $Cot\,\alpha$ (B) $Tan\,\alpha$ (C) $-Cos\,\alpha$ (D) $-Sin\alpha$

(6) _____ is period of $Sin\frac{x}{2}$. (A) 4π (B) 2π (C) π (D) $\frac{\pi}{2}$

(7) For any triangle ABC, with usual notations r_2 is equal to:-

(A) $\frac{\Delta}{s-a}$ (B) $\frac{\Delta}{s-c}$ (C) $\frac{\Delta}{s-b}$ (D) $\frac{\Delta}{s}$

(8) With usual notations, R is equal to:-

(A) $\frac{abc}{4\Delta}$ (B) $\frac{abc}{\Delta}$ (C) $\frac{\Delta}{abc}$ (D) $\frac{4\Delta}{abc}$

(9) $Sin\left(Sin^{-1}\frac{1}{2}\right)$ is equal to:- (A) $-\frac{1}{2}$ (B) $\frac{\pi}{3}$ (C) $\frac{\pi}{6}$ (D) $\frac{1}{2}$

(10) The solution of equation $\frac{1}{\sqrt{3}}\tan x=1$, where $x\in[0,\pi]$ is:-

(A) $\left\{\frac{\pi}{6}\right\}$ (B) $\left\{\frac{\pi}{3}\right\}$ (C) $\left\{\frac{\pi}{2}\right\}$ (D) $\left\{\frac{3\pi}{4}\right\}$

(11) If $a>0$ then:- (A) $2a<0$ (B) $\frac{1}{a}<0$ (C) $-a>0$ (D) $-a<0$

(12) The number of subsets of a set having 3 elements is:- (A) 4 (B) 6 (C) 8 (D) 10

(13) A square matrix $A=\lfloor a_{ij}\rfloor$ with complex entries is called Skew Hermitian if $\left(\overline{A}\right)^t$ is:-

(A) A (B) $-A$ (C) $|A|$ (D) $-|A|$

(14) If $\begin{bmatrix} x & 1 \\ 1 & 1 \end{bmatrix}$ is singular matrix then x is equal to:- (A) Zero (B) 1 (B) 2 (D) 3

(15) If a polynomial $f(x)$ is divided by $x-a$, then the remainder is:-

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(A) 2, 3 (B) 2, −3 (C) −2, −3 (D) −2, 3

(17) $(x-1)^2=x^2-2x+1$ is called:-

(A) Equation (B) Conditional (C) Identity (D) Fraction

(18) If $r=\frac{1}{3}$ and $a=9$ then $\frac{a}{r}$ equals:- (A) 3 (B) 27 (C) $\frac{1}{27}$ (D) $\frac{26}{3}$

(19) The 5th term of sequence 3, 6, 12, _____ is:- (A) $\frac{1}{48}$ (B) -48 (C) $-\frac{1}{48}$ (D) 48

(20) The factorial form of 6.5.4 is:- (A) $\lfloor 6$ (B) 6 (C) $\frac{\lfloor 6}{\lfloor 3}$ (D) $\frac{\lfloor 6}{\lfloor 2}$

Paper Code Number: 6197	2016 (S) INTERMEDIATE PART-I (11th CLASS)	Roll No: _____

MATHEMATICS PAPER-I

TIME ALLOWED: 30 Minutes

OBJECTIVE

MAXIMUM 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. Attempt as many questions as given in objective type question paper and leave others blank. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

(1) Roots of equation $x^2 - 5x + 6 = 0$ are:-

(A) 2, 3 (B) 2, −3 (C) −2, −3 (D) −2, 3

(2) $(x-1)^2 = x^2 - 2x + 1$ is called:-

(A) Equation (B) Conditional (C) Identity (D) Fraction

(3) If $r = \frac{1}{3}$ and $a = 9$ then $\frac{a}{r}$ equals:- (A) 3 (B) 27 (C) $\frac{1}{27}$ (D) $\frac{26}{3}$

(4) The 5th term of sequence 3, 6, 12, _____ is:- (A) $\frac{1}{48}$ (B) -48 (C) $-\frac{1}{48}$ (D) 48

(5) The factorial form of 6.5.4 is:- (A) $\lfloor 6$ (B) 6 (C) $\frac{\lfloor 6}{\lfloor 3}$ (D) $\frac{\lfloor 6}{\lfloor 2}$

(6) ${}^{16}C_{11} + {}^{16}C_{10}$ equals:- (A) ${}^{16}C_{12}$ (B) ${}^{17}C_{10}$ (C) ${}^{16}C_{13}$ (D) ${}^{17}C_{11}$

(7) Index of $(a+b)^5$ is:- (A) 3 (B) 4 (C) 5 (D) 6

(8) Expansion of $(1+x)^{-\frac{1}{4}}$ is valid only if:-

(A) $|x| > 1$ (B) $|x| < 1$ (C) $|x| < -1$ (D) $|x| > -1$

(9) If $Sin\theta < 0$ and $Cot\theta > 0$ then θ lies in _____ quadrant.

