Electro & Telecom. Engineering 2009

1.The rank of the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 1 & 4 & 5 \\ 2 & 6 & 5 \end{bmatrix}$ is

1. zero
2. 1
3. 2
4. ∞

2.The particular integration (P.I.) of (D2+4)y = cos 2x is

1. $\frac{x}{2}\sin 2x$
2. $\frac{x}{4}\sin 2x$
3. $\frac{x}{4}\sin 4x$
4. $\frac{x}{2}\sin x$

3. 6 boys and 6 girls in a row randomly. The probability that all the six girls sit together is

1. $\frac{1}{132}$
2. $\frac{1}{264}$
3. $\frac{1}{123}$
4. $\frac{1}{127}$

4. Value of $\left[\lim_{x\to\infty}\frac{\sin(x)}{x}\right]$ is

1. 1
2. 2
3. 3
4. 0

5. The value of $\int_{-2}^{2}\{|x|+|x-1|\}dx$ is

1. 7
2. 4
3. 9
4. 10

6. The Taylor series expansion of the function F(x) = x/(1+x), around x=0 is

1. x+x2+x3+x4+…….
2. x+x2+x3+x4+…….
3. 2x+42+8x3+16x4+…….
4. x-x2+x3-x4+…….

7. If x+y=k, x>0, y >0, then xy is the maximum when

1. x=ky
2. kx=y
3. x=y
4. None of these

8. The probability that two friends share the same birth-month is

1. 1/6
2. 1/12
3. 1/144
4. 1/24

9. If a function is continuous at a point, then its first derivative

1. may or may not exist
2. exist always
3. will not exist
4. has a unique value

10. When 2-port networks are connected in parallel, which parameters convenient to use

1. inverse hybrid
2. open circuit impedance
3. short circuit admittance
4. transmission

11. Fourier's series expansion of an odd periodic function contains

1. sine terms only
2. cosine terms only
3. Both A and B
4. None of the above

12. For a LC parallel circuit at resonance, all the statements given below are correct except

1. the line current is maximum at resonance
2. the branch currents at resonance are equal
3. the admittance is minimum at resonance
4. the angle between the branch current is 180oC at resonance.

13. If a square wave voltage having 5V average value is applied to a low pass filter, then average value of output is

1. 10 V
2. 2.5 V
3. 5 V
4. 0 V

14. The magnetic field intensity emanating from a closed surface

1. is zero
2. is infinite
3. depends on dipole moments
4. depends on volumetric compaction factors

15. Brewster angle is the angle for which there is

1. no reflection and the incident waves in vertically polarized.
2. Reflection and the incident wave is horizontally polarized
3. No reflection and the incident wave is horizontally polarized
4. Any of the above.

16. The minimum value of the life of a transistor to be used in three section R-C phase shift oscillator is

1. 54.4
2. 45.4
3. 44.5
4. 29

17. A 10 MHz square wave clocks a 5-bit ripple counter. The frequency of third flip-flop's output would be

- 2 MHz
- 1 MHz
- 2.5 MHz
- 1.25 MHz

18. The number of comparators needed in a 4-bit flash type ADC is

- 32
- 15
- 8
- 14

19. A n-channel silicon (Eg = 1.1ev) MOSFET was fabricated using n+ poly-silicon gate and the threshold voltage was found to be 1V. Now, if the gate is changed to p+ poly-silicon, other things remaining the same, the new threshold voltage should be

- -0.1 V
- 0 V
- 1 V
- 2.1 V

20. A system has the transfer function $\frac{(1-S)}{(1+S)}$. It is known as a:

- low pass system
- high pass system

all pass system
- process control system

21. The mechanical item constant of a motor is equal to 50 secs. If the friction coefficient is 0.04 Nm/rad/sec, the value of moment of inertial of the motor is equal to

- 50 kg – m2
- $\frac{1}{50}$ kg – m2
- 1 kg – m2
- 0.1 kg – m2

22. If the noise figure of a receiver is 1.6, its equivalent noise temperature is

- 464.00o K
- 174.00o K
- 108.75o K
- 181.25o K

23. The mobility of electron in copper is :

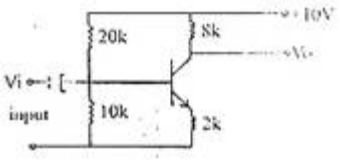
Given atomic weight = 63.54, density = 8.96 gm/cc, resistivity = 1.7×10–6 W-cm,
Avogadro's number = 6.025 ×1023

