JavaScript Data Types, Operators and Expressions

1. After executing the following statements, what is the java script data type of the values referenced by each variable?

```
data = "Hello World";
data = 8;
data = 5.367;
data = true;
data = null;
data = 'abc';
data = 8.163;
```

2. Which data type will be used to represent thefollowing data values and why?

i) Age of the student
ii) Height of the student
iii) Name of the student
iv) Resident of Bangalore or not
v) Number of month in a year
vi) Address of the student
vii) Pocket money
viii) Perimeter of a square
ix) Ares of a circle
x) Choice of a game to play again

3) Evaluate the following numeric expression without the computer, And then use Javascript console to check your answer.

1. 1.7 * 8	2. 4 ** 2	3. 10 / (2 ** 3)
4. 3 + (4 * 5)	5. (18 + 7) / 5	6. 2 * ((2) ** 3)
7. 7 * 3	8. 14 % 4	9. 9 % 3
10. 10 *4 / 2	11. 2 ** 2	12. 5 % 5
13. 9 + 14 * 2 – 6		

4) Evaluate the numeric expression where a = 3, b = 2, and c = 5.

1. (a * b) + c	2. (a * b) + 2	3. a - b + c
4. (c – a) * * b	5.a + b * a + c	

5. Write Javascript code to the following algebraic expressions.

1. (9 / 5). celsius + 32 2.(basicSalary.12) /100

$3.2^3.\ 3^2$ 4. $(2^3 - 1).3$

6. Evaluate the following numeric expression where a = 10, b = 5 (use Javascript console to check your answer).

   i) a+b ii) a – b iii) a * b iv) a / b v) a % b
   vi) a ** b

7. Evaluate the followingincrement and decrement operators where a = 5 (use Javascript console to check your answer).

   i) a++ ii) ++a iii) a-- iv) –a

8. Evaluate the following comparison operators where a = 10 b =15 (use Javascript console to check your answer).

   i) a == b ii) a === b iii) a != b iv) a !== b
   v) a < b vi) a> b vii) a >= b viii) a <= b

9. Evaluate the following assignment operators where a = 10 b =15 (use Javascript console to check your answer).

   i) c = a + b ii) a += b iii) a -= b iv) a *= b
   v) a /= b vi) a %= b

10. Evaluate the following logical operators where a = 10 b =15 (use Javascript console to check your answer).

    i) (a <b) && (b > a) ii) (a > b) && (b > a)
    iii) (a > b) && (b < a) iv) (a <b) || (b < a)
    v) (a > b) && (b > a) vi) (a > b) && (b < a)
    vii) !(a < b) viii) !(b < a)

11.Complete the table by filling in the value of each variable after each line is executed.

Statement	a	b
let a = 5;		
let b = -2;		
b = a + b		
a = a + 2		
alert(a+b);		
b = (a+1)/2		

12. Complete the table by filling in the value of each variable after each line is executed.

Statement	basic	allowance	deduction
basic = 2500			
allowance = basic * (20/100)			
deduction = basic * (10/100)			
basic = basic + allowance - deduction			

13.Determine the output displayed by the following lines of code.

i)
```
a = 4;
b = 2;
alert(a * b ** 2);
```

ii)
```
a = 5;
b = 3;
a **= (a-b);
```

iii)
```
score = 30;
score  += 20;
alert (score);
```

iv)
```
totalKiloMeters = 1000;
petrolConsumed  = 80;
milage = totalKiloMeters / petrolConsumed;
alert(milage);
```

v)
```
totalMangoes = 10;
cost = 100;
eachMango = cost / totalMangoes;
alert(eachMango);
```

14.Identify the errors in the following lines of code.

i)
```
a = 4;
b =  2;
a + b = c;
alert(c);
```

ii)
```
x =2;
y = 4;
y = y.x;
alert(y);
```

iii)
```
a = 5;
10 = b;
alert(a + b);
```

iv)
```
balance = 1,000;
interest = 100;
total = balance + interest;
alert(total);
```

vi)
```
totalMangoes = 10;
cost = 100;
eachMango = Cost / totalmangoes;
alert(eachMango);
```

vii)
```
totalKiloMeters = 1000;
petrolConsumed  = 80;
milage = totalKiloMeter / petrolConsume;
alert(milage);
```

viii)
```
balance = 1000;
100 = interest;
total = balance + interest;
alert(total);
```

15. Write a program having one line for each step. Lines that display data should use the given variable names.

i) **Inventor:** The following steps give the name and birth year of a famous inventor.

(a) Create the variable firstName and assign it the value “Thomas”.
(b) Create the variable middleName and assign it the value “Alva”.
(c) Create the variable lastName and assign it the value “Edison”.
(d) Create the variable yearOfBirth and assign it the value 1847.
(e) Display the phrase “The year of birth of” followed by the inventor's full name,followed by “is”, and the inventor's year of birth.

ii) **Average Score:**The following steps give the average score of three tests.

(a) Create the variable score1 and assign it the value “85”.
(b) Create the variable score2 and assign it the value “82”.
(c) Create the variable score3 and assign it the value “86”.
(d) Create the variable averageScoreand assign it the value
(score1 + score2 + score3)/3
(e) Display the average score as output.

iii) **Mileage Calculator:**The following steps give the mileage value.

(a) Create the variable distance and assign it the value “250”.
(b) Create the variable petolConsumed and assign it the value “10”.
(c) Create the variable mileage and assign it the value distance/petolConsumed
(d) Display the mileage value.