(A) 1st (B) 2nd (C) 3rd (D) 4th

(10) $\tan\left(\frac{\pi}{2} - \alpha\right)$ is equal to:- (A) $Cot\alpha$ (B) $Tan\alpha$ (C) $-Cos\alpha$ (D) $-Sin\alpha$

(11) _____ is period of $Sin\frac{x}{2}$. (A) 4π (B) 2π (C) π (D) $\frac{\pi}{2}$

(12) For any triangle ABC, with usual notations r_2 is equal to:-

(A) $\frac{\Delta}{s-a}$ (B) $\frac{\Delta}{s-c}$ (C) $\frac{\Delta}{s-b}$ (D) $\frac{\Delta}{s}$

(13) With usual notations, R is equal to:-

(A) $\frac{abc}{4\Delta}$ (B) $\frac{abc}{\Delta}$ (C) $\frac{\Delta}{abc}$ (D) $\frac{4\Delta}{abc}$

(14) $Sin\left(Sin^{-1}\frac{1}{2}\right)$ is equal to:- (A) $-\frac{1}{2}$ (B) $\frac{\pi}{3}$ (C) $\frac{\pi}{6}$ (D) $\frac{1}{2}$

(15) The solution of equation $\frac{1}{\sqrt{3}}\tan x = 1$, where $x \in [0, \pi]$ is:-

(A) $\left\{\frac{\pi}{6}\right\}$ (B) $\left\{\frac{\pi}{3}\right\}$ (C) $\left\{\frac{\pi}{2}\right\}$ (D) $\left\{\frac{3\pi}{4}\right\}$

(16) If $a > 0$ then:- (A) $2a < 0$ (B) $\frac{1}{a} < 0$ (C) $-a > 0$ (D) $-a < 0$

(17) The number of subsets of a set having 3 elements is:- (A) 4 (B) 6 (C) 8 (D) 10

(18) A square matrix $A = [a_{ij}]$ with complex entries is called Skew Hermitian if $\left(\overline{A}\right)'$ is:-

(A) A (B) $-A$ (C) $|A|$ (D) $-|A|$

(19) If $\begin{bmatrix} x & 1 \\ 1 & 1 \end{bmatrix}$ is singular matrix then x is equal to:- (A) Zero (B) 1 (B) 2 (D) 3

(20) If a polynomial $f(x)$ is divided by $x - a$, then the remainder is:-

(A) Zero (B) $f(a)$ (C) $-f(a)$ (D) $\frac{1}{f(a)}$

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN

OBJECTIVE KEY FOR INTER (PART I / II) Supply Examination, 2016.

Name of Subject Math Session _____

Q. Nos.	Paper Code 6191	Paper Code 6193	Paper Code 6195	Paper Code 6197
1.	D	A	D	A
2.	C	C	C	C
3.	B	A	B	B
4.	B	D	C	D
5.	B	B	A	C
6.	A	D	A	D
7.	C	C	C	C
8.	B	B	A	B
9.	D	B	D	C
10.	C	B	B	A
11.	D	A	D	A
12.	C	C	C	C
13.	B	B	B	A
14.	C	D	B	D
15.	A	C	B	B
16.	A	D	A	D
17.	C	C	C	C
18.	A	B	B	B
19.	D	C	D	B
20.	B	A	C	B

