

# JNUEE PGD in Big Data Analytics

Topic:- PGDT191 JNUS21

1) If 100:50, 27:9 and 32:8 are successive ratios following a pattern what is the likely next ratio?

[Question ID = 11710][Question Description = S1\_PGDT\_191\_PGD\_Q001]

1. 10:03

[Option ID = 110056]

2. 5:01

[Option ID = 110057]

3. 2:16

[Option ID = 110058]

4. 9:3

[Option ID = 110059]

2) What is one seventh of one seventh?

[Question ID = 11711][Question Description = S1\_PGDT\_191\_PGD\_Q002]

1. 49

[Option ID = 110060]

2.  $1/49$

[Option ID = 110061]

3.  $1/7$

[Option ID = 110062]

4. 7

[Option ID = 110063]

3) Four children out of a class of 25 were not able to read. What percentage is this?[Question ID = 11712][Question Description = S1\_PGDT\_191\_PGD\_Q003]

1. 25% [Option ID = 110064]

2. 16% [Option ID = 110065]

3. 12% [Option ID = 110066]

4. 8% [Option ID = 110067]

4) Find the missing term in the series 1, 4, 27, 16, \_\_\_\_, 36, 343

[Question ID = 11713][Question Description = S1\_PGDT\_191\_PGD\_Q004]

1. 122

[Option ID = 110068]

2. 125

[Option ID = 110069]

3. 127

[Option ID = 110070]

4. 129

[Option ID = 110071]

5) A man walks 2 km NORTH. Then he turns to East and walks 10 km. After this he turns to NORTH and walks 3 km. Again he turns towards EAST and walks 2 km. How far is he from the starting point?

[Question ID = 11714][Question Description = S1\_PGDT\_191\_PGD\_Q005]

1. 10 km

[Option ID = 110072]

2. 12 km

[Option ID = 110073]

3. 13 km

[Option ID = 110074]

4. 14 km

[Option ID = 110075]

6) The sum of the incomes of A and B is more than that of C and D taken together. The sum of the incomes of A and C is the same as that of B and D taken together. Moreover, A earns half as much as the sum of the incomes of B and D. Which of the following has the highest income?

[Question ID = 11715][Question Description = S1\_PGDT\_191\_PGD\_Q006]

1. A  
[Option ID = 110076]
2. B  
[Option ID = 110077]
3. C  
[Option ID = 110078]
4. D  
[Option ID = 110079]

7) Mr. Everton and Mr. Soames have longer holidays than Mr. Francke. Mr. Porter has a shorer holiday than Mr. Francke , whilst Mr. Peters has a longer hoiliday than Mr. Francke. Who has the shortest holiday?

[Question ID = 11716][Question Description = S1\_PGDT\_191\_PGD\_Q007]

1. Mr. Soames  
[Option ID = 110080]
2. Mr. Everton  
[Option ID = 110081]
3. Mr. Porter  
[Option ID = 110082]
4. Mr. Francke  
[Option ID = 110083]

8) In a @knockout@ basketball competition, Centurions are beaten by Raiders. Saracens beat Centurions . Saracens are beaten by Raiders and Aztecs. Centurions and Raiders are beaten by Aztecs. How many games do Raiders win?

[Question ID = 11717][Question Description = S1\_PGDT\_191\_PGD\_Q008]

1. 1  
[Option ID = 110084]
2. 2  
[Option ID = 110085]
3. 3  
[Option ID = 110086]
4. 4  
[Option ID = 110087]

9) The ages of A and B are in the ratio 3:1 . Fifteen years hence, the ratio will be 2:1. Their present ages are:[Question ID = 11718][Question Description = S1\_PGDT\_191\_PGD\_Q009]

1. 30 years , 10 years [Option ID = 110088]
2. 45 years , 15 years [Option ID = 110089]
3. 21 years , 7 years [Option ID = 110090]
4. 60 years, 20 years [Option ID = 110091]

10) Following is the data of number of employees in five companies :

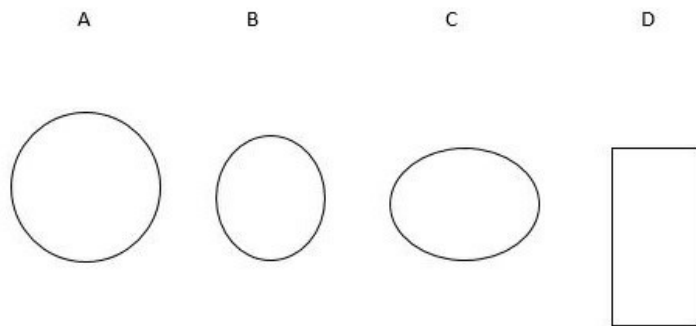
Company	No. of Employees
A	697
B	854
C	780
D	660
E	684

By what % is the number of total employees of Company C more than that of Company D?

[Question ID = 19799][Question Description = S1\_PGDT\_191\_PGD\_Q010]

1. 18.18%  
[Option ID = 110440]
2. 16.75%  
[Option ID = 110441]
3. 22.65%  
[Option ID = 110442]
4. 7.25%

11) Look at the following four geometrics:



Which is the odd one out ?

[Question ID = 19802][Question Description = S1\_PGDT\_191\_PGD\_Q011]

1. B  
[Option ID = 110452]
2. A  
[Option ID = 110453]
3. C  
[Option ID = 110454]
4. D  
[Option ID = 110455]

12) A shopping mall has five distinct glass doors and seven distinct metal doors for entry and has 10 distinct glass doors and two wooden doors for the exit

(a) In how many ways you can enter the mall?