- 30 cm2/V-5
- 43.28 cm2/V-5
- 50 cm2/V-5
- data not sufficient

24. In an N type semiconductor, the Fermi-level lies 0.3 eV below the conduction band and at 300oK. If the temperature is increased at 330oK, then the new position of Fermi-level conduction band is

- 0.1 eV
- 0.33 eV
- 0.3 eV
- 0 eV

25. For the circuit shown in the figure:



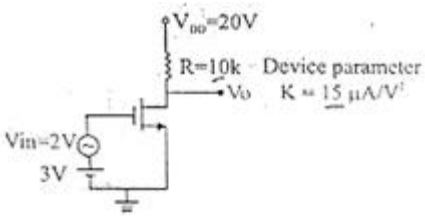
assuming b = 100 for the transistor, the transistor will be in

- the cut-off region
- the inverse active region
- the active region
- the saturation region

26. An antenna array comprises of two dipoles. These dipoles are separated by $\frac{3\lambda}{4}$ wavelength. If these dipoles are fed with currents that are 90o out of phase, then null of the pattern will occur at

- angle > 90o
- $\cos^{-1}\left(\frac{1}{3}\right)$
- $\pi, \cos^{-1}\frac{1}{3}$
- p

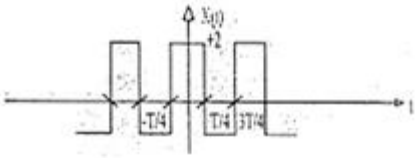
27. A MOSFET amplifier circuit is as shown below



The Tran conductance of the MOSFET is :

- 0.015 ms
- 0.03 ms
- 0.06 ms
- 1 ms

28. Consider a manage signal X(t) as shown in figures.



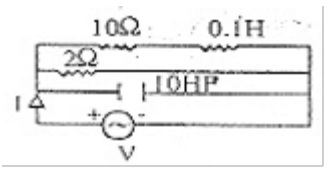
This manage signal is applied to AM modulator with modulation index b = 0.5
The modulation efficiency will be:

- 33%
- 20%
- 66.67%
- 50%

29. The minimum phase shift that can be provided by a lead compensator with transfer function $G_c(s) = \frac{1+6s}{1+2s}$ is

- 15o
- 30o
- 45o
- 60o

30. The resonant frequency shown by the diagram will be



- 13.84 Hz

- 148.44 Hz
- 158.44 Hz
- None

31. When a uniform plane wave traveling in air is incident on the plane boundary between air and another dielectric medium with Îr = 9, the reflection coefficient for normal incidence is given by

- 0.333 Đ0o
- 0.5 Đ0o
- 0.5 Đ180o
- 0.333 Đ180o

32. What will happen to a bird sitting on a conductor carrying 11 KV?

- It will die of shock.
- It will not die of shock because its claws are insulated.
- It will not die because it is insulated from earth and other conductors.
- None of the above.

33. It an aluminum foil is introduced midway the plates of a capacitor and connected to one plate the capacitance

1. decreases
2. increases
3. increases twice
4. remains unaltered

34. J = 6E is known as

1. Ohm’s Law
2. Ampere’s Law
3. Coulomb’s Law
4. Bio Savart’s Law

35. Electrical capacitance in pneumatic systems is analogous to

1. volume of air
2. restriction to flow
3. filled helical tube
4. None of the above.

36. In aircraft the use of hydraulic motor is preferred over the electric motor because they are

1. cheap
2. flexible
3. not electrical driven
4. light and have high torque to inertia ratio

37. Which of the following emitter material usually needs less than 1 kV as plate voltage?

1. Pure tungsten
2. Thoriated tungsten
3. Oxide coated
4. All the above

38. At a P-N junction, the potential barrier is due to the charges on either side of the junction, these charges are

1. minority carriers
2. majority carriers
3. both A and B
4. fixed donor and acceptor ions

39. In a class A amplifier utilizing a direct resistive load, the maximum conversion efficiency could be

1. 25%
2. 40%
3. 46.5%
4. 85%

40. If 1.5% of the output of an amplifier is feedback positively to the input, the minimum gain required of the amplifier for oscillations to occur, is

