FirstRanker.com
Firstranker's choice


Topic:- ELEC PHD S2

1) **The complex number $\frac{(1+i)(2+i)(4+i)}{(1-i)}$ can be expressed in $a+ib$ form as follows**

[Question ID = 5438]

1. $5+7i$

[Option ID = 21746]

2. $-6+4i$

[Option ID = 21747]

3. $-6+7i$

[Option ID = 21748]

4. $-4+7i$

[Option ID = 21749]

Correct Answer :-

- $-6+7i$

[Option ID = 21748]

2) If $f(x)=(2x+1)/(2x-1)$ and $g(x)=(x+5)/(2x-3)$ then $g(f(x))$ is

[Question ID = 5439]

1. $\frac{5x+3}{x+4}$

[Option ID = 21750]

2. $\frac{3x+7}{4-x}$

[Option ID = 21751]

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

[Option ID = 21752]

4. $\frac{12x-4}{-2x+5}$

[Option ID = 21753]

Correct Answer :-

- $\frac{12x-4}{-2x+5}$

[Option ID = 21753]

3) $\lim_{x\to\pi}\frac{1+cos\ x}{tan^2\ x}=$

[Question ID = 5440]

1. $1$

[Option ID = 21754]

2. $-1$

[Option ID = 21755]

3. $^1/_2$

[Option ID = 21756]

4. $-^1/_2$

[Option ID = 21757]

www.FirstRanker.com

Correct Answer :-

- $^1/_2$

firstranker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

4) For the given differential equation, $\frac{d^2y}{dx^2} + \frac{dy}{dx} - 2y = 0$ the general solution of this equation will be

[Question ID = 5441]

1. $y(x) = Ae^{2x} - Be^{-x}$

[Option ID = 21758]

2. $y(x) = Ae^{-2x} + Be^{x}$

[Option ID = 21759]

3. $y(x) = Ae^{2x} + Be^{x}$

[Option ID = 21760]

4. $y(x) = Ae^{-2x} + Be^{-x}$

[Option ID = 21761]

Correct Answer :-

- $y(x) = Ae^{-2x} + Be^{x}$

[Option ID = 21759]

5) Given $x = \frac{ct}{(1-3t)}, y = \frac{ct^2}{(1-4t)}$, where *t* is a parameter and c is a constant, then $dy/dx$ in terms of *t* only is

[Question ID = 5442]

1. $\frac{2t(1-2t)(1-3t)^2}{(1-4t)^2}$

[Option ID = 21762]

2. $\frac{2(1-2t)(1-4t)^2}{(1-3t)^2}$

[Option ID = 21763]

3. $\frac{2t(1-2t)(1+3t)^2}{(1+7t)^2}$

[Option ID = 21764]

4. $\frac{(1-2t)(1-3t)^2}{(1-7t)^2}$

[Option ID = 21765]

Correct Answer :-

- $\frac{2t(1-2t)(1-3t)^2}{(1-4t)^2}$

[Option ID = 21762]

6) The eigen values of the matrix $\begin{vmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{vmatrix}$ are

[Question ID = 5443]

1. 2,-3,6

[Option ID = 21766]

2. -2,-3,-6

[Option ID = 21767]

3. -2,3,6

[Option ID = 21768]

4. 2,-3,-6

[Option ID = 21769]

Correct Answer :-

- -2,3,6

www.FirstRanker.com

[Option ID = 21768]

firstranker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

7) which value of $x$ will make the matrix become singular?

$$\begin{bmatrix} 4 & 0 & 2 \\ 12 & 6 & 0 \end{bmatrix}$$

[Question ID = 5444]

1. 1

[Option ID = 21770]

2. 0

[Option ID = 21771]

3. 4

[Option ID = 21772]

4. 2

[Option ID = 21773]

Correct Answer :-

- 4

[Option ID = 21772]

8) If A is orthogonal matrix and $A = \begin{vmatrix} 0 & 2b & c \\ a & b & -c \\ a & -b & c \end{vmatrix}$, the values of a and b are