(b) In how many ways you can leave the mall?

c) In how many ways you can enter and leave the mall?[Question ID = 11719][Question Description = S1\_PGDT\_191\_PGD\_Q012]

1. 12, 14, 144 [Option ID = 110092]
2. 8, 12, 144 [Option ID = 110093]
3. 12, 12, 144 [Option ID = 110094]
4. 12, 12, 132 [Option ID = 110095]

13)

The correct relationship between the Quantity A and Quantity B, given below, is

Quantity A	Quantity B
$\left( \frac{2^{30} - 1^{29}}{2} \right)$	$(2^{28})$

[Question ID = 19800][Question Description = S1\_PGDT\_191\_PGD\_Q013]

1. Quantity A is greater [Option ID = 110444]
2. Quantity B is greater [Option ID = 110445]
3. The two quantities are equal [Option ID = 110446]
4. The relationship cannot be determined from the information given [Option ID = 110447]

14) A certain jar contains 60 jelly beans including 22 white, 18 green, 11 yellow, 5 red and 4 purple. If a jelly bean is to be chosen at random, what is the probability that the jelly bean will be neither red nor purple?[Question ID = 11720]

[Question Description = S1\_PGDT\_191\_PGD\_Q014]

1. 0.09 [Option ID = 110096]
2. 0.15 [Option ID = 110097]
3. 0.54 [Option ID = 110098]
4. 0.85 [Option ID = 110099]

15) Of the 700 members of a certain organization, 120 are lawyers. Two members of the organization will be selected at

random. Which of the following is closest to the probability that neither of the members selected is a lawyer?[Question ID = 16417][Question Description = S1\_PGDT\_191\_PGD\_Q015]

- 1. 0.5 [Option ID = 110100]
- 2. 0.6 [Option ID = 110101]
- 3. 0.7 [Option ID = 110102]
- 4. 0.8 [Option ID = 110103]

16) A manager is forming a 6-member team to work on a certain project. From the 11 candidates available for the team, the manager has already chosen 3 to be on the team. In selecting the other 3 team members, how many different combinations of 3 of the remaining candidates does the manager have to choose from?[Question ID = 16418][Question Description = S1\_PGDT\_191\_PGD\_Q016]

- 1. 6 [Option ID = 110104]
- 2. 24 [Option ID = 110105]
- 3. 56 [Option ID = 110106]
- 4. 120 [Option ID = 110107]

17) The relationship between the area A of a circle and its circumference C is given by the formula  $A = KC^2$ , where K is a constant. What is the value of K?

[Question ID = 16419][Question Description = S1\_PGDT\_191\_PGD\_Q017]

- 1.  $\frac{1}{4}\pi$  [Option ID = 110108]
- 2.  $\frac{1}{2}\pi$  [Option ID = 110109]
- 3.  $\frac{1}{4}$  [Option ID = 110110]
- 4.  $2\pi$  [Option ID = 110111]

18) Runner A ran  $\frac{4}{5}$  kilometers and Runner B ran 800 meters.

Quantity A	Quantity B
The distance A ran	The distance that B ran
The correct relationship between the Quantity A and Quantity B is	

[Question ID = 16420][Question Description = S1\_PGDT\_191\_PGD\_Q018]

- 1. Quantity A is greater [Option ID = 110112]
- 2. Quantity B is greater [Option ID = 110113]
- 3. The two quantities are equal [Option ID = 110114]
- 4. The relationship cannot be determined from the information given [Option ID = 110115]

19)

Quantity A	Quantity B
$s\sqrt{t}$	$\frac{10}{t^2}$
The correct relationship between the Quantity A and Quantity B is	

[Question ID = 16421][Question Description = S1\_PGDT\_191\_PGD\_Q019]

- 1. Quantity A is greater [Option ID = 110116]
- 2. Quantity B is greater [Option ID = 110117]
- 3. The two quantities are equal [Option ID = 110118]
- 4. The relationship cannot be determined from the information given [Option ID = 110119]

20) The numbers in a data set D have a standard deviation of 5. If a new data set is formed by adding 3 to each number in D, what is the standard deviation of the numbers in the new data set?[Question ID = 16422][Question Description = S1\_PGDT\_191\_PGD\_Q020]

- 1. 2 [Option ID = 110120]
- 2. 3 [Option ID = 110121]
- 3. 5 [Option ID = 110122]
- 4. 8 [Option ID = 110123]

21) Give two quantity A and B as follow

Quantity A	Quantity B
$950^{2000}$	$10^{6000}$
The correct relationship between the Quantity A and Quantity B is	

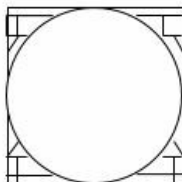
[Question ID = 19801][Question Description = S1\_PGDT\_191\_PGD\_Q021]

1. Quantity A is greater [Option ID = 110448]
2. Quantity B is greater [Option ID = 110449]
3. The two quantities are equal [Option ID = 110450]
4. The relationship cannot be determined from the information given [Option ID = 110451]

22) If  $n$  is an odd integer, which one of the following is an even integer?[Question ID = 16423][Question Description = S1\_PGDT\_191\_PGD\_Q022]

1.  $n^3$  [Option ID = 110124]
2.  $n / 4$  [Option ID = 110125]
3.  $2n + 3$  [Option ID = 110126]
4.  $n(n+3)$  [Option ID = 110127]

23) In the figure given below , the circle is inscribed in the square. If the area of the square is 16 square feet, what is the area of the shaded region?



[Question ID = 16424][Question Description = S1\_PGDT\_191\_PGD\_Q023]

1.  $16 - 16\pi$   
[Option ID = 110128]
2.  $16 - 4.4\pi$   
[Option ID = 110129]
3.  $16 - 4\pi$   
[Option ID = 110130]
4.  $2\pi$   
[Option ID = 110131]

24) Mean value of four numbers is 20. If one of the numbers is removed , the average of the remaining numbers is 15. What number was removed?

