17.07.19   T.T Maths   Time: 45 Mins

STD: XII (A,C)   Marks:30

I. Choose the correct answer: 5x1=5

1. The product of all four values of $\left(cos\frac{\pi}{3} + i\sin\frac{\pi}{3}\right)^{\frac{3}{4}}$ is

    a) -2   b) -1   c) 1   d) 2

2. The value of $\left(\frac{1+\sqrt{3}i}{1-\sqrt{3}}\right)^{10}$ is

    a) cis $\frac{2\pi}{3}$ b) cis $\frac{4\pi}{3}$ c) $-$cis $\frac{2\pi}{3}$ d) $-$cis $\frac{4\pi}{3}$

3. The principal argument of $(\sin40^0+i\cos40^0)^5$ is _____

    a) -110^0 b) -70^0 c) 70^0 d)110^0

4. If $-i+3$ is a root of $x^2-6x+k=0$, then the value of k is

    a) 5   b) $\sqrt{5}$ c) $\sqrt{10}$ d) 10

5. If $\frac{Z-1}{Z+1}$ is purely imaginary, then _____

    a) $|Z|=1$ b) $|Z|>1$ c) $|Z|<1$ d) None of these

II. Answer any 5 from the following: 5x3=15

6. Simplify $\left(\frac{1+\cos 2\theta +i\sin 2\theta}{1+\cos 2\theta -i\sin 2\theta}\right)^{30}$

7. If $z=z-2i$, find the rotation of z by θ radians in the counter clockwise direction about the origin when $\theta=\frac{\pi}{3}$.

8. If $\omega \neq 1$ is a cube root of unity, show that
$\frac{a+b\omega +c\omega^2}{b+c\omega +a\omega^2} + \frac{a+b\omega +c\omega^2}{c+a\omega +b\omega^2} =1$

9. If $\omega \neq 1$ is a cube root of unity show that
$(1-\omega+\omega^2)^6+(1+\omega-\omega^2)^6=128$

10. Find all cube roots of $\sqrt{3}+i$

11. Solve $x^4+4=0$

III. Answer any 2 from the following: 2x5=10

12. If $2\cos\alpha=x+\frac{1}{x}$ and $2\cos\beta=y+\frac{1}{y}$, show that
$x^m y^n+\frac{1}{x^m y^n} = 2\cos(m\alpha+n\beta)$

13. Show that $\left(\frac{\sqrt{3}}{2}+\frac{i}{2}\right)^5 + \left(\frac{\sqrt{3}}{2}-\frac{i}{2}\right)^5 = -\sqrt{3}$

14. Solve the equation $z^3+8i=0$, where $z\in c$.

17.07.19   T.T Computer Science   Time: 45 Mins

STD: XII (B,D,E)   Marks:30

I. Answer any 5 of the following: (Q.No.5 is compulsory) 5x2=10

1. Write the general format of replace function with example.
2. Define string slicing.
3. Write any 5 formatting characters and their usage.
4. Define escape sequence with eg.
5. Write a note on format ( ) function.
6. Define Membership operator.

II. Answer any 5 of the following: 5x3=15

7. Write the output of the following:
```
str1= "A B C D E F G H"
str2="a/e"
for i in str1:
  print ((i+str2), end='\t')
```

8. Why the strings are immutable? State the reason.
9. What is string in Python?
10. How will you delete a string in Python?
11. What is the use of repeating operator? Write example.
12. Write a note on built-in-function as count ( ), swapcase( ) with example.