[Question ID = 5445]

1. $a = \pm\frac{1}{\sqrt{2}} b = \pm\frac{1}{\sqrt{6}}$

[Option ID = 21774]

2. $a = \pm\frac{1}{\sqrt{3}} b = \pm\frac{1}{\sqrt{2}}$

[Option ID = 21775]

3. $a = \pm 0 b = \frac{1}{\sqrt{2}}$

[Option ID = 21776]

4. $a = \pm\frac{1}{\sqrt{3}} b = \pm 0$

[Option ID = 21777]

Correct Answer :-

- $a = \pm\frac{1}{\sqrt{2}} b = \pm\frac{1}{\sqrt{6}}$

[Option ID = 21774]

9) The particular solution for $Y''' - Y' = e^x + e^{-x}$ is

[Question ID = 5446]

1. $\frac{x(e^x + e^{-x})}{2}$

[Option ID = 21778]

2. $\frac{(e^x + e^{-x})}{2}$

[Option ID = 21779]

3. $\frac{-x(e^x + e^{-x})}{2}$

[Option ID = 21780]

4. $\frac{-(e^x + e^{-x})}{2}$

[Option ID = 21781]

Correct Answer :-

- $\frac{x(e^x + e^{-x})}{2}$

[Option ID = 21778]

www.FirstRanker.com
firstranker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

The partial differential equation $\frac{\delta^2 y}{\delta x^2} + \frac{\delta^2 z}{\delta y^2} = xy$ can be classified as

[Question ID = 5447]

1. parabolic

   [Option ID = 21782]
2. hyperbolic

   [Option ID = 21783]
3. none of these

   [Option ID = 21784]
4. elliptic

   [Option ID = 21785]

Correct Answer :-

- elliptic

  [Option ID = 21785]

11) Consider an ordinary differential equation $\frac{dx}{dt} = 4t + 4$ . if x = $x_0$ at t=0, the increment in x calculated using Runge-Kutta fourth order multi-step method with a step size of $\Delta t = 0.2$ is

[Question ID = 5448]

1. 0.66 [Option ID = 21786]
2. 0.44 [Option ID = 21787]
3. 0.88 [Option ID = 21788]
4. 0.22 [Option ID = 21789]

Correct Answer :-

- 0.88 [Option ID = 21788]

12) The velocity v(in kilometre/minute) of a motorbike which starts from rest, is given at fixed intervals of time t(in minutes) as follows:

| t | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| v | 10 | 18 | 25 | 29 | 32 | 20 | 11 | 5 | 2 | 0 |

The approximate distance (in kilometres) rounded to two places of decimals covered in 20 minutes using Simpson's 1/3rd rule is

[Question ID = 5449]

1. 200

   [Option ID = 21790]
2. 309

   [Option ID = 21791]
3. 119

   [Option ID = 21792]
4. 234

   [Option ID = 21793]

Correct Answer :-

- 309

  [Option ID = 21791]

13) Consider $p(s) = s^3 + a_2 s^2 + a_1 s + a_0$ with all real coefficients. It is known that its derivative p'(s) has no real roots. The number of real roots of p(s) is

[Question ID = 5450]

1. 0

   [Option ID = 21794]
2. 1

   [Option ID = 21795]
3. 2

   [Option ID = 21796]
4. 3

   [Option ID = 21797]

www.FirstRanker.com
firstranker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

Answer :-

[Option ID = 21797]

14) Gauss Seidel method is used to solve the following equations (as per the given order):

$x_1 + 2x_2 + 3x_3 = 5;$

$2x_1 + 3x_2 + x_3 = 1;$

$3x_1 + 2x_2 + x_3 = 3;$

Assuming initial guess as $x_1=x_2=x_3=0$, the value of $x_3$ after the first iteration is

[Question ID = 5451]

1. 1.55

   [Option ID = 21798]
2. 2.55

   [Option ID = 21799]
3. 1.00

   [Option ID = 21800]
4. 3.67

   [Option ID = 21801]