1. 16.6
2. 14.4
3. 66.6
4. 95

41. Ultra high frequency oscillations work in the range

1. 10 Hz to 10 kHz
2. 1 kHz to kHz
3. 20 kHz to 30 MHz
4. above 30 MHz

42. If a 1 MHz signal is combined with the output of a 1.4 MHz oscillator, the best frequency obtained will be

1. 150 kHz
2. 250 kHz
3. 400 kHz
4. 600 kHz

43. The D flip-flop and T flip-flop are respectively used as

1. delay and toggle switch
2. toggle switch and delay gate
3. both used as toggle switch
4. both used as delay gates.

44. In a monolithic integrated circuit the resistor is obtained by

1. utilizing P-type base diffusion only
2. utilizing the bulk resistivity of one of the diffused areas or thin film techniques
3. diffusing a semiconductor in the chip
4. diffusing carbon in the chip

45. When a large number of analog signals are to be converted an analog multiplexer is used. In this case most suitable A.D. converter will be

1. up-down counter type
2. dual slop type
3. forward counter type
4. successive approximation type

46. The output of a two input EX-NOR gate is high when

1. one input is high and other is low
2. both the inputs re high
3. both the inputs are low
4. both the inputs are same

47. An electric wrist watch has a clock of frequency 32 kHz. To divide this frequency down to 1 Hz it is necessary to have

- one four-bit binary counter one T flip-flop and one decade counter
- three decade counters, one four-bit binary counter and one T flip-flop
- two decade counters, one two-bit binary counter and a T flip-flop
- four four-bit binary counters and one decade counter.

48. The initial and final counts of mod-16 counter are

- 0000 to 1001
- 0001 to 1111
- 0000 to 1111
- 0000 to 1000

49. Which of the following logic circuits is the fastest?

- RTL
- DTL
- TTL
- All the above have speed

50. What command must have been used on the diskette before you can use the SYS command to copy the DOS system files to it?

- TREE
- APPEND
- FORMAT /S or FORMAT /S
- FORMAT /V

51. In the CONFIG.SYS file, the command STACKS = 9,256 means

- 9,256 stacks of 64 KB each having been set aside for Multitasking
- 9 stacks of 256 bytes have been set aside for DOS kernel operations
- 9 stacks of 256 bytes have been set aside for DOS disk buffering
- 9 stacks of 256 bytes have been set aside for processing IRQS

52. How much should you specify in RAM-DRIVE if you want to create a 640 K RAM drive?

- 640
- 64
- 1024
- 32767

53. What is the name of the computer based EMMS that provides a common forum where users can check in at their convenience, post messages, actively exchange ideas and participate in ongoing discussion

- e-mail
- Bulleting board system (BBS)
- Teleconferencing

- Video-conferencing

54. Many larger organizations with other offices in different countries of the world connect their computers through telecommunication satellites and telephone line. Such a communication network is called

- LAN
- WAN
- VAN
- MAN

55. In photoconductive effect, radiation of wavelength greater than critical wavelength will

- produce protons
- produce free electrons
- doesn't produce free electron
- emit electrons from the surface

56. On which of the following principles the desired squeeze, weld and hold time durations are obtained in the digital timer of a resistance welding machine?

- Digital-to-analog conversion
- Analog-to-digital conversion
- Time multiplexing
- Time-to-voltage conversion

57. The anode current through a conducting SCR is 10A. If its gate current is made one-fourth, the anode current will become

- 1 A
- 4 A
- 10 A
- None of these

58. When two A.C. signals of the same frequencies and amplitudes are applied to the X and Y inputs of a CRO respectively, the resulting pattern on the screen will be

- a parabola
- a circle
- a straight line
- an ellipse

59. One volt range on a 4½ digit digital multimeter can be read upto

- 1.0000 V
- 0.9999 V
- 1.999 V
- 1.9999 V

60. A signal of 10 m V at 75 MHz is to be measured. Which of the following instruments can be used?

- Digital multimeter
- cathode ray oscilloscope
- Moving iron voltmeter
- VTVM

61. In a Wein bridge oscillator, the frequency of oscillation

- does not depend on capacitance
- is directly proportional to capacitance
- is inversely proportional to capacitance
- is inversely proportional to square of capacitance

