



## DMRC Electronics Engineering Paper-1 2014

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# Quantitative Aptitude

## Instructions

Study the following information and answer the questions given below it.

A blacksmith has five iron articles M, N, O, P and Q each having a different weight.

- M weighs twice as much as N.
- N weighs four and a half times as much as O.
- O weighs half as much as P.
- P weighs half as much as Q.
- Q weighs less than M but more than O.

## Question 1

What of the following is the lightest in weight?

- A M
- B N
- C P
- D O

Answer: D

## Question 2

Q is lighter in weight than which of the other two articles:

- A M, P
- B M, N
- C O, M
- D None of these

Answer: B

## Question 3

Which of the following articles is the heaviest in weight?

- A N
- B O
- C M
- D Q

Answer: C

## Instructions

For the following questions answer them individually

## Question 4

The difference between the simple and compound interest on a certain sum for 3 years at 10% p.a. is ₹ 46.5, then which of the following is the sum?

- A ₹ 1600

B ₹ 1500

C ₹ 1700

D ₹ 1800

Answer: B

#### Question 5

By selling 18 chocolates, a vendor loses the selling price of 2 chocolates. Find his loss percent:

A 8%

B 12%

C 15%

D 10%

Answer: D

#### Question 6

The length, breadth and height of a room in the shape of a cuboid is increased by 10%, 20% and 50% respectively. Find the percentage change in the volume of the cuboid:

A 65%

B 75%

C 85%

D None of these

Answer: D

#### Question 7

Keshav is travelling by car at the rate of 40 km/h. After 80 km he rests for 20 minutes. How long will he take to cover a distance of 240 km:

A 6 hours 50 minutes

B 6 hours 40 minutes

C 7 hours

D 7 hours 20 minutes

Answer: B

#### Question 8

A job has to be completed by 12 boys in 15 days. If three boys are absent from the first day, then by what percentage should the remaining boys increase their rate of working to complete the job?

A  $22\frac{1}{3}\%$

B  $22\frac{1}{2}\%$

C  $33\frac{1}{3}\%$

D None of these

Answer: E

Question 9

The income of Anil, Firoz and Ketan are in the ratio 7:9:12 and their spending are in the ratio 8:9:15. If Anil saves  $\frac{1}{4}$  of his income, then the saving of Anil, Firoz and Ketan are in the ratio:

A 59:99:69

B 56:99:69

C 56:96:69

D None of these

Answer: B

Question 10

Ramesh started a business with a capital of ₹ 2100. After 4 months he admitted another partner Sujeet. What amount should Sujeet put in, So that the profit may be divided equally at the end of the year?

A ₹ 3750

B ₹ 3350

C ₹ 3150

D None of these

Answer: C

Question 11

Pointing to a photograph of a boy Lokesh said, "He is the son of the only son of my mother". How is Lokesh related to the boy?

A Uncle

B Father

C Grand father

D Brother

Answer: B

Question 12

If 'dog' is 'cat', 'cat' is 'rat', 'rat' is 'mat', 'mat' is 'cow', then which one of the following is not an animal?

A Mat

B Dog

C Rat

D Cow

Answer: D

**Question 13**

Complete the series by choosing the correct option.  
ELFA, GLHA, ILJA, \_\_\_\_\_, MLNA

- A KLMA
- B KLLA
- C KMLA
- D LKLA

**Answer: B**

**Question 14**

In some cars, there is the warning on external rear view mirrors "Objects are closer than they appear in mirror". What type of mirrors are used in such cases?

- A Plane;
- B Convex;
- C concave;
- D None of these.

**Answer: C**

**Question 15**

Equinox is the position when sub solar point fall's on:

- A Equator
- B Cancer
- C Capricorn
- D Pole

**Answer: A**

**Question 16**

The super computer of India Param Yuva - II has been developed by:

- A Tata Consultancy Services
- B Center for Development of Advanced Computing
- C Reliance Info Comm.
- D National Informatics Center

**Answer: A**

**Question 17**

Which one is not an epic?