Correct Answer :-

- 1.55

  [Option ID = 21798]

15) The function $f(x)=e^x - 1$ is to be solved using Newton-Raphson method, an initial guess of $x_0$ is taken as 1.0, then the absolute error observed at 2nd iteration is

[Question ID = 5452]

1. 0.50 [Option ID = 21802]
2. 1.25 [Option ID = 21803]
3. 0.25 [Option ID = 21804]
4. 0.33 [Option ID = 21805]

Correct Answer :-

- 0.25 [Option ID = 21804]

16) IF $F(s)$ is the Fourier transform of $f(x)$ then the Fourier transform of $e^{5x}f(x)$ is

[Question ID = 5453]

1. $F\left(\frac{s}{5}\right)$

   [Option ID = 21806]
2. $F(5s)$

   [Option ID = 21807]
3. $F(s+5)$

   [Option ID = 21808]
4. $F(s-5)$

   [Option ID = 21809]

Correct Answer :-

- $F(s+5)$

  [Option ID = 21808]

17) The Fourier cosine transform of $7e^{-x} + e^{-5x}$ is

[Question ID = 5454]

1. $\sqrt{\frac{2}{\pi}}\left(\frac{7}{(s^2+1)(s^2+25)}\right)$

   [Option ID = 21810]
2. $\sqrt{\frac{2}{\pi}}\left(\frac{7}{s^2+1} + \frac{5}{s^2+25}\right)$

www.FirstRanker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

[Option ID = 21811]

2. $\sqrt{\frac{2}{\pi}}\left(\frac{7}{s^2}-\frac{5}{s^2}\right)$

[Option ID = 21812]

4. $\sqrt{\frac{2}{\pi}}\left(\frac{7}{s^2}+\frac{1}{s^2}\right)$

[Option ID = 21813]

Correct Answer :-

- $\sqrt{\frac{2}{\pi}}\left(\frac{7}{s^2+1}+\frac{5}{s^2+25}\right)$

[Option ID = 21811]

18) Using Laplace transform evaluate the given integral $\int_0^\infty te^{-2t}\sin 3t\,dt$

[Question ID = 5455]

1. $\frac{12}{169}$

[Option ID = 21814]

2. 1

[Option ID = 21815]

3. $\frac{9}{225}$

[Option ID = 21816]

4. 0

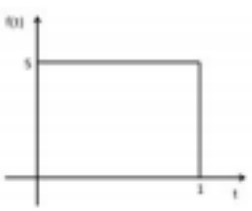
[Option ID = 21817]

Correct Answer :-

- $\frac{12}{169}$

[Option ID = 21814]

19) If Laplace transform of the function f(t) is given by $\int_0^\infty f(t)e^{-st}dt$ then Laplace transform of the function shown in the figure is




[Question ID = 5456]

1. $\left(\frac{5-e^{-s}}{s}\right)$

[Option ID = 21818]

2. $5\left(\frac{1-e^{-s}}{s}\right)$

[Option ID = 21819]

3. $\left(\frac{5+e^{-s}}{s}\right)$

[Option ID = 21820]

4. $\left(\frac{5+e^{s}}{s}\right)$

[Option ID = 21821]

Correct Answer :-

- $5\left(\frac{1-e^{-s}}{s}\right)$

[Option ID = 21819]

www.FirstRanker.com
firstranker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

The inverse Laplace transform of $\frac{1}{\sqrt{s}}$ is

[Question ID = 5457]

1. $\frac{1}{\sqrt{2t}}e^{-\frac{5}{2}}$

   [Option ID = 21822]

2. $\frac{1}{\sqrt{2}}e^{-\frac{5}{2}}$

   [Option ID = 21823]

3. $\frac{1}{\sqrt{\pi}}$

   [Option ID = 21824]

4. $\frac{1}{\sqrt{2t\pi}}e^{-\frac{5}{2}}$

   [Option ID = 21825]

Correct Answer :-

- $\frac{1}{\sqrt{2t\pi}}e^{-\frac{5}{2}}$

  [Option ID = 21825]

21) Which MATLAB command will return the corner elements of a 5-by-5 matrix A?