62. A permanent magnet is used in a telephone receiver

- to avoid second harmonics
- to provide large bandwidth
- to amplify speech
- to provide greater sensitivity

63. The velocity of electromagnetic waves in free space

- decrease with increase of frequency
- increases with increase of frequency
- may decrease or increase with increase of frequency
- is independent of frequency

64. Radio frequencies are of the range

- 20 kHz – 200 kHz
- 200 kHz – 20 MHz
- 3 MHz – 30 MHz
- 30 MHz – 3GHz

65. Microwave signal transmitted towards the sky are

- unable to reach the ionosphere because of the strong absorption in the lower atmosphere.
- strongly reflected by the ionosphere
- transmitted by the ionosphere
- strongly absorbed by the ionosphere.

66. It is required to match a 200 W load to a 300 W transmission line, to reduce the SWR along the line to 1. The characteristic impedance of the quarter wave transformer used for this purpose, if it is directly connected to the load, must be

- 2000 W
- 600 W
- 245 W
- 40 W

67. Two transmission lines P and Q are having SWRs equal to 1/5 and 7/5 respectively. It can be concluded that

- both have identical SWR
- Q is better than P
- P has the higher SWR
- is better than Q

68. For an AM wave having a power of 800 W at its carrier frequency and modulation index of 90 percent, the power content of each sideband is

- 162 W

- 262 W
- 300 W
- 400 W

69. An FM signal containing the sound intelligence of a television broadcast has a maximum frequency deviation of 50 kHz. The depth of modulation is

- 40 percent
- 60 percent
- 100 percent
- None of these

70. For a satellite communication, the lower limit of frequency is

- 1 MHz
- 10 MHz
- 20 GHz
- 200 GHz

71. Most commercial satellite activity occurs in which band(s)?

1. S and P
2. X
3. C and Ku
4. L

72. Distribution of electric power from one place to another is done at high A.C. voltage because

1. It increases brightness of the light
2. Wastage of electricity is reduced
3. Stealing of electric wires is reduced
4. Electricity moves in a very short time

73. When a monochromatic light wave travels from one medium to another , its unchanged parameter is

1. wavelength
2. velocity
3. frequency
4. amplitude

74. The corrosion resistance of steel is increased by alloying its with which of the following?

1. Vanadium
2. Aluminum
3. Copper
4. Chromium

75. In an electric motor, magnetic noise is least

1. at no load
2. at full load
3. at full speed
4. at synchronous speed

76. In the amplifiers, transistor inter-junction capacitance causes which of the following?

1. Phase shift
2. Harmonic distortion
3. Noise
4. Parasitic oscillation

77. What will happen if A.C. is fed by mistake to a D.C. motor?

1. The motor will run at its normal speed.
2. The motor will run at a tower speed
3. The efficiency will be very poor
4. The motor will burn as the eddy current in the field produce heat

78. Two-value capacitor motor finds increased application as compressor motor in small home air-conditioners because

1. it is comparatively cheaper
2. it has almost non-destructible capacitor
3. it has low starting as well as running current as relatively high power factor
4. it is quiet in operation

79. A mica capacitor and a ceramic capacitor both have the same physical dimensions; which will have more value of capacitance?

1. Ceramic capacitor
2. Mica capacitor
3. Both will have identical value of capacitance
4. It depends on applied voltage

80. In case of a 3-phase wound-rotor induction motor, an increase in rotor resistance affects the motor performance in the following way

1. the motor efficiency decreases
2. the motor efficiency increases
3. starting current decreases
4. starting current increases

81. Which of the following is the unit of magnetic flux density

1. Waber
2. Lumens
3. Texla
4. Darof

82. A laminated iron core has reduced eddy-current losses because

1. more wire can be used with less D.C resistance in coil.
2. the laminations are insulated form each other
3. the magnetic flux is concentrated in the air gap of the core.
4. the laminations are stacked vertically.