سرٹیفکیٹ بابت تصحیح سوالیہ پرچہ/مارکنگ Key

ہم نے مضمون Math پرچہ I گروپ: ____ سکیم new انٹرسالانہ/ضمنی امتحان 2016ء کا سوالیہ پرچہ انشائی و معروضی (Subjective & Objevtive) کو بنظر عمیق چیک کرلیا ہے یہ پرچہ سلیبس کے عین مطابق Set کیا گیا ہے۔اس سوالیہ پرچہ میں کوئی قسم کی غلطی نہ ہے۔ہم نے سوالیہ پرچہ کا اردو اور انگریزی Version بھی چیک کرلیا ہے یہ Version آپس میں مطابقت رکھتے ہیں اور سلیبس (Syllabus) کے مطابق بھی ہیں۔نیز اس پرچہ کی Key کی بابت بھی تصدیق کی جاتی ہے کہ یہ بھی درست بنائی گئی ہے۔اس میں بھی کسی قسم کی کوئی غلطی نہ ہے۔
مزید یہ کہ ہم نے Key بنانے سے متعلق دفتر کی جانب سے تیارہ کردہ ہدایات وصول کر کے ان کا بغور مطالعہ کرلیا ہے اور ان کی روشنی میں Key بنائی۔

PREPARED & CHECKED BY

Sr.No	Name	Designation	Institution	Mobile No.	Signature.
	CH-M. Yousaf	AS.Prof.	Govt. College of IT Multan	0332-6008633	
	M. Iqbal	Ass. Prof	Govt College of Sc Mullan	0301-7553646	
	M. Riaz	Asso Prof	Govt College of Sc Mullan	0300 7191306	
	Waseem Ali Tahir	Asso Prof	Govt. Millat College Multan	0306510675	

ثانوی و اعلیٰ ثانوی تعلیمی بورڈ، ملتان

(4)

مورخہ 09-11-2016 مضمون: Maths پرچہ: I گروپ: _____

جنرل ہدایات برائے مارکنگ Key نیو سکیم / اولڈ سکیم (مارکنگ سکیم)

انٹر پارٹ فرسٹ / سیکنڈ سالانہ / ضمنی امتحان 2016ء

Subjective
Section I

Q.2 (i) Writing $\frac{a}{c}+\frac{b}{c}=a\cdot\frac{1}{c}+b\cdot\frac{1}{c}$ 1M

Using Dist. Law $=(a+b)\frac{1}{c}=\frac{a+b}{c}$ 1M

(ii) Writing $(0,3)\cdot(0,5)=(0\cdot0-3\cdot5,\ 3\cdot0+0\cdot5)$ 1M

$=(-15,0)$ 1M

(iii) $2^{101}=(2^2)^{50}\cdot 2$ 1M

$=2$ 1M

(iv) Write Subset of given Set and Powerset (1+1)M

(v) Correct Table (2M)

(vi) Correct definition (2M)

(vii) Finding $A^2=\begin{bmatrix}-1&0\\0&-1\end{bmatrix}$ and $A^4=I_2$ (1+1)M

(viii) Writing $x+3=2$, $3y-4=2$ 1M

$x=-1,\ y=2$ 1M

(ix) Writing $\begin{vmatrix}-1&3&-1\\0&1&0\\5&-3&5\end{vmatrix}$ 1M & value $=0$ ($\because C_1=C_2$) 1M

(x) Writing $(x-y)(x^2-(\omega+\omega^2)xy+\omega^3y^2)$ 1M

$=x^3-y^3$ 1M

(xi) Writing $\alpha+\beta=2/3$, $\alpha\beta=4/3$ 1M

Remaining 1M

(xii) Writing $b^2-4ac=4(m+\frac{1}{m})^2-12$ 1M

Proving Real 1M

Q.3 (i) Definition 1M Example 1M

(ii) Finding $a_6=31+32=63$, $a_7=63+64=127$ (1+1)M

(iii) finding $a_1=1/2$, $r=1/2$ 1M & $S_\infty=1$ 1M

general instructions

1- ✓
2- ✓
3- ✓
4- ✓

ثانوی و اعلیٰ ثانوی تعلیمی بورڈ، ملتان

(2)

مورخہ: 09-11-2016 مضمون: ریاضی پرچہ: I گروپ:

جنرل ہدایات برائے مارکنگ Key نیو سکیم / اولڈ سکیم (مارکنگ سکیم)

انٹرپارٹ فرسٹ / سیکنڈ سالانہ / ضمنی امتحان 2016ء

(iv) Writing $S = \frac{2(2)b}{2+b}$ 1M, $b = -10$ (1M)

(v) writing $\frac{1}{b} - \frac{1}{a} = \frac{1}{c} - \frac{1}{b}$ (1M) & $b = \frac{2ac}{a+c}$ 1M

(vi) $S = \{Win, Loss, Tie\}$ 1M $P(E) = 1/3$ (1M)