- A Beowulf

- B Illiad
- C Ramayana
- D Canterbury Tales

**Answer: D**

**Question 18**

In history, the name of prince Khurram, came to be known as:

- A Jahangir
- B Shahjahan
- C Aurangzeb
- D Akbar

**Answer: B**

**Question 19**

Public Accounts Committee is constituted ..... year and it consists of not more than ..... members consisting of ..... members elected by Lok Sabha and not more than ..... members from Rajya Sabha. .... was appointed the chairman of Public Accounts Committee recently:

- A Every, 22, 15, 7, K.V. Thomas
- B Every fifth, 18, 13, 5, M.M. Joshi
- C Every second, 25, 18, 7, L.K. Advani
- D Every, 20, 15, 5, Arun Jaitley

**Answer: A**

**Question 20**

Identify among the following the Chinese investigating Journalist who was awarded the prestigious 'Ramon Magsaysay Awards for 2014:

- A Saur Marlina Manurang
- B Wang Canfa
- C Hu Shuli
- D Fu Qiping

**Answer: C**

**Question 21**

This is a ground penetrating radar and will provide centimeter scale resolution of the geologic structure of the subsurface. This is among the seven selected payloads that will be sent to Mars 2020 rover mission:

- A MEDA
- B RIMFAX

C SHERLOC

D MOXIE

Answer: B

Question 22

“Vistar” is the brand name of:

A Newly launched 4G mobile phone

B Newly launched Airlines

C Newly launched Housing Scheme by Union Govt. for BPL families

D Newly launched Health Awareness Scheme by Govt. of India

Answer: B

Question 23

The film, ‘Bhaag Milkha Bhaag’, based on the life of Milkha Singh, an ace runner, was directed by the same person who directed

A The Bandit Queen

B Pan Singh Tomar

C Rang De Basanti

D Lagaan

Answer: C

Question 24

Identify the wrong match:

A Haldia Port : West Bengal

B Tuticorin Port : Tamilnadu

C Kandla Port : Gujarat

D Paradip Port : Andhra Pradesh

Answer: D

Question 25

Sanskrit Granth ‘Hitopedesh’ was written by:

A Chaitanya

B Narayan Pandit

C Kalidas

D None of these

Answer: B

Question 26

15 Children are standing in a row facing North. Ravi is to the immediate left of Prabha and is 8th from the left end. Arjun is second from the right end. Which of the following statements is not true?

- A Prabha is 7th from the right end
- B There are four children between Prabha and Arjun
- C There are five children between Ravi and Arjun
- D Arjun is 13th from the left end

Answer: D

Question 27

The proposals for the partition of India and Pakistan were contained in the:

- A Cripps Mission Proposals
- B Cabinet Mission Proposals
- C Mountbatten Plan of 3rd June 1947
- D None of the above

Answer: C

Question 28

A card is drawn from a pack of well shuffled deck of 52 cards and its probability is  $\frac{1}{4}$  then which of the following is possible:

- A Getting a "card of hearts"
- B Getting a black card
- C Getting a Jack
- D None of these

Answer: A

Question 29

A candidate for election to the Rajya Sabha must be not less than:

- A 35 Years of age
- B 25 Years of age
- C 30 Years of age
- D 40 Years of age

Answer: C

Question 30

Curie point is a temperature at which:

- A Matter becomes radio active



- B A magnetic material undergo a sharp change in their magnetic properties
- C A metal loses conductivity
- D Transmutation of metal occurs

Answer: B

**Question 31**

**Gross National Product (GNP) of a country is sum of the market value of all goods and services produced in a year:**

- A Plus export Earnings
- B Plus Market value of imports
- C Minus foreign aid
- D Plus net income from abroad

Answer: D

**Question 32**

**60% of the students in a school are boys. If the number of girls in the school is 300, then the number of boys is:**

- A 500
- B 300
- C 450
- D 750

Answer: C

**Question 33**

**It is required to get 40% marks to pass an exam. A candidate scored 200 marks and failed by 8 marks. What were the maximum marks of that exam:**