[Question ID = 5458]

1. A([1,1], [end, end]) [Option ID = 21826]
2. A([[1,1], [1, end], [end,1], [end, end]]) [Option ID = 21827]
3. A(1:end, 1:end) [Option ID = 21828]
4. A([1, end], [1, end]) [Option ID = 21829]

Correct Answer :-

- A([1, end], [1, end]) [Option ID = 21829]

22) Two vectors created in MATLAB as

```
>> X = [7 7 7 7];
>> Y=6:9;
```

The output of the command X == Y is

[Question ID = 5459]

1. 0 1 0 0

   [Option ID = 21830]

2. 6 7 8 9

   [Option ID = 21831]

3. 7 7 7 7

   [Option ID = 21832]

4. 0 1 0 1

   [Option ID = 21833]

Correct Answer :-

- 0 1 0 0

  [Option ID = 21830]

23) Consider the following MATLAB vectors:

```
x = [ 1 2 ];
y = [ 3 4 ];
z = [ x' [ y ; y ] ]';
```

What is the value of z after this program executes?

[Question ID = 5460]

1. $\begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 3 & 4 \end{bmatrix}$

   [Option ID = 21834]

www.FirstRanker.com
firstranker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

[Option ID = 21836]

3. $\begin{bmatrix} 1 & 3 & 3 \\ 2 & 4 & 4 \end{bmatrix}$

[Option ID = 21836]

4. $\begin{bmatrix} 1 & 2 \\ 3 & 3 \\ 4 & 4 \end{bmatrix}$

[Option ID = 21837]

Correct Answer :-

- $\begin{bmatrix} 1 & 2 \\ 3 & 3 \\ 4 & 4 \end{bmatrix}$

[Option ID = 21837]

**24) In C language, what is the output of the following code?**

```
int main()
{
  int j = 4;
printf("%d%d",j,j++);
}
```

[Question ID = 5461]

1. 44

[Option ID = 21838]

2. 45

[Option ID = 21839]

3. 54

[Option ID = 21840]

4. 55

[Option ID = 21841]

Correct Answer :-

- 54

[Option ID = 21840]

**25) In C language, what is the output of the following code?**

```
int main()
{
int a=52;
printf("%o %x",a,a);
}
```

[Question ID = 5462]

1. 052 0x52

[Option ID = 21842]

2. 64 34

[Option ID = 21843]

3. 62 43

[Option ID = 21844]

4. error

[Option ID = 21845]

Correct Answer :-

- 64 34

[Option ID = 21843]

www.FirstRanker.com

**26) The length and cross sectional area of n-type photo conductor are 150 μm and $10^{-7}$ $cm^2$ respectively. What is the**

firstranker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

...on transit time at an applied voltage of 15 V? (Assume mobility of electron $\mu_n$ = 950 $cm^2/V.s$)

[Question ID = 5463]

1. 15.8 ns

   [Option ID = 21846]
2. 10.5 ns

   [Option ID = 21847]
3. 7.4 ns

   [Option ID = 21848]
4. 3.1 ns

   [Option ID = 21849]

Correct Answer :-

- 15.8 ns

  [Option ID = 21846]

27) If the number density of a free electron gas changes from $10^{27}$ to $10^{25}$ electrons/$m^3$ then the value of plasma frequency (in Hz) changes from $9.85 \times 10^{14}$ to _____

[Question ID = 5464]

1. $9.85 \times 10^{10}$ [Option ID = 21850]
2. $9.85 \times 10^{9}$ [Option ID = 21851]
3. $9.85 \times 10^{13}$ [Option ID = 21852]
4. $9.85 \times 10^{7}$ [Option ID = 21853]

Correct Answer :-

- $9.85 \times 10^{13}$ [Option ID = 21852]