(vii) Writing $\frac{1}{2}(5!)$ 1M Result = 60 1M

(viii) $S = \{1,2,3,4\}$ 1M $P(E) = 2/3$ 1M

(ix) No of diagonals $\frac{6}{2} - 6$ (1M) Result = 9 (1M)

(x) Prove for $n=1$, $n=2$ (1+1) M

(xi) Statement True (2M)

(xii) writing $\frac{1}{4}\left(1 - \frac{5x}{8}\right)^{-\frac{2}{3}}$ (1M) & result (1M)

Q.4 (i) Definition of angle 2M

(ii) writing $120^\circ = 120 \times \frac{\pi}{180} = \frac{2\pi}{3}$ rad (1M)

$\frac{7\pi}{12} = \frac{7\pi}{12} \times \frac{180^\circ}{\pi} = 105^\circ$ (1M)

(iii) writing $\cos^4\theta - \sin^4\theta = (\cos^2\theta)^2 - (\sin^2\theta)^2$ 1M

$= \cos^2\theta - \sin^2\theta$ 1M

(iv) Expanding $\cos(\alpha+\beta)\cos(\alpha-\beta)$ 1M

Result 1M

(v) Writing $\sin 75^\circ = \sin(45^\circ + 30^\circ)$ 1M

Result 1M

(vi) Using Formula $\sin(50+30) - \sin(50-30)$ 1M

$\sin 80 - \sin 20$ 1M

(vii) Def. of Period 2M

(viii) Law of Sines 2M

(ix) Finding β 1M, b, c 1M

(x) Finding $s = 70.19$ 1M, $\Delta = 616$ 1M

(xi) Finding $\cos^{-1}\frac{\sqrt{3}}{2} = \pi/3$, Result $= 1/2$ (1+1) M

(xii) writing $\cos\theta = -1 \Rightarrow \theta = \pi$ & Soln $\{\pi + 2n\pi\}$ (1+1) M

(xiii) writing $\cos\theta = -1/2$ & $\theta = 2\pi/3, 4\pi/3$ (1+1) M

1- [illegible]
2- Rias
3- [illegible]
4- [illegible]

ثانوی و اعلیٰ ثانوی تعلیمی بورڈ، ملتان

مورخہ 9.11.2016 مضمون: Math پرچہ: I گروپ: _____

جنرل ہدایات برائے مارکنگ Key سنیو سکیم / اولڈ سکیم (مارکنگ سکیم)

انٹر پارٹ فرسٹ / سیکنڈ سالانہ / ضمنی امتحان 2016ء

SECTION — II

Q.5 (a) By using $C_1 + (C_2 + C_3)$ and common $(3x+1)$ 3m.
remaining 2m.

(b) writing $\left(\frac{x}{2}\right)^2 - 24.2^x + 128 = 0$ 1m
finding $y = 16, 8$ 2m
values of x (1+1) m.

Q.6 (a) writing partial fraction form 1 m.
finding A, B, C (1+1+1) m $A = \frac{1}{4}$, $B = 1$, $C = -5/4$.
Answer 1 m.

(b) finding $d = 1/2$ 2m.
7 A.M are $9/2, 5, \frac{11}{2}, 6, \frac{13}{2}, 7, \frac{15}{2}$ 3m.

Q.7 (a) Total arrangement $= \binom{7}{3,3,2} = 420$ 2m.
when 'O' at extreme left position $\binom{6}{3,1,2} = 60$
arrangements $420 - 60 = 360$ 1m 2m.

(b) Total term $2n+1$ & middle $(n+1)$th.
writing $T_{n+1} = \binom{2n}{n} x^2$ 2m 1m
Result 2m

Q.8 (a) writing $\frac{19\pi}{3} = 3(2\pi) + \frac{\pi}{3}$ 2m.
finding values of Trigonometric function. 3m

(b) writing $\frac{-1}{2}\left[-2\sin\left(\frac{\pi}{4} - \theta\right)\sin\left(\frac{\pi}{4} + \theta\right)\right]$ 2m.
$= \frac{1}{2}\cos 2\theta$ 3m

Q.9 (a) finding R, R, r_1, r_2, r_3 3m.
Result 2m

(b) finding $\cos\alpha = 12/13$, $\cos\beta = \frac{24}{25}$ 3m.
using $\cos(\alpha+\beta)$ & Result. 2m

1- (M)
2- Riaz
3- Abdul
4- Akram

general instructions