- A 530
- B 540
- C 520
- D None of these

Answer: C

**Question 34**

**In a division sum, a student took 63 as divisor instead of 36. His answer was 24. The correct answer is:**

- A 36
- B 42
- C 32
- D None of these

Answer: B

Question 35

The perimeter of an isosceles triangle is 42 cm and its base is  $1\frac{1}{2}$  times each of the equal sides. Find the length of each side of triangle:

- A 12 cm, 12 cm, 18 cm
- B 6 cm, 6 cm, 9 cm
- C 18 cm, 18 cm, 24 cm
- D None of these

Answer: E

Question 36

A quadrilateral with a pair of opposite sides parallel is called:

- A Parallelogram
- B Trapezium
- C Polygon
- D None of these

Answer: B

Question 37

Find the total surface area of a cylinder having radius of the base 14 cm and height 30 cm.

- A  $3872 \text{ cm}^2$
- B  $4872 \text{ cm}^2$
- C  $3782 \text{ cm}^2$
- D None of these

Answer: A

Question 38

A sum of ₹ 8,500 is to be divided among 5 men, 6 women and 8 boys in the ratio of 10:7:1. The share of one woman will be:

- A ₹ 85
- B ₹ 385
- C ₹ 850
- D ₹ 595

Answer: D

Question 39

The average weight of 8 persons is increased by 2.5 Kg. This happens when one of the eight who weighed 56 Kg is replaced by a new man. The new man weighs:

- A 61 kg.
- B 70 kg.
- C 76 kg.
- D 80 kg.

Answer: C

**Question 40**

If A = 26, SUN = 27 then CAT = ?

- A 24
- B 57
- C 58
- D None of these

Answer: B

**Question 41**

Anuraag is 40 m South-West of Vikram. Chiraag is 40 m South-East of Vikram, then Chiraag is in which direction of Anuraag?

- A North-East
- B South
- C East
- D South-East

Answer: C

**Question 42**

In a certain code, BRAIN is written as  $*\% \div \# \times$  and TEAR is written as  $+\$ \div \%$ . How is NEAR written in that code?

- A  $\$ \times \# \%$
- B  $\div + \$ \%$
- C  $\times \$ \div \#$
- D  $\times \$ \div \%$

Answer: D

**Question 43**

Complete the following series.

3, \_\_, 17, 24, 31, \_\_, 45, \_\_

- A 10, 36, 50
- B 10, 37, 56

C 10, 38, 52

D None of these

Answer: C

**Question 44**

How many times from 4 AM to 4 PM the hands of clock are at right angles?

A 24

B 20

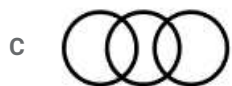
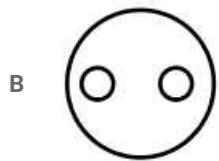
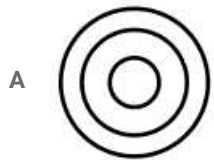
C 22

D 18

Answer: C

**Question 45**

Which of the following diagrams indicates the best relation between bakery, cake and biscuit?



Answer: B

## TECHNICAL (APTITUDE)

**Instructions**

For the following questions answer them individually

**Question 46**

Which one of the following statements is correct? Digital modulation techniques are used in satellite communication systems since:

A They are easier to handle

B Large bandwidth utilization is possible

C They have a higher spectral efficiency

D They are less prone to interference

Answer: D

**Question 47**

How many bits are required to encode 32 level PCM:

- A 6
- B 5
- C 4
- D 3

Answer: B

**Question 48**

The noise is more dominant in which of the following:

- A PAM
- B PWM
- C PPM
- D FSK

Answer: A

**Question 49**

The phase velocity of wave propagating in a hollow metal wave guide is:

- A Greater than the velocity of the light in free space
- B Less than the velocity of the light in free space
- C Equal to the velocity of the light in free space
- D Equal to the group velocity

Answer: A

**Question 50**

The magnitude of the open-circuit and short circuit input impedance of a transmission line are 100 ohm and 25 ohm respectively. The characteristic impedance of line is:

- A 25 ohm
- B 50 ohm
- C 75 ohm
- D 100 ohm

Answer: B

**Question 51**

The line of sight communication requires transmit and receive antenna to face each other. If the transmit antenna is vertically polarized, for the best reception the receive antenna should be:

- A Horizontally polarized
- B Vertically polarized
- C At  $45^\circ$  with respect to the horizontal polarization
- D At  $45^\circ$  with respect to the vertical polarization

**Answer: A**

**Question 52**

A network contains linear resistance and ideal voltage source. If the value of all the resistors are doubled, then the voltage across each resistor is:

- A Halved
- B Doubled
- C Increased by four times
- D Not changed

**Answer: D**

**Question 53**

Twelve 1 ohm resistances are used as edge to form a cube. The resistance between two diagonally opposite corners of the cube is:

- A  $\frac{5}{6}$  ohm
- B 1 ohm
- C  $\frac{6}{5}$  ohm
- D  $\frac{3}{2}$  ohm

**Answer: A**

**Question 54**

An eight bit digital data 10101100 is fed to an ADC. The reference voltage is +10V. The analog output voltage will be:

- A 1.05 V
- B 6.74 V
- C 10.10 V
- D 5.15 V

**Answer: B**

**Question 55**

A series RLC circuit has a resonant frequency of 1 KHz and a quality factor  $Q = 100$ . If each of the R,L and C is doubled from its original value, the new Q of the circuit is:

- A 25
- B 50
- C 100
- D 200

**Answer: D**

**Question 56**

The input to a coherent detector is DSB-SC signal plus noise. The noise at the detector output is:

- A The in-phase component
- B The quadrature-component
- C Zero
- D The envelope

**Answer: C**

**Question 57**

Gunn diode is a:

- A Negative resistance device
- B Positive resistance device
- C High noise device
- D Low frequency device

**Answer: A**

**Question 58**

The intrinsic carrier concentration of silicon sample at  $300^\circ K$  is  $2.5 \times 10^{16}/m^3$ . If after doping, the number of majority carriers is  $5 \times 10^{20}/m^3$ , the minority carrier density is:

- A  $1.25 \times 10^{12}/m^3$
- B  $0.125 \times 10^{12}/m^3$
- C  $2.5 \times 10^{20}/m^3$
- D  $0.5 \times 10^4/m^3$

**Answer: A**

**Question 59**

The unit of  $\nabla \times H$  is:

- A Ampere
- B Ampere/meter
- C Ampere/meter<sup>2</sup>
- D Ampere-meter

**Answer: C**

**Question 60**

**A PIN diode is:**

- A A metal semiconductor point-contact diode
- B A microwave mixer diode
- C Often used as a microwave detector
- D Suitable for use as a microwave switch

**Answer: D**

**Question 61**

**11001, 1001 and 111001 correspond to the 2's complement representation of which one of the following sets of number?**

- A 25, 9 and 57 respectively
- B -6, -6 and -6 respectively
- C -7, -7 and -7 respectively
- D -25, -9 and -57 respectively

**Answer: C**

**Question 62**

**To couple a coaxial line to a parallel wire line, it is best to use a:**

- A A slotted line
- B Balun
- C Directional coupler
- D Quarter wave line transformer

**Answer: B**

**Question 63**

**Which of the following is used extensively where lowest power consumption is necessary?**

- A CMOS
- B NMOS
- C PMOS



D Any of the above

Answer: A

**Question 64**

Reflex klystron is a:

A Low power generator

B High power oscillator

C Low gain amplifier

D Not an oscillator

Answer: A

**Question 65**

If the radiated power of AM transmitter is 10 KW, the power in the carrier for modulation index of 0.6 is nearly:

A 8.24 KW

B 9.26 KW

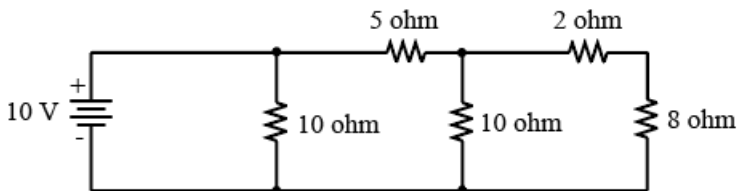
C 8.47 KW

D 9.6 KW

Answer: C

**Question 66**

The current through 8 ohms branch is:



A 1 A

B 0.5 A

C 1.5 A

D None of these

Answer: B

**Question 67**

JFET in properly biased condition acts as a:

A Current controlled current source

B Voltage controlled voltage source

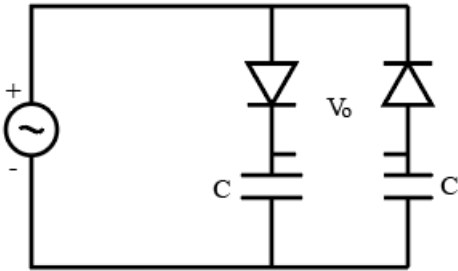
C Voltage controlled current source

D Impedance controlled current source

Answer: C

Question 68

The circuit shown in figure is best described as a:



A Bridge rectifier

B Ring modulator

C Frequency discriminatory

D Voltage doubler

Answer: D

Question 69

Which amplifier will be preferred for highest gain?

A Darlington pair

B Cascade amplifier

C Cascode amplifier

D Depends on the circuitry

Answer: C

Question 70

The Boolean expression for the truth table shown is:

A	B	C	f
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	0

A  $B(A + C)(A + C)$

B  $B(A + C)(A + C)$

C  $B(A + C)(A + C)$

D  $B(A + C)(A + C)$

Answer: A

**Question 71**

Without any additional circuitry, an 8:1 MUX can be used to obtain:

- A Some but not all Boolean functions of 3 variables
- B All function of 3 variables but none of 4 variables
- C All functions of 3 variables and some but not all of 4 variables
- D All functions of 4 variables

Answer: D

**Question 72**

The resolution of a potentiometer should be:

- A Zero
- B Low
- C High
- D Infinite

Answer: D

**Question 73**

Negative feedback in amplifier:

- A Improves the SNR at input
- B Improve SNR at output
- C Reduces distortion
- D Decreases bandwidth

Answer: C

**Question 74**

Spectral density expresses:

- A Average voltage
- B Average current
- C Average power in a waveform as a function of frequency
- D None of these

Answer: C

**Question 75**

Which of the following is used as a data selector?

- A Encoder
- B Decoder
- C Multiplexer
- D De-multiplexer

**Answer: C**

**Question 76**

If a signal  $x(n)=x(-n)$ , then it is called \_\_\_ signal:

- A Odd
- B Energy
- C Power
- D Even

**Answer: D**

**Question 77**

The response of an LTI/LSI system is given by the \_\_\_\_\_ of input and impulse response:

- A Convolution
- B Correlation
- C Superposition
- D None

**Answer: A**

**Question 78**

Companders are used in communication systems to:

- A Compress bandwidth
- B To improve frequency response
- C To improve signal to noise ratio
- D None of these

**Answer: C**

**Question 79**

$I_{CBO}$   $ICBO$  in a transistor can be reduced by reducing:

- A  $I_B$
- B  $V_{CC}$
- C  $I_E$

D Temperature

Answer: D

Question 80

Light is confined within the core of a simple optical fiber by:

A Refraction.

B Total internal reflection at the outer edge of the cladding.

C Total internal reflection at the core cladding boundary.

D Reflection from the fiber's plastic coating.