[Question ID = 16425][Question Description = S1\_PGDT\_191\_PGD\_Q024]

1. 10  
[Option ID = 110132]
2. 15  
[Option ID = 110133]
3. 30  
[Option ID = 110134]
4. 35  
[Option ID = 110135]

25) Let us say the DNA sequence is generated using the four letters A, T, G and C then how many words of size 3 are possible

[Question ID = 16426][Question Description = S1\_PGDT\_191\_PGD\_Q025]

1. 12 [Option ID = 110136]
2. 64 [Option ID = 110137]
3. 7 [Option ID = 110138]
4. 81 [Option ID = 110139]

26) What would be the output of the following python code?

```
#Python Arithmetic
print "Hens", 100 - 25 * 3 % 4
print "I can count eggs now"
```

[Question ID = 16427][Question Description = S1\_PGDT\_191\_PGD\_Q026]

1. Hens 97  
I can count eggs now  
[Option ID = 110140]
2. Hens 5  
I can count eggs now  
[Option ID = 110141]
3. error  
[Option ID = 110142]

4. Hens 1  
I can count eggs now  
[Option ID = 110143]

27) What would be the output of the following python code?

```
#Python Arithmetic  
print 3 + 2 < 5 - 7
```

[Question ID = 16428][Question Description = S1\_PGDT\_191\_PGD\_Q027]

1. FALSE  
[Option ID = 110144]  
2. 5  
[Option ID = 110145]  
3. -7  
[Option ID = 110146]  
4. -2  
[Option ID = 110147]

28) What would be the output of the following python code?

```
#Python String  
days = "Mon Tue Wed"  
months = "Mar\nApr\nMay"  
print "days are:", days  
print "Months are:", months
```

[Question ID = 16429][Question Description = S1\_PGDT\_191\_PGD\_Q028]

1. day are: Mon  
Tue  
Wed  
Months are: Mar Apr May  
[Option ID = 110148]  
2. day are: Mon  
Tue  
Wed  
Months are: Mar  
Apr  
May  
[Option ID = 110149]  
3. day are: Mon Tue Wed  
Months are: Mar Apr May  
[Option ID = 110150]  
4. day are: Mon Tue Wed  
Months are: Mar  
Apr  
May  
[Option ID = 110151]

29) What would be the output of the following python code?

```
def add(a, b):  
print "Adding %d + %d % (a, b)"  
return a + b  
def sub(a, b):  
print "Subtracting %d - %d % (a, b)"  
return a - b
```

```
age = add(30, 5)  
height = sub (78, 4)
```

```
print "Age: %d, Height: %d" % (age, height)
```

[Question ID = 16430][Question Description = S1\_PGDT\_191\_PGD\_Q029]

1. Age 35, Height 74 [Option ID = 110152]  
2. Age 35, Height 74  
Adding 30 + 5  
Subtracting 78 - 4  
[Option ID = 110153]  
3. Adding 30 + 5  
Subtracting 78 - 4  
Age 35, Height 74  
[Option ID = 110154]

4. syntax error [Option ID = 110155]

30) What would be the output of the following python code?

```
people = 20
cats = 30

if people < cats:
    print "So many cats!"
if people > cats:
    print "Not so many cats!"

people +=20

if people < cats:
    print "So many cats!"
if people > cats:
    print "Not so many cats!"
```

[Question ID = 16431][Question Description = S1\_PGDT\_191\_PGD\_Q030]

1. So many cats!

[Option ID = 110156]

2. Not so many cats!

[Option ID = 110157]

3. no output

[Option ID = 110158]

4. So many cats!

Not so many cats!

[Option ID = 110159]

31) What would be the output of the following python code?

```
fruits = ['apple', 'orange', 'banana']
for fruits in fruits:
    print "A fruit of type: %s" % fruit
```

[Question ID = 16432][Question Description = S1\_PGDT\_191\_PGD\_Q031]

1. A fruit of type: apple

[Option ID = 110160]

2. A fruit of type: apple

A fruit of type: orange

A fruit of type: banana

[Option ID = 110161]

3. A fruit of type: 3

[Option ID = 110162]

4. no output

[Option ID = 110163]

32) What would be the output of the following python code?

```
class Song(object):
    def __init__(self, type)
        self.type = type

    def play_song(self):
        for line in self.type
            print line

songtype = Song(["Jazz",
                 "Classical",
                 "Rock" ])

songtype.playsong()
```

[Question ID = 16433][Question Description = S1\_PGDT\_191\_PGD\_Q032]

1. line  
[Option ID = 110164]
2. Jazz  
[Option ID = 110165]
3. Jazz  
Classical  
Rock  
[Option ID = 110166]
4. error  
[Option ID = 110167]

33) What would be the output of following python code?

```
import numpy as np
import pandas as pd

df = pd.read.csv('db.csv')

print(df.head(10))
print()
```

[Question ID = 16434][Question Description = S1\_PGDT\_191\_PGD\_Q033]

1. no output on terminal [Option ID = 110168]
2. last 10 lines of the file db.csv [Option ID = 110169]
3. first 10 lines of the file db.csv [Option ID = 110170]
4. error [Option ID = 110171]

34) Which python library you need to download if you need to use 'pi' in your program?[Question ID = 16435][Question Description = S1\_PGDT\_191\_PGD\_Q034]

1. panda [Option ID = 110172]
2. math [Option ID = 110173]
3. numpy [Option ID = 110174]
4. datapy [Option ID = 110175]

35) What is JSON.dumps in python?

[Question ID = 16436][Question Description = S1\_PGDT\_191\_PGD\_Q035]

1. A format used to throw the data from one computer to another  
[Option ID = 110176]
2. A function to delete object  
[Option ID = 110177]
3. A Java script database  
[Option ID = 110178]
4. A function to delete data  
[Option ID = 110179]

36) What is the maximum possible length of an identifier in python?

