BALOCHISTAN BOARD OF INTERMEDIATE AND SECONDARY EDUCATION QUETTA.

INTERMEDIATE (ANNUAL) EXAMINATION 2019.

SUBJECT:MATHEMATICS– B

TIME:- 03 HOURS Gr: I. MARKS :- 100 PASS MARKS: 33

MATH 2019

Section –A

Q.NO. 1- Choose the correct option i.e a/b/c or d **20 x 1=20**

(i) Th polynomial function with degree 2 is called
(a) Quadratic function (b) Cubic function (c) Rational function (d) Liner function

(ii) If $f(x)=\frac{x+1}{x-1}$, then $f(1)$ is ……..
(a) 0 (b) ∞ (c) 1 (d) -1

(iii) The function $f(x)=\frac{2x+3}{x+1}$ is called…….
(a) Quadratic function (b) Cubic function (c)Irrational function (d) Rational function

(iv) If $y=lnx$ then $\frac{dy}{dx}$= ……
(a) mx^{m-1} (b) $\frac{1}{x}$ (c) lnx (d) $xlnx$

(v) Lim $x\to 0\frac{a^x-1}{x}$ is ……
(a) a^x (b) x (c) lna (d) xa^x

(vi) If $y=\sqrt{x}$, then y_3 is……
(a) $\sqrt{x}$ (b) $\frac{3}{8}x^{\frac{-5}{2}}$ (c) $\frac{1}{2\sqrt{x}}$ (d) 0

(vii) Integral $\int Cosecx\ cotxdx$ is……
(a) $Sinx+C$ (b) $Cosx+C$ (c) $-Cosecx+C$ (d) $Secx+C$

(viii) Integral $\int Sec^2x\ tanxdx$ is ……
(a) $\frac{\tan^2 x}{2}C$ (b) Sec^3x+c (c) $Cosx+c$ (d) $Sinx+C$

(ix) The solution of the differential equation $\frac{dy}{dx}=\frac{1}{1+x^2}$ is
(a) $y=\tan^{-1}x+C$ (b) $y=Cot^{-1}x+c$ (c) $Sec^{-1}x+c$ (d) $Sin^{-1}x+C$

(x) Mid point of the line segment joining the points (2 ,0)and(0,2)is……
(a) (3,3) (b) (1,1) (c) (0,0) (d) (-1,-1)

(xi) The slope of the line with inclination $\alpha=0^0$ is
(a) $\frac{1}{\sqrt{2}}$ (b) 0 (c) $Undefined$ (d) $\frac{1}{2}$

(xii) for two perpendicular lines we have…..
(a) $m_1=m_2$ (b) $m_1m_2=-1$ (c) $m_1+m_2=0$ (d) $m_1<m_2$

(xiii) The equation $ax^2+2hxy+by^2=0$ represents two straight lines
(a)Through origin (b) Not through origin (c)Parallel to each other (d) perpenducular to eachother

(xiv) The point (3 ,2) is not in the solution of inequality.
(a) $x+y>2$ (b) $3x+5y<7$ (c) $3x+5y>2$ (d) $3x-7y<3$

(xv) Equation of circle , $(x+2)^2+(x+3)^2=3$ with radius is …….
(a)9 (b) 3 (c)$\sqrt{3}$ (d) 2

(xvi) The vertex of the parabola $y^2=4ay$ is ……
(a)(o ,o) (b) (a , o) (c) (x ,o) (d) (o , y)

(xvii) For standard ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$, a>b Major axis is……
(a) $x=0$ (b) $y=0$ (c)$a=0$ (d) $b=0$

(xviii) Slope of tangent to the parabola $y^2=4ax$,at (a , 2a)is……
(a)-1 (b) 1 (c)2 (d) 3

(xix) A vector with magnitude one is called……
(a)Null vector (b) Zero vector (c)Unitvector (d) Negative vector

(xx) If $r=2\hat{\imath}+\sqrt{3}\hat{\imath}-\hat{k}$, then $|r|$ is ….
(a) $2\sqrt{2}$ (b) 3 (c) $4+\sqrt{3}$ (d) 0

Section –B

(10 x 4 =40)

Q.NO.2. Attempt any ten(10) parts .All parts carry equal marks.

(a) If $f(x)=x^3$, find $\frac{f(3+h)-f(3)}{h}$
(b) Define Even function with an example.
(c) Show that the parametric equation $x=3Sec\alpha$ and $y=2\tan\alpha$ represent the equation $\frac{x^2}{9}-\frac{y^2}{4}=1$
(d) Evaluate $lim_{y\to -3}(y^3+2y^2+3y-7)$
(e) Differentiate $(2x^2+5x+3)^2$ w.r.t "x".
(f) Differentiate $y=Sinx^2.Sin^2x$ w.r.t "x"
(g) Integrate Integrate $\int\frac{x^2+2\sqrt{x-1}}{2x^2\sqrt{x-1}}dx$
(h) Solve the differential equation $x\frac{dy}{dx}+y=1$
(i) Find the point which is $\frac{7}{10}$ of the way from the point (5 ,1) to the point (-2 , 9).
(j) What is the equation of circle?
(k) Find centre and radius of the circle $16x^2+16y^2+40x-8y-9=0$.
(l) Explain the positions of the point (1,1) and (-2 , 3) relative to the circle $x^2+y^2+11x-8y+12=0$
(m) What are direction on angles of a vectors?
(n) What are direction on angles of a vectors? $2x\hat{\imath}+3y\hat{\jmath}+4z\hat{k}$ and $x\hat{\imath}+2y\hat{\jmath}-5\hat{k}$ have same magnitude ?
Under what Condition the vector ?

Section –C

(8 x 5 =40)

Attempt any five (05) questions. All questions carry equal marks.

Q.NO.3. By first principle method find derivative of $y=\frac{1}{(3x+2)^n dx}$
Q.NO.4. Integrate $\int\frac{1}{(x-1)(x^2+4)}dx$
Q.NO.5. find the lines represented by $x^2-2xy\tan\theta-y^2=0$ also find the measure of the angle between them.
Q.NO.6. Prove: that the perpendicular bisector of any chord of a circle passes through the centre of the circle.
Q.NO.7. Find the equations of tangents to the parabola $y^2=16x$ through the point(3 , -7)
Q.NO.8. Find an equation of tangent to the ellipse $5x^2+9y^2-45=0$ *Parallel to the line* $2x-8y+15=0$
Q.NO.9. Two vectors $r_1=x_1\hat{\imath}+y_1\hat{\jmath}+z_1\hat{k}$ $r_2=x_2\hat{\imath}+y_2\hat{\jmath}+z_2\hat{k}$ are orthogonal if and only if (iff) $x_1x_2+y_1y_2+z_1z_2=0$, prove……

THE END