Answer: B

Question 81

The complement of  $AB+BC'+CD'$  is:

A  $A'CD+B'C'+B'D$

B  $A'C'+BC+AB'D'$

C  $AC+BC+ABD$

D  $A'C'+B'C'+A'B'D'$

Answer: A

Question 82

The following expression when simplified will become  $XY(X'YZ + X'Y'Z' + XY'Z)$

A 0

B 1

C -1

D X

Answer: A

Question 83

In a PCM system of telemetry, the quantization noise depends on:

A The sampling rate and quantization level

B The sampling rate only

C The number of quantization level

D Information provided is not sufficient

Answer: C

Question 84

In PCM system, if we increase the quantization levels from 2 to 8, the relative bandwidth requirements will:

- A Be doubled
- B Remain same
- C Be tripled
- D Becomes eight times

Answer: C

**Question 85**

The modulation system inherently most noise resistant is:

- A Frequency modulation
- B Pulse width modulation
- C Pulse code modulation
- D Phase modulation

Answer: C

**Question 86**

Which of the following microphone does not require polarizing current?

- A Crystal microphone
- B Condenser microphone
- C Carbon microphone
- D All of the above

Answer: A

**Question 87**

The large signal bandwidth of an opamp is limited by its:

- A Loop gain
- B Slew rate
- C Output impedance
- D Input frequency

Answer: B

**Question 88**

In an unclocked R-S flip flop made of NOR gates, the forbidden input condition is:

- A  $R=0, S=0$
- B  $R=1, S=0$
- C  $R=0, S=1$

D  $R=1, S=1$

Answer: D

**Question 89**

A phase-locked loop (PLL) is a feedback circuit consisting of a:

- A Phase detector.
- B Low-pass filter.
- C VCO.
- D All of these

Answer: D

**Question 90**

A 339 IC is an example of a fourteen-pin DIP that can be made to function as a \_\_\_\_\_:

- A Comparator
- B 555 timer
- C D to A converter
- D Ladder network

Answer: A

**Question 91**

Filters with the \_\_\_\_\_ characteristic are useful when a rapid roll-off is required because it provides a roll-off rate greater than - 20/dB/decade/pole:

- A Butterworth
- B Chebyshev
- C Bessel
- D Elliptical

Answer: B

**Question 92**

Which of the following applications include a phase-locked loop (PLL) circuit?

- A Modems
- B AM decoders
- C Tracking filters
- D All of these

Answer: D

**Question 93**

Rectification efficiency of a fullwave rectifier without filter is nearly equals to:

- A 51%
- B 61%
- C 71%
- D 81%

Answer: D

**Question 94**

What is the voltage resolution of an 8- stage ladder network?

- A  $\frac{V_{ref}}{128}$
- B  $\frac{V_{ref}}{256}$
- C  $\frac{V_{ref}}{512}$
- D  $\frac{V_{ref}}{1024}$

Answer: B

**Question 95**

In which region is the operating point stable in tunnel diodes?

- A Negative-resistance
- B Positive-resistance
- C Both negative- and positive-resistance
- D Neither negative- nor positive-resistance

Answer: A

**Question 96**

Which of the following diodes is limited to the reverse-bias region in its region of operation?

- A Schottky
- B Tunnel
- C Photodiode
- D Rectifier

Answer: C

**Question 97**

Which of the following semiconductor materials is (are) used for manufacturing solar cells?

- A Gallium arsenide
- B Indium arsenide



- C Cadmium sulfide
- D All of these

Answer: D

**Question 98**

If  $Y(s) = \frac{s^2+1}{s}$ , the network has:

- A 1 H inductor and 1 F capacitor in parallel
- B 1 H inductor and 1 F capacitor in series
- C 1 H inductor and 1  $\Omega$  resistor in series
- D 1 H inductor and 1  $\Omega$  resistor in parallel

Answer: A

**Question 99**

When the temperature of a doped semiconductor is increased, its conductivity

- A Decreases
- B Increases
- C Does not change
- D Increases or decreases depending on whether it is p-type or n-type

Answer: B

**Question 100**

Schering bridge is used to measure

- A Frequency
- B Inductance
- C Capacitance
- D Mutual Inductance

Answer: C

**Question 101**

A step voltage  $E$  is applied to a series R-L circuit. The rate of change of current is maximum at  $t = \_ :$