83. The maximum value of torque that a synchronous motor can develop without losing its synchronism is known as

1. slip torque
2. pull out torque
3. braking torque

4. synchronizing torque

84. In a cable, the maximum stress under operating conditions is at:

1. insulation layer
2. sheath
3. armour
4. conductor surface

SECTION –II
GENERAL AWARENESS

85. Which of the following Vedas is the oldest?

1. Samveda
2. Yaju veda
3. Atharva veda
4. Rig veda

86. Who wrote Panchtantra?

1. Bhavbhuti
2. Vishnu Sharma
3. Kalidasa
4. Shri Harsha

87. Who was the last Guru of the Sikhs?

1. Guru Govind Singh
2. Guru Tegh Bahadur
3. Guru Nanak Dev
4. Guru Harkishan

88. Who said, “Man is a social animal.”

1. Aristotle
2. Rosseau
3. Plato
4. Laski

89. Which one of the following dynasties was ruling the time of Alexander’s invasion?

1. The Nanda Dynasty
2. The Maurya Dynasty
3. The Kanva Dynasty
4. The Sunga Dynasty

90. The Census was introduced for the first time in India during the tenure of

1. Lord Cornwallis
2. Lord William Bentinck
3. Lord Rippon
4. Lord Clive

91. Who designed the National Flag of India?

1. Pingly Venkaiyya
2. Vallabh Bhai Patel
3. B.R. Ambedkar
4. Aurobindo Ghosh

92. From which of the following state does the Tropic of cancer not pass?

1. Rajasthan
2. Jharkhand
3. Tripura
4. Manipur

93. Which among the following is the smallest state area-wise?

1. Nagaland
2. Mizoram
3. Meghalaya
4. Manipur

94. As per Census 2001, which one of the following states recorded the lowest growth rates of population during the period of 1991 to 2001.

1. Andhra Pradesh
2. Karnataka
3. Kerala
4. Tamil Nadu

95. Which of the following rivers does not form a delta?

1. Ganges
2. Narmada
3. Mandavi
4. Mahanadi

96. The weight of an object will be minimum when it is placed at:

1. The North Pole
2. The South Pole
3. The Equator
4. The Center of the Earth

97. Which one of the following is a land-locked country?

1. Cambodia
2. Thailand
3. Vietnam
4. Laos

98. Earthquake travels fastest in-

1. Soil
2. Molten Rock
3. Water
4. Flexible Rock

99. Joint sitting of both the houses of Indian Parliament is presided over by

1. The President of India
2. The Speaker of Lok Sabha
3. The Chairman of Rajya Sabha
4. The Prime Minister

100. To who is the Council of Ministers collectively responsible?

1. The President
2. The Prime Minister
3. The Lok Sabha
4. The Rajya Sabha

101. The Vice-President of India is elected by an electoral college consisting of:

1. only the elected members of both Houses of Parliament
2. only Rajya Sabha members
3. all members of Parliament and State Legislative Assemblies
4. all members of Lok Sabha and Rajya Sabha

102. Centre-State financial distribution takes place following the recommendations made by the

1. Inter-State Council
2. Finance Commission
3. Planning Commission
4. Parliament

103. Sellers market denotes a situation where –

1. Commodities are available at competitive rates
2. Demand exceeds supply
3. Supply exceeds demand
4. Supply and demand are equal

104. Development means economic growth plus –

1. Inflation
2. Deflation
3. Price Stability
4. Social change

105. Which of the following ports of India has a free trade zone?

1. Cochin
2. Mumbai
3. Kandla
4. Diu

106. Dual pricing implies –

1. Wholesale price and Retail price
2. Pricing of agents and Pricing of retailer
3. Price fixed by Government and Price in the open market
4. Daily prices and Weekly prices

107. ‘Sudden Death’ rule is associated with:

1. Wrestling
2. Hockey
3. Water Polo
4. Football

108. Galvanised Iron sheets have a coating of –

1. Tin
2. Lead
3. Zinc
4. Chromium

109. The Principle on which a Jet Engine is base is:

1. Theory of Angular Momentum
2. Newton’s third Law
3. Theory of Friction
4. Theory of Kinetic Energy

110. The different colours of different stars are due to the variations in -

1. temperature
2. pressure
3. density
4. radiation from them

111. The speed of light will be minimum while passing through

1. glass
2. vacuum
3. air
4. water

112. Which of the following tennis tournaments is played on Clay court?

1. Australian Open
2. French Open
3. Wimbledon
4. U.S. open

113. The instrument that measures and record the purity of milk is called:

1. Hydrometer
2. Hygrometer
3. Lactometer
4. Barometer

114. At which part of the tongue are the taste buds for sweet