**Balochistan Board of Intermediate and Secondary Education, Quetta**

Model Paper for HSSC Examination 2017 and Onwards

Subject: Mathematics Total Marks = 100 Class XII

**Section I (Compulsory) (20 Marks)**

Qno 1: if f(x) = x2 then f(3) is \_\_\_\_\_

* 1. 3 b. 6 c. 9 d. 12

1. Sin h-1(x)= \_\_\_\_\_\_\_\_\_\_\_\_
   1. ln(x – ) b. log(x + ) c. ln(x + ) d. log(x - )
3. 0 b. 1 c. -1 d. undefined
4. f(x)∙ g(x) = \_\_\_\_\_\_\_\_\_\_\_
   1. f(x)∙ ģ(x) + g(x) ∙ f(x) b. f(x) ∙ ģ(x) + f(x) ∙ g(x) c. f(x)∙ģ(x) - f(x) ∙ ģ(x) d. f(x) ∙ g(x) – f(x) ∙ ģ(x)
5. tan-1 (x) =\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. b. c. d.
6. logax = \_\_\_\_\_\_\_\_
   1. b. c. d.
7. 1 + x + + + +……… is the maclacurines expansion of
   1. ex  b. e-x c. ax d. a-x
8. dx =\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. b. c. + c d.
9. dx = \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. tan-1 x+c b. cos-1 x+c c. sec-1 x+c d. sin -1 x+c
10. dx = \_\_\_\_\_\_\_\_\_
    1. ln(sec x)+ c b. ln(sin x)+c c. ln(cos x)+ c d. ln(cos x)+c
11. The midpoint of A(x1,y1) and B(x2,y2) is given by \_\_\_\_\_\_\_\_\_\_\_
    1. (,) b. (,) c. (,) d. (,)
12. The distance between two points A(x1,y1),B(x2,y2) is given by\_\_\_\_\_\_\_\_\_\_
    1. b.

c. c.

1. The circle touching two sides of a triangle internally and the third side externally is called \_\_\_\_\_\_\_\_\_\_\_
   1. An incircle b. a circumcircle c. an scribed circle d. none of these
2. x- intercept form of the equation of straight line is \_\_\_\_\_\_\_\_
   1. y = mx + c b. y = mx c. y = m(x – a) d. x = m(y –a)
3. If 5x = 6 > x -3 then the solution set is\_\_\_\_\_\_\_\_\_\_
   1. ( , ∞) b. ( ) c. ( ) d. ( )
4. The focus of the parabola x2 = 4ay is \_\_\_\_\_\_\_\_\_
   1. (a, o) b. (-a, o) c. (o, a) d. (o, -a)
5. Length of major axis of ellipse is \_\_\_\_\_\_\_\_\_
   1. -2b b. 2a c. -2a d. 2b
6. If a = 2**i** + 3**j** + **k** then = \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. b. 13 c. d. 14

xiv. A vector with magnitude one is called \_\_\_\_\_\_

1. Position Vector b. Unit vector c. Null Vector d. Its modules

xx. The equation of horizontal line through (2, 5) is \_\_\_\_\_\_\_\_

a. x = 2 b. x = -2 c. y = 5 d. y = -5

**Section II (4 x 10= 40 Marks)**

* Attempt any Ten parts.

1. Find f(x) given that f(x-1) = x3 – 2x2 + 3x +1

d. If y = tanhex and u = ex then show that y2

e. Find the relative extrema of the function f(x) = 2x5 – 15x2 + 36x + 10

f. Find the value of the constant K if (4x + k) dx =2

g. Solve the differential equation 2x cos y dx + x2 (sec y – sin y) dy = 0

h. Find the points trisecting the join of A(1, 3) and B(2, 6)

i. Find the equation of straight line passing through A(0, 8) and B(2, 3)

j. Find the distance of the point (3, 1) from the line 2x + 7y -3 = 0

k. Solve the inequality 11-2 ( x-1) ≥ 8 -2(x-2)

l. Find the equation of circle with center (1, 19) and radius 7

m. Find the equation of parabola having focus (5, 0) and directrix x = -5

n. Find the center and focal of the heperbola - = 1

o. Find the magnitude and direction of the vector a = **i** **K**

p. Find the projection of 3 along -

**Section III (5 x 8 =40 Marks)**

* Attempt any Five questions.

Qno3. Show that

Qno4. Evaluate

Qno5. Evaluate dx

Qno6. Prove that the right bisectors of a triangle are congruent.

Qno7. Find the equation of tangent and normal to the circle

x2 + y2 + 12x + 10y -9 =0 at (2, 3)

Qno8. Find the equation of tangent and normal to the hyper bola 39x2 – 192y2 – 1872 = 0

through the point (7, )

Qno9. Using vectors show that sin (ʎ + β) = sin x cosβ + cos x sinβ