[Question ID = 11721][Question Description = S1\_PGDT\_191\_PGD\_Q036]

1. 16  
[Option ID = 110180]
2. 32  
[Option ID = 110181]
3. 64  
[Option ID = 110182]
4. none of the above  
[Option ID = 110183]

37) What this code snippet is going to do?

```
from sys import argv
```

```
script, filename= argv
raw_input("?")
```

```
target = open(filename, 'w')
```



`target. truncate()`

**target.close()**[Question ID = 11722][Question Description = S1\_PGDT\_191\_PGD\_Q037]

1. reading the file [Option ID = 110184]
2. append the file [Option ID = 110185]
3. empties the file [Option ID = 110186]
4. closing the file [Option ID = 110187]

**38) In a C computer program, the first line usually refers to**

**[Question ID = 11723][Question Description = S1\_PGDT\_191\_PGD\_Q038]**

1. Libraries to be included  
[Option ID = 110188]
2. Definition of a function  
[Option ID = 110189]
3. Name of the C-program itself  
[Option ID = 110190]
4. Return value of the functions used  
[Option ID = 110191]

**39) Which of the following is NOT a valid data type in C?**[Question ID = 11724][Question Description = S1\_PGDT\_191\_PGD\_Q039]

1. Integer [Option ID = 110192]
2. Float [Option ID = 110193]
3. Character [Option ID = 110194]
4. Numerical [Option ID = 110195]

**40) Which of the following is NOT a valid code fragment from C programing language?**[Question ID = 11725][Question Description = S1\_PGDT\_191\_PGD\_Q040]

1. `X+=1` [Option ID = 110196]
2. `X = X+1` [Option ID = 110197]
3. `X/Y = Z` [Option ID = 110198]
4. `Z = X/Y` [Option ID = 110199]

**41) Which of the following is the best way to computer  $x^y$  in C programing language, assuming both x and y are floating values?**

**[Question ID = 11726][Question Description = S1\_PGDT\_191\_PGD\_Q041]**

1. `Z= x(*)y`  
[Option ID = 110200]
2. `Z = powf (x,y)`  
[Option ID = 110201]
3. `Z= x(^)y`  
[Option ID = 110202]
4. `Z= pow(x,y)`  
[Option ID = 110203]

**42) Which of the following is a valid/the best code fragment in C programing language?**

**[Question ID = 11727][Question Description = S1\_PGDT\_191\_PGD\_Q042]**

1. `for(x=1;x<=10;x++){write(“%d”,x);}>`  
[Option ID = 110204]
2. `for(x=1;x<=10;x++){print(“%s”,x);}>`  
[Option ID = 110205]
3. `for(x=1;x<=10;x++){printf(“%f”,x);}>`  
[Option ID = 110206]
4. `for(x=1;x<=10;x++){printf(“%d”,x);}>`  
[Option ID = 110207]

**43) A square matrix in C programing is described by**[Question ID = 11728][Question Description = S1\_PGDT\_191\_PGD\_Q043]

1. A Matrix object [Option ID = 110208]
2. A two dimensional array [Option ID = 110209]
3. A one dimensional array [Option ID = 110210]
4. A dataframe [Option ID = 110211]

**44) Which of the following cannot be described in C programing language?**[Question ID = 11729][Question Description = S1\_PGDT\_191\_PGD\_Q044]

1. A three-dimensional array [Option ID = 110212]
2. A float point array with infinite dimensions [Option ID = 110213]

3. An integer array with all values being NA [Option ID = 110214]
4. A loop with infinite number of iterations [Option ID = 110215]

**45) A pointer variable in C typical refers to**[Question ID = 11730][Question Description = S1\_PGDT\_191\_PGD\_Q045]

1. Memory location of an object [Option ID = 110216]
2. An alternative name to a variable [Option ID = 110217]
3. Integer value of a floating point variable [Option ID = 110218]
4. Floating point equivalent of an integer [Option ID = 110219]

**46) Which of the following can NOT be achieved by a single scanf() call in C?**[Question ID = 11731][Question Description = S1\_PGDT\_191\_PGD\_Q046]

1. Reading a single character from a string [Option ID = 110220]
2. Reading a full character string (word) [Option ID = 110221]
3. Reading an entire line from a text file [Option ID = 110222]
4. Reading a single float point value [Option ID = 110223]

**47) Which function can be used to copy first n characters of a string into another one?**[Question ID = 11732][Question Description = S1\_PGDT\_191\_PGD\_Q047]

1. strcpy() [Option ID = 110224]
2. strcat() [Option ID = 110225]
3. strncat() [Option ID = 110226]
4. strncpy() [Option ID = 110227]

**48) The function to read values into a variable from a file in C - programing is:**

[Question ID = 11733][Question Description = S1\_PGDT\_191\_PGD\_Q048]

1. fscan()  
[Option ID = 110228]
2. fscanf()  
[Option ID = 110229]
3. scanfile()  
[Option ID = 110230]
4. filescan()  
[Option ID = 110231]

**49) Which of the following call is necessary to be made before using fprintf()?**[Question ID = 11734][Question Description = S1\_PGDT\_191\_PGD\_Q049]

1. fopen() [Option ID = 110232]
2. fclose() [Option ID = 110233]
3. open() [Option ID = 110234]
4. close() [Option ID = 110235]

**50) A function is defined as**  
**int myfn(\*arg1)**

**What kind of data will be returned by such a function?**[Question ID = 11735][Question Description = S1\_PGDT\_191\_PGD\_Q050]

1. Integer [Option ID = 110236]
2. Float variable [Option ID = 110237]
3. Same as arg1 [Option ID = 110238]
4. Void [Option ID = 110239]

**51) Let us consider a sample of size N  $x_1, x_2, \dots, x_N$  whose mean is  $\bar{x}$ . If each variate values are translated by a constant 'A' such that one can create a translated sample of size N:  $y_1=x_1+A, y_2=x_2+A, \dots, y_N=x_N+A$ , then what is the mean  $\bar{y}$  of the translated sample ' $y_i$ ';  $i=1,2,\dots,N$ ?**

[Question ID = 11736][Question Description = S1\_PGDT\_191\_PGD\_Q051]

1.  $\bar{y} = A\bar{x}$   
[Option ID = 110240]
2.  $\bar{y} = \bar{x} + A$   
[Option ID = 110241]
3.  $\bar{y} = \bar{x}$   
[Option ID = 110242]
4.  $\bar{y} = \bar{x}/A$   
[Option ID = 110243]

**52) Consider a sample of size N with variate values  $x_1, x_2, \dots, x_N$ . If N is even what is the median of the sample?**[Question ID = 11737][Question Description = S1\_PGDT\_191\_PGD\_Q052]

1.  $\frac{x_{\frac{1}{2}(N+1)}}{2}$   
[Option ID = 110244]
2.  $\frac{x_{\frac{1}{2}N}}{2}$   
[Option ID = 110245]
3. *mean of  $x_{\frac{1}{2}(N+1)}$  and  $x_{\frac{1}{2}N}$*   
[Option ID = 110246]
4. *mean of  $x_{\frac{1}{2}N}$  and  $x_{\frac{1}{2}(N-1)}$*   
[Option ID = 110247]

- 53) Consider a sample of birthweights in grams of newly born live infants in a government hospital in Delhi during three days period:

i	$x_i$ (gm)
1	3124
2	3245
3	3576
4	3378
5	3398

What is the mode of the distribution?

[Question ID = 11738][Question Description = S1\_PGDT\_191\_PGD\_Q053]

1. 3576 [Option ID = 110248]
2. 3398 [Option ID = 110249]
3. 3490 [Option ID = 110250]
4. No mode [Option ID = 110251]

- 54) If you have a skewed distribution of data, which of the following measure of central tendency is considered to be the best measure?[Question ID = 17521][Question Description = S1\_PGDT\_191\_PGD\_Q054]

1. Mean [Option ID = 110252]
2. Median [Option ID = 110253]
3. Mode [Option ID = 110254]
4. None of the above [Option ID = 110255]

- 55) The mean ( $\bar{x}$ ) and variance ( $\sigma^2$ ) of a Poisson distribution  $P(x, \alpha) = \frac{\alpha^x e^{-\alpha}}{x!}$  are

[Question ID = 17522][Question Description = S1\_PGDT\_191\_PGD\_Q055]

1.  $\bar{x} = \alpha, \sigma^2 = \alpha^2$   
[Option ID = 110256]
2.  $\bar{x} = 0, \sigma^2 = \alpha$   
[Option ID = 110257]
3.  $\bar{x} = \alpha, \sigma^2 = 0$   
[Option ID = 110258]
4.  $\bar{x} = \alpha, \sigma^2 = \alpha$   
[Option ID = 110259]

- 56) Consider a normal checkup of patients in a hospital and categorized in two broad categories. If A be the event that a patient has normotensive diastolic bloodpressure (DBP) readings ( $DBP < 90$ ), and B be the event that a patient has borderline DBP readings ( $90 \leq DBP < 95$ ). Let the probabilities of being A and B be  $P(A) = 0.5$ , and  $P(B) = 0.2$ . Now if Z be the event that a patient has a  $DBP < 95$ , then what is the value of  $P(Z)$ ?

[Question ID = 17523][Question Description = S1\_PGDT\_191\_PGD\_Q056]

1.  $P(Z) = 0.3$   
[Option ID = 110260]
2.  $P(Z) = 0.7$   
[Option ID = 110261]
3.  $P(Z) = 1$   
[Option ID = 110262]
4.  $P(Z) = 2/7$   
[Option ID = 110263]

- 57) Consider  $x_1, x_2, \dots, x_M$  are mutually exclusive and exhaustive events. Then the unconditional probability of y,  $P(y)$  can be correlated with  $P(x_i)$ , and can be written as:

[Question ID = 17524][Question Description = S1\_PGDT\_191\_PGD\_Q057]

1.  $P(y) = \sum_{i=1}^M P(y|x_i)P(x_i)$

[Option ID = 110264]

2.  $P(y) = \sum_{i=1}^M P(x_i)$

[Option ID = 110265]

3.  $P(y) = \sum_{i=1}^M P(y|x_i)$

[Option ID = 110266]

4.  $P(y) = \sum_{i=1}^M [P(y|x_i) + P(x_i)]$

[Option ID = 110267]

**58) If two events ‘x’ and ‘y’ are independent events, then the probability of occurrence of both events ‘x’ and ‘y’ simultaneously is given by,**[Question ID = 17525][Question Description = S1\_PGDT\_191\_PGD\_Q058]

1.  $P(x)/P(y)$  [Option ID = 110268]

2.  $P(y)/P(x)$  [Option ID = 110269]

3.  $P(x)+P(y)$  [Option ID = 110270]

4.  $P(x)P(y)$  [Option ID = 110271]

**59) One of the cards from a deck of 52 cards is missing from the deck, but we do not know which one. One card is chosen at random from the remaining 51 cards. What is the probability that the chosen card is a spade?**

[Question ID = 17526][Question Description = S1\_PGDT\_191\_PGD\_Q059]

1.  $1/2$

[Option ID = 110272]

2.  $1/4$

[Option ID = 110273]

3.  $1/13$

[Option ID = 110274]

4.  $1/51$

[Option ID = 110275]

**60) A certain blood test for a disease gives a positive result 90% of the time among patients having the disease. But it also gives a positive result 25% of the time among people who do not have the disease. It is believed that 30% of the population has this disease. What is the probability that a person with a positive test result indeed has the disease?**

[Question ID = 17527][Question Description = S1\_PGDT\_191\_PGD\_Q060]

1. 0.235

[Option ID = 110276]

2. 0.506

[Option ID = 110277]

3. 0.607

[Option ID = 110278]

4. 0.701

[Option ID = 110279]

**61) 75% of Group A and 25% of Group B are pro-choice. In the population, 48% are Group A and 52% are Group B. If Ramcharan is pro-life, what is the probability that he is from Group B?**[Question ID = 17528][Question Description = S1\_PGDT\_191\_PGD\_Q061]

1. 0.125 [Option ID = 110280]

2. 0.257 [Option ID = 110281]

3. 0.579 [Option ID = 110282]

4. 0.765 [Option ID = 110283]

**62) Two events X and Y are said to be mutually exclusive if** [Question ID = 17529][Question Description = S1\_PGDT\_191\_PGD\_Q062]

1.  $P(X \cup Y) = 0$

[Option ID = 110284]

2.  $P(X \cap Y) = 0$

[Option ID = 110285]

3.  $P(X \cap Y) = 1$

[Option ID = 110286]

4.  $P(X \cup Y) = 1$

[Option ID = 110287]

63) For any three events  $A_1$ ,  $A_2$ ,  $A_3$  in a sample space  $E$ , we have

[Question ID = 17530][Question Description = S1\_PGDT\_191\_PGD\_Q063]

1.  $P(A_1 \cap A_2 \cap A_3) = P(A_1)P(A_2|A_1)P(A_3|A_1 \cap A_2)$

[Option ID = 110288]

2.  $P(A_1 \cap A_2 \cap A_3) = P(A_1)P(A_2|A_1)$

[Option ID = 110289]

3.  $P(A_1 \cap A_2 \cap A_3) = P(A_1)P(A_3|A_1 \cap A_2)$

[Option ID = 110290]

4.  $P(A_1 \cap A_2 \cap A_3) = P(A_1)$

[Option ID = 110291]

64) Which of the following statements is FALSE about the inter-Quartile range as a measure of dispersion?

[Question ID = 17531][Question Description = S1\_PGDT\_191\_PGD\_Q064]

1. It is based on 50% of the observations

[Option ID = 110292]

2. It is an absolute measure of dispersion.

[Option ID = 110293]

3. It is affected by the extreme observations.

[Option ID = 110294]

4. It is affected by the fluctuations of sampling.

[Option ID = 110295]

65)

Given the following group data

Class interval:	2-4	4-6	6-8	8-10
Frequency:	3	4	3	1

Find the mean deviation from median for this dataset.

[Question ID = 17532][Question Description = S1\_PGDT\_191\_PGD\_Q065]

1.  $\frac{16}{11}$

[Option ID = 110296]

2.  $\frac{67}{44}$

[Option ID = 110297]

3.  $\frac{59}{11}$

[Option ID = 110298]

4.  $\frac{188}{11}$

[Option ID = 110299]

66) The root mean square deviation about which one of the following is the smallest?

[Question ID = 17533][Question Description = S1\_PGDT\_191\_PGD\_Q066]

1. Median

[Option ID = 110300]

2. Mode

[Option ID = 110301]

3. Arithmetic mean

[Option ID = 110302]

4. Geometric mean

[Option ID = 110303]

67) Which one of the following is a CORRECT relation between the second central moment,  $\mu_2$ , and the second moment,  $\mu'_2$ , about an arbitrary point A?

[Question ID = 17534][Question Description = S1\_PGDT\_191\_PGD\_Q067]

1.  $\mu'_2 = \mu_2$

[Option ID = 110304]

2.  $\mu'_2 = \mu_2 + A$

[Option ID = 110305]

3.  $\mu'_2 = \mu_2 + A^2$

[Option ID = 110306]

4.  $\mu'_2 = \mu_2 - A$

[Option ID = 110307]

**68) The standard error of the mean is the standard deviation of sampling error for which one of these statistics associated with a random sample?**

**[Question ID = 17535][Question Description = S1\_PGDT\_191\_PGD\_Q068]**

1. Sample mean

[Option ID = 110308]

2. Population mean

[Option ID = 110309]

3. Sample variance

[Option ID = 110310]

4. Sample standard deviation

[Option ID = 110311]

**69) A pair of fair dice (cubes with faces numbered 1 to 6) is thrown. What is the chance that one of the numbers obtained is 6 given that the sum of the numbers obtained is 8?**[Question ID = 17536][Question Description = S1\_PGDT\_191\_PGD\_Q069]

1.  $\frac{11}{36}$

[Option ID = 110312]

2.  $\frac{1}{6}$

[Option ID = 110313]

3.  $\frac{2}{5}$

[Option ID = 110314]

4.  $\frac{5}{36}$

[Option ID = 110315]

**70) How many different arrangements of 3 identical blue beads and 2 identical green beads can be made on a straight line?**[Question ID = 17537][Question Description = S1\_PGDT\_191\_PGD\_Q070]

1. 120 [Option ID = 110316]

2. 24 [Option ID = 110317]

3. 20 [Option ID = 110318]

4. 10 [Option ID = 110319]

**71) A fair coin is tossed 4 times independently. What is the chance of the event of getting at least 1 head and at least 1 tail?**[Question ID = 17538][Question Description = S1\_PGDT\_191\_PGD\_Q071]

1.  $\frac{1}{16}$

[Option ID = 110320]

2.  $\frac{1}{4}$

[Option ID = 110321]

3.  $\frac{7}{8}$

[Option ID = 110322]

4.  $\frac{15}{16}$

[Option ID = 110323]

**72) In a group of students, 75% knew some probability, 30% knew some statistics and 20% knew some amount of both. What proportion of the students had no knowledge of probability or statistics?**[Question ID = 17539][Question Description = S1\_PGDT\_191\_PGD\_Q072]

1. 15%

[Option ID = 110324]

2. 30%

[Option ID = 110325]

3. 75%

[Option ID = 110326]

4. 85%

[Option ID = 110327]

73) Which one of the following statements about two random variables  $X$  and  $Y$  does NOT hold in general, when  $X$  and  $Y$  are dependent?

[Question ID = 17540][Question Description = S1\_PGDT\_191\_PGD\_Q073]

1.  $E(X + Y) = E(X) + E(Y)$

[Option ID = 110328]

2.  $E(2X - 3Y) = 2E(X) - 3E(Y)$

[Option ID = 110329]

3.  $Var(X + Y) = Var(X) + Var(Y)$

[Option ID = 110330]

4.  $Var(2X + 3) = 4 Var(X)$

[Option ID = 110331]

74)

Let  $X$  be a random variable with the cumulative distribution function

$$F(x) = 1 - e^{-x}, 0 < x < \infty$$

and  $F(x) = 0$  for  $x \leq 0$ .

What is the probability  $P(1 \leq X \leq 2)$ ?

[Question ID = 11739][Question Description = S1\_PGDT\_191\_PGD\_Q074]

1.  $1 - e^{-2}$  [Option ID = 110332]

2.  $e^{-1} - e^{-2}$  [Option ID = 110333]

3.  $1 - e^{-1}$  [Option ID = 110334]

4.  $e^2 - e^1$  [Option ID = 110335]

75)

The Pearson's coefficient of correlation between the advertising expenses and sales from the following data (where all monetary figures are in multiples of 1000 dollars) is

Head					
Advertising Expenses	6	2	10	4	8
Sales	9	11	5	8	7

[Question ID = 11740][Question Description = S1\_PGDT\_191\_PGD\_Q075]

1. -26 [Option ID = 110336]

2. 0.92 [Option ID = 110337]

3. -0.92 [Option ID = 110338]

4. 0.52 [Option ID = 110339]

76) Name the sequence format that includes the quality of each nucleotide also?[Question ID = 11741][Question Description = S1\_PGDT\_191\_PGD\_Q076]

1. FASTA [Option ID = 110340]

2. GenBank [Option ID = 110341]

3. FASTQ [Option ID = 110342]

4. FASTAQ [Option ID = 110343]

77) A gene has a 5'-UTR of 150 bp, open reading frame of 450 bp and 3'-UTR of 250 bp. What will be the length of the protein sequence coded by this gene?[Question ID = 11742][Question Description = S1\_PGDT\_191\_PGD\_Q077]

1. 150 aa [Option ID = 110344]

2. 450 aa [Option ID = 110345]

3. 149 aa [Option ID = 110346]

4. 250 aa [Option ID = 110347]

78) A good primer is of[Question ID = 11743][Question Description = S1\_PGDT\_191\_PGD\_Q078]

1. Length between 17-25 nt and GC content of 30-60% [Option ID = 110348]

2. Length below 8-10 bp nt and GC content of 50% [Option ID = 110349]

3. Length greater than 30 nt and GC content of more than 60% [Option ID = 110350]

4. Length of 17-25 nt and GC content of more than 70% [Option ID = 110351]

79) Which hybridization method is suitable for the detection of RNA molecules?[Question ID = 11744][Question Description = S1\_PGDT\_191\_PGD\_Q079]

1. Southern hybridization [Option ID = 110352]

2. Northern hybridization [Option ID = 110353]

3. Western hybridization [Option ID = 110354]
4. Eastern hybridization [Option ID = 110355]

**80) Standard BLAST method is used for?**[Question ID = 11745][Question Description = S1\_PGDT\_191\_PGD\_Q080]

1. Pairwise sequence alignment [Option ID = 110356]
2. Multiple sequence alignment [Option ID = 110357]
3. Pairwise and multiple sequence alignment [Option ID = 110358]
4. Structural alignment [Option ID = 110359]

**81) Paralogous genes are formed due to?**[Question ID = 11746][Question Description = S1\_PGDT\_191\_PGD\_Q081]

1. Speciation [Option ID = 110360]
2. Duplication [Option ID = 110361]
3. Speciation and duplication [Option ID = 110362]
4. Genome rearrangements [Option ID = 110363]

**82) mRNA sequence can be best differentiated from CDS by?**[Question ID = 11747][Question Description = S1\_PGDT\_191\_PGD\_Q082]

1. the presence of 5'-UTR [Option ID = 110364]
2. the presence of 3'-UTR [Option ID = 110365]
3. the presence of 5'-UTR and 3'-UTR [Option ID = 110366]
4. the presence of stop codon [Option ID = 110367]

**83) Which of the following is NOT a protein sequence database?**[Question ID = 11748][Question Description = S1\_PGDT\_191\_PGD\_Q083]

1. PIR [Option ID = 110368]
2. UNIPROT [Option ID = 110369]
3. SWISSPROT [Option ID = 110370]
4. GEO [Option ID = 110371]

**84) Which of the following represents the distal regulatory sequence for a gene?**[Question ID = 11749][Question Description = S1\_PGDT\_191\_PGD\_Q084]

1. Promoter [Option ID = 110372]
2. Enhancer [Option ID = 110373]
3. TATA-box [Option ID = 110374]
4. CAAT-box [Option ID = 110375]

**85) Which of the following point mutation can lead to a truncated protein?**[Question ID = 11750][Question Description = S1\_PGDT\_191\_PGD\_Q085]

1. Silent mutation [Option ID = 110376]
2. Missense mutation [Option ID = 110377]
3. Nonsense mutation [Option ID = 110378]
4. Synonymous mutation [Option ID = 110379]

**86) Difference between a nucleotide and a nucleoside is of?**[Question ID = 11751][Question Description = S1\_PGDT\_191\_PGD\_Q086]

1. Nitrogenous base [Option ID = 110380]
2. Phosphate group [Option ID = 110381]
3. Pentose sugar [Option ID = 110382]
4. Uracil [Option ID = 110383]

**87) Which of the following dihedral angle is part of the G N Ramachandran plot?**

**[Question ID = 11752][Question Description = S1\_PGDT\_191\_PGD\_Q087]**

1. Phi  
[Option ID = 110384]
2. Theta  
[Option ID = 110385]
3. Alpha  
[Option ID = 110386]
4. Beta  
[Option ID = 110387]

**88) Secondary structure of a protein is typically formed due to:**[Question ID = 11753][Question Description = S1\_PGDT\_191\_PGD\_Q088]

1. Covalent interactions [Option ID = 110388]
2. Electrostatic interactions [Option ID = 110389]
3. Hydrogen bonding [Option ID = 110390]
4. Cation-pi interactions [Option ID = 110391]

**89) Which of the following will give the best estimate of protein-ligand interaction energy?**[Question ID = 11754][Question Description = S1\_PGDT\_191\_PGD\_Q089]



1. Rigid docking [Option ID = 110392]
2. Flexible docking [Option ID = 110393]
3. Homology modelling [Option ID = 110394]
4. Quantitative structure-activity relation (QSAR) [Option ID = 110395]

**90) What algorithm is used by Bowtie for mapping NGS reads to the genome sequence?[Question ID = 11755][Question Description = S1\_PGDT\_191\_PGD\_Q090]**

1. Dynamic programing [Option ID = 110396]
2. Burrows-Wheeler algorithm [Option ID = 110397]
3. Needle-Wunchman algorithm [Option ID = 110398]
4. Random walk algorithm [Option ID = 110399]

**91) What is a good (enough) resolution of a protein crystal structure at which the coordinates of most of the heavy atoms can be observed?[Question ID = 11756][Question Description = S1\_PGDT\_191\_PGD\_Q091]**

1. 2.5 Å or lower value [Option ID = 110400]
2. 4.0 Å or lower value [Option ID = 110401]
3. 5.0 Å or higher value [Option ID = 110402]
4. 10.0 Å or lower value [Option ID = 110403]

**92) Which of the following software is used to implement Relational Database Management System (RDBMS)?**

**[Question ID = 11757][Question Description = S1\_PGDT\_191\_PGD\_Q092]**

1. MySQL  
[Option ID = 110404]
2. Hadoop  
[Option ID = 110405]
3. MangoDB  
[Option ID = 110406]
4. JSON  
[Option ID = 110407]

**93) Which of the following is NOT a part of the phylogenetic analysis?[Question ID = 19791][Question Description = S1\_PGDT\_191\_PGD\_Q093]**

1. Sequence alignment [Option ID = 110408]
2. Tree building [Option ID = 110409]
3. Inheritance [Option ID = 110410]
4. Tree evaluation [Option ID = 110411]

**94) The quaternary protein structure defines?[Question ID = 19792][Question Description = S1\_PGDT\_191\_PGD\_Q094]**

1. Oligomeric structure [Option ID = 110412]
2. Side chain structure [Option ID = 110413]
3. Loop structure [Option ID = 110414]
4. Long range covalent bonds [Option ID = 110415]

**95) Gene expression does NOT depend on which of the following factor?[Question ID = 19793][Question Description = S1\_PGDT\_191\_PGD\_Q095]**

1. Binding of transcription factor(s) [Option ID = 110416]
2. Binding of RNA polymerase [Option ID = 110417]
3. Splicing [Option ID = 110418]
4. tRNA activity [Option ID = 110419]

**96) Protein Data Bank (PDB) contains structures of which of the following molecule(s)?[Question ID = 19794][Question Description = S1\_PGDT\_191\_PGD\_Q096]**

1. Protein [Option ID = 110420]
2. DNA [Option ID = 110421]
3. RNA [Option ID = 110422]
4. All of these [Option ID = 110423]

**97) B-cell produces which of the following molecule?[Question ID = 19795][Question Description = S1\_PGDT\_191\_PGD\_Q097]**

1. Antigen [Option ID = 110424]
2. Antibody [Option ID = 110425]
3. T-cell [Option ID = 110426]
4. Ribosome [Option ID = 110427]

**98) Introns are the part of the gene structure in which of the following?[Question ID = 19796][Question Description = S1\_PGDT\_191\_PGD\_Q098]**

1. Prokaryotes [Option ID = 110428]
2. Eukaryotes [Option ID = 110429]
3. Bacteria [Option ID = 110430]
4. All of the above [Option ID = 110431]

99) How many chromosomes are there in a normal haploid human genome?

[Question ID = 19797][Question Description = S1\_PGDT\_191\_PGD\_Q099]

1. 23

[Option ID = 110432]

2. 46

[Option ID = 110433]

3. 22

[Option ID = 110434]

4. 44

[Option ID = 110435]

100) What does  $C_T$  stands for in the quantitative RT-PCR method?[Question ID = 19798][Question Description = S1\_PGDT\_191\_PGD\_Q100]

1. Number of PCR cycles required to reach the end point [Option ID = 110436]

2. Number of PCR cycles required to reach a threshold signal value [Option ID = 110437]

3. Number of PCR cycles required to reach saturation [Option ID = 110438]

4. Maximum number of PCR cycles in a given experiment [Option ID = 110439]