28) Match List I with List II typical spectroscopic regions type of transitions

| List I | List II |
|---|---|
| A. Infrared region | I. Electron transition involving valance electrons |
| B. Ultraviolet visible region | II. Nuclear transitions |
| C. X-ray region | III. Vibrational transitions of molecules |
| D. γ-ray region | IV. Transitions involving inner shell electrons |

Choose the correct answer from the options given below:

[Question ID = 5465]

1. A - III, B - I, C - IV, D - II

   [Option ID = 21854]
2. A - IV, B - II, C - I, D - III

   [Option ID = 21855]
3. A - I, B - II, C - III, D - IV

   [Option ID = 21856]
4. A - III, B - IV, C - I, D - II

   [Option ID = 21857]

Correct Answer :-

- A - III, B - I, C - IV, D - II

  [Option ID = 21854]

29) The value of $\theta$ at which the first order peak in X-ray (λ = 1.53 Å) diffraction corresponding to (1 1 1) plane of a single cubic structure with the lattice constant a = 2.65 Å is proximately

[Question ID = 5466]

1. 15°

   [Option ID = 21858]
2. 45°

   [Option ID = 21859]
3. 30°

   [Option ID = 21860]
4. 90°

www.FirstRanker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

[Option ID = 21861]

Answer :-

- 30°

[Option ID = 21860]

30) If an IMPATT diode amplifier has negative resistance $R_d$ = -15 Ω and load resistance $R_L$ = 25 Ω the power gain is

[Question ID = 5467]

1. 25 [Option ID = 21862]
2. 0 [Option ID = 21863]
3. ∞

[Option ID = 21864]

4. 16 [Option ID = 21865]

Correct Answer :-

- 16 [Option ID = 21865]

31) How many AND gates are required for 1 to 16 de-multiplexer?

[Question ID = 5468]

1. 8 [Option ID = 21866]
2. 16 [Option ID = 21867]
3. 14 [Option ID = 21868]
4. 20 [Option ID = 21869]

Correct Answer :-

- 16 [Option ID = 21867]

32) A 12 bit ADC is used to convert analog voltage of 0 to 10 V into digital. The resolution is

[Question ID = 5469]

1. 24.4 mV

[Option ID = 21870]

2. 2.44 mV

[Option ID = 21871]

3. 1.2 V

[Option ID = 21872]

4. none of these

[Option ID = 21873]

Correct Answer :-

- 2.44 mV

[Option ID = 21871]

33) The value of x for the given system: $\left(\sqrt{22}\right)_x = 6$ is

[Question ID = 5470]

1. 17

[Option ID = 21874]

2. 15

[Option ID = 21875]

3. 16

[Option ID = 21876]

4. none of these

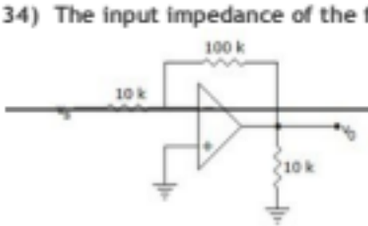
[Option ID = 21877]

Correct Answer :-

- 17

[Option ID = 21874]

34) The input impedance of the following circuit




www.FirstRanker.com

firstranker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

[Question ID = 5471]
1. 120 Ω [Option ID = 21878]
2. 110 kΩ [Option ID = 21879]
3. 10 kΩ [Option ID = 21880]
4. Infinity [Option ID = 21881]

Correct Answer :-
- 10 kΩ [Option ID = 21880]

35) What is the bandwidth of single stage amplifier if its rise time is 0.35 microseconds?

[Question ID = 5472]
1. 2 MHz [Option ID = 21882]
2. 5 KHz [Option ID = 21883]
3. 1 MHz [Option ID = 21884]
4. 2 KHz [Option ID = 21885]

Correct Answer :-
- 1 MHz [Option ID = 21884]

36) **If the electric field strength E of an electromagnetic wave in free space is given by E = 2cos w(t-z/$n_0$) $a_y$ V/m. The magnetic flux density B is calculated as**

[Question ID = 5473]
1. $-\frac{2}{v_0}cos\omega\left(t-\frac{z}{v_0}\right)\boldsymbol{a}_x A/m$

   [Option ID = 21886]
2. $-\frac{2}{v_0}cos\omega\left(t-\frac{z}{v_0}\right)\boldsymbol{a}_y A/m$

   [Option ID = 21887]
3. $-\frac{2}{v_0}sin\omega\left(t-\frac{z}{v_0}\right)\boldsymbol{a}_x A/m$

   [Option ID = 21888]
4. $-\frac{2}{v_0}sin\omega\left(t-\frac{z}{v_0}\right)\boldsymbol{a}_y A/m$

   [Option ID = 21889]

Correct Answer :-
- $-\frac{2}{v_0}cos\omega\left(t-\frac{z}{v_0}\right)\boldsymbol{a}_x A/m$

  [Option ID = 21886]

37) The electric field acting on an electron (charge -1.6 x $10^{-19}$ C) which is 1 μm away from a perfectly conducting plane

[Question ID = 5474]
1. 181 V/m

   [Option ID = 21890]
2. 360 V/m

   [Option ID = 21891]
3. 543 V/m

   [Option ID = 21892]
4. 271 V/m

   [Option ID = 21893]

Correct Answer :-
- 360 V/m

  [Option ID = 21891]

38) An electron starts with zero velocity from a cathode which is at a potential of -5 kV and then moves into a region where the potential is zero. The velocity of this electron is

[Question ID = 5475]
1. 32.65 × $10^6$ m/s [Option ID = 21894]
2. 31.55 × $10^7$ m/s [Option ID = 21895]
3. 41.95 × $10^6$ m/s [Option ID = 21896]
4. 52.65 × $10^7$ m/s [Option ID = 21897]

www.FirstRanker.com

Correct Answer :-

firstranker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

3. $3 \times 10^8$ m/s [Option ID = 21899]

39) A 50 W generator with source impedance is 50 W is connected to an oscilloscope by 1 m of 75 W polythene ($e_r$=2.5) filled coaxial cable. The VSWR and phase velocity of the waves on the cable, respectively are

[Question ID = 5476]

1. 2.0 and 0.70 × $10^8$ m/s [Option ID = 21898]
2. 1.3 and 3.65 × $10^8$ m/s [Option ID = 21899]
3. 1.5 and 1.90 × $10^8$ m/s [Option ID = 21900]
4. 2.5 and 2.50 × $10^7$ m/s [Option ID = 21901]

Correct Answer :-

- 1.5 and 1.90 × $10^8$ m/s [Option ID = 21900]

40) A transmission line is terminated by a resistance load which is less than the characteristic impedance and VSWR on the line is 1.5. The ratio of reflected wave to the incident wave in decibels is

[Question ID = 5477]

1. 0 dB [Option ID = 21902]
2. 1.5 Db [Option ID = 21903]
3. -13.98 dB [Option ID = 21904]
4. -1.5 dB [Option ID = 21905]

Correct Answer :-

- -13.98 dB [Option ID = 21904]

41) The power internally generated within a double-hetero junction LED if it has internal quantum efficiency of 54.5 % and drive current of 50 mA with a peak emission wavelength of 0.72 µm is

[Question ID = 5478]

1. 0.09 W [Option ID = 21906]
2. 0.047 W [Option ID = 21907]
3. 0.01 W [Option ID = 21908]
4. 0.6 W [Option ID = 21909]

Correct Answer :-

- 0.047 W [Option ID = 21907]

42) For a phototransistor having gain of 116.5, wavelength of 1.28 µm, optical power 123µW. The collector current is

[Question ID = 5479]

1. 7.46 mA [Option ID = 21910]
2. 1.23 mA [Option ID = 21911]
3. 5.24 mA [Option ID = 21912]
4. 14.76 mA [Option ID = 21913]

Correct Answer :-

- 14.76 mA [Option ID = 21913]

43) In 8086 microprocessor the overflow flag is set when

[Question ID = 5480]

1. the sum is more than 16 bits [Option ID = 21914]
2. carry and sign flags are set. [Option ID = 21915]
3. Subtraction [Option ID = 21916]
4. signed numbers go out of their range after an arithmetic operation [Option ID = 21917]

Correct Answer :-

- signed numbers go out of their range after an arithmetic operation [Option ID = 21917]

44) What is the bit size of the 8051 microcontroller?

[Question ID = 5481]

1. 4 bit [Option ID = 21918]
2. 16 bit [Option ID = 21919]
3. 128 bit [Option ID = 21920]
4. 8 bit [Option ID = 21921]

Correct Answer :-

- 8 bit [Option ID = 21921]

45) A 50 Ω lossless transmission line has a pure reactance of j100 Ω as its load. The VSWR in the line is

[Question ID = 5482]

1. ∞ (infinity)
   [Option ID = 21922]
2. $\frac{1}{2}$ (half)
   [Option ID = 21923]

www.FirstRanker.com
firstranker.com

FirstRanker.com
Firstranker's choice
www.FirstRanker.com www.FirstRanker.com

[Option ID = 21925]

Correct Answer :-

- − (infinity)

[Option ID = 21922]

46) The bit stream 01001 is differentially encoded using 'Delay and EX-OR' scheme for DPSK transmission. Assuming the reference bit as '1' and assigning phases of '0' and π for 1's and 0's respectively in the encoded sequence, the transmitted phase sequence becomes

[Question ID = 5483]

1. 0πππ0

   [Option ID = 21926]
2. π0ππ0

   [Option ID = 21927]
3. 0ππ00

   [Option ID = 21928]
4. πππ0π

   [Option ID = 21929]

Correct Answer :-

- 0πππ0

[Option ID = 21926]

47) An AM modulator has output $x_c(t)$ = Acos(400πt)+ Bcos(380πt)+ Bcos(420πt). The carrier power is 100W and the efficiency is 40%. The value of A and B are

[Question ID = 5484]

1. 14.14, 8.16

   [Option ID = 21930]
2. 50, 10

   [Option ID = 21931]
3. 22.36, 13.46

   [Option ID = 21932]
4. None of these

   [Option ID = 21933]

Correct Answer :-

- 14.14, 8.16

[Option ID = 21930]

48) To prevent overloading of the last IF amplifier in a receiver, one should use

[Question ID = 5485]

1. Squelch [Option ID = 21934]
2. Variable sensitivity [Option ID = 21935]
3. Variable selectivity [Option ID = 21936]
4. Double conversion [Option ID = 21937]

Correct Answer :-

- Variable sensitivity [Option ID = 21935]

49) A base band PCM system with a matched filter at receiver is implemented with ±5V bipolar pulse with pulse duration of 72μsec. If the noise power spectral density is 1.0 x $10^{-4}$ $V^2$/Hz, the probability of error for this system is given by

[Question ID = 5486]

1. 1.15 x $10^{-5}$ [Option ID = 21938]
2. 1.85 x $10^{-5}$ [Option ID = 21939]
3. 2.8 x $10^{-5}$ [Option ID = 21940]
4. 2.36 x $10^{-5}$ [Option ID = 21941]

Correct Answer :-

- 1.15 x $10^{-5}$ [Option ID = 21938]

www.FirstRanker.com

50) Eight base band analog signals each of 100 Hz bandwidth are to be transmitted by a signal binary PCM system in such a

FirstRanker.com
Firstranker's choice
www.FirstRanker.com
www.FirstRanker.com

...at the quantization error for each signal does not exceed 0.1% of the peak amplitude of the signal. The sampling rate ...h signal is 12 kHz and the bit transmission rate is

...ion ID = 21941]

1. 6 kbps [Option ID = 21942]
2. 26.4 kbps [Option ID = 21943]
3. 18 kbps [Option ID = 21944]
4. 24 kbps [Option ID = 21945]

Correct Answer :-

- 26.4 kbps [Option ID = 21943]

firstranker.com
www.FirstRanker.com