- A Zero
- B Infinity
- C  $L/R$
- D  $R/L$

Answer: A

**Question 102**

**PLAs, CPLDs, and FPGAs are all which type of device?**

- A SLD
- B PLD
- C EPROM
- D SRAM

**Answer: B**

**Question 103**

**Holding current for an SCR is best described as:**

- A The minimum current required for turn off
- B The current required before an SCR will turn on
- C The amount of current required to maintain conduction
- D The gate current required to maintain conduction

**Answer: C**

**Question 104**

**What type of temperature coefficient do thermistors have?**

- A Positive
- B Negative
- C Either positive or negative
- D None of these

**Answer: C**

**Question 105**

**In a microprocessor:**

- A One machine cycle is equal to one clock cycle
- B One clock cycle consists of several machine cycles
- C One machine cycle consists of several clock cycles
- D One machine cycle is always less than one clock cycle

**Answer: C**

**Question 106**

**In 8085 microprocessor with memory mapped I/O which of the following is true?**

- A I/O devices have 16 bit addresses
- B I/O devices are accessed during IN and OUT instructions

- C There can be a maximum of 256 input and 256 output devices
- D Logic operations can not be performed

**Answer: A**

**Question 107**

**A blank EPROM has:**

- A All bits set to logical 0
- B All bits set to logical 1
- C Half the total number of bits set to 0 and remaining half to logical 1
- D Either A. or B.

**Answer: B**

**Question 108**

**One application of a digital multiplexer is to facilitate:**

- A Code conversion
- B Parity checking
- C Parallel-to-serial data conversion
- D Data generation

**Answer: C**

**Question 109**

**The coefficient of coupling between two coils is 0.45. The first coil has an inductance of 75 mH and the second coil has an inductance of 105 mH. What is the mutual inductance between the coils?**

- A 3.54 mH
- B 7.88 mH
- C 39.9 mH
- D 189.3 mH

**Answer: C**

**Question 110**

**The fast carry or look-ahead carry circuits found in most 4-bit parallel-adder circuits:**

- A Increase ripple delay
- B Add a 1 to complemented inputs
- C Reduce propagation delay
- D Determine sign and magnitude

**Answer: C**

**Question 111**

To multiply a number by 8 in 8085 we have to use RAL instruction:

- A Once
- B Twice
- C Thrice
- D Four times

**Answer: C**

**Question 112**

An energy signal has  $G(f) = 10$ . Its energy density spectrum is:

- A 10
- B 100
- C 50
- D 20

**Answer: B**

**Question 113**

Feedback factor at the frequency of oscillation of a Wien bridge oscillator is:

- A 3
- B  $\frac{1}{3}$
- C  $\frac{1}{29}$
- D  $\frac{3}{29}$

**Answer: B**

**Question 114**

A 4-bit R/2R digital-to-analog (DAC) converter has a reference of 5 volts. What is the analog output for the input code 1010:

- A 0.3125 V
- B 3.125 V
- C 0.78125 V
- D -3.125 V

**Answer: B**

**Question 115**

A quarter wave line open circuited at far end behaves as:

- A Inductance

- B L and C in parallel
- C Capacitance
- D L and C in series

Answer: D

**Question 116**

In a directional coupler:

- A Isolation (dB) equals coupling plus directivity
- B Coupling (dB) equals isolation plus directivity
- C Directivity (dB) equals isolation plus coupling
- D Isolation (dB) equals (coupling) (directivity)

Answer: A

**Question 117**

In a circular waveguide the dominant mode is:

- A  $TE_{01}$
- B  $TE_{11}$
- C  $TE_{20}$
- D  $TE_{21}$

Answer: B

**Question 118**

In a klystron amplifier the input cavity is called:

- A Buncher
- B Catcher
- C Pierce gun
- D Collector

Answer: A

**Question 119**

A loss less line of characteristic impedance  $Z_0$  is terminated in pure reactance of  $-jZ_0$  value. VSWR is

- A 10
- B 2
- C 1
- D Infinity

Answer: D

**Question 120**

**The velocity factor of a transmission line depends on:**

- A** Temperature
- B** Skin effect
- C** Relative permittivity of dielectric
- D** None of these

**Answer: C**