III. Answer any one in detail: 1x5=5

13. From the following string, write the output:
```
str1="PROGRAMMING"
```
   i) print (str1 [0])   ii) print (str1 [0:5])
   iii) print (str1 [:5])   iv) print (str1 [6:])
   v) print (str1 [6:10:2])

14. Write a note on any 5 Built-in Function with example.

I. Choose the correct answer:　　　　　　15x1=15

1. An increase in the marginal propensity to consume will
　　a) shift savings function upwards
　　b) lead to consumption function becoming steeper
　　c) shift in consumption function upwards

2. Lower interest rates are likely to:
　　a) increase borrowing and spending
　　b) decrease in consumption　　c) encourage savings

3. As national income increases
　　a) The APC stays constant
　　b) The APC always approaches infinity
　　c) The APC falls and gets nearer in value to the MPC

4. If the MPC is 0.5, the Multiplier is _____.
　　a) $\frac{1}{2}$　　　　b) 2　　　　c) 20

5. As income increases, consumption will _____.
　　a) increase　　b) fall　　c) not change

6. The multiplier is calculated as _____.
　　a) $\frac{1}{(1-MPC)}$　　b) $\frac{1}{MPC}$　　c) $\frac{1}{MPS}$　　d) a and b

7. The sum of the MPC and MPS is _____.
　　a) 1.1　　　b) 1　　　c) 2

8. The average propensity to consume is measured by
　　a) cxy　　　b) $\frac{y}{c}$　　　c) $\frac{c}{y}$

9. If the Keynesian consumption function is C=10+0.8y then, if disposable income is ₹1000, what is the amount of total consumption?
　　a) ₹ 810　　b) ₹ 0.81　　c) ₹ 0.8

10. As increase in consumption at any given level of income is likely to lead _____.
　　a) A fall in taxation revenue　　b) An increase in exports
　　c) Higher aggregate demand

11. In an open economy import _____ the value of the multiplies.
　　a) increase　　b) reduces　　c) changes

12. The MPC is equal to _____.
　　a) change in consumption/change in income
　　b) Total consumption / total income
　　c) Total spending / total consumption

13. The multiplier tells us how much _____ changes after a shift in _____.
　　a) savings, investment　　b) investment, output
　　c) output, aggregate demand

14. According to Keynes, investment function of the MEC and
　　a) Rate of interest　b) Supply　　c) Demand

15. The term MEC was introduced by _____.
　　a) Adam Smith　　b) Ricardo　　c) J.M.Keynes

II. Answer any 5 of the following:　　　　5x3=15
16. Define Multiplier.
17. What do you mean by propensity to consume?
18. Define average propensity to save (APS).
19. What is consumption function?
20. What do you mean by propensity to save?
21. Define Marginal propensity to consume (MPC).
22. Define Accelerator.

17.07.19	T.T Biology	Time: 45 Mins
STD: XII (B,D,E)	Bio-Botany	Marks:30

I. Answer any 5 of the following: 5x2=10

1. Why Transposons are called walking genes or jumping genes?
2. Draw and label PBR322.
3. List out the properties of vectors.
4. You are working in a biotechnology lab with a bacterium namely E-coli, how will you cut the nucleotide sequence? Explain it.
5. What is PCR?
6. Write a note on Expression Vector.
7. List out the application of scp.

II. Answer any 1 in detail: 1x5=5

8. Write in detail about the steps involved in Recombinant DNA technology.
9. What are restriction enzyme? Mention their type with role in Biotechnology.

Bio-Zoology

I. Answer any 2 of the following: 2x2=4

1. Write a note on Suttons classical concept of gene.
2. Which component given DNA & negative charge explain?
3. What are the Nitrogen bases give a short note.

II. Answer any 2 of the following: 2x3=6

4. Explain the stability of DNA & RNA.
5. Discuss on two points which make DNA a superior genetic material.
6. Explain about Phosphate Group of DNA

III. Answer any 1 of the following: 1x5=5

7. Explain about Hershey chase experiment.
8. Explain about DNA packaging.

17.07.19	T.T Commerce	Time: 45 Mins
STD: XII (H,I,J)		Marks:35

I. Answer the following questions:

1. Write the meaning and definition of stock exchange.   (5 Marks)
2. Write any 5 stock exchanges in India   (5 Marks)
3. Who is a broker?   (5 Marks)
4. Explain Dalal street.   (5 Marks)
5. Explain the kinds of speculator.   (10 Marks)

II. Expand the following: 5x1=5

6. NSMS -   7. SHCIL -   8. STCI -   8. NSDL -   9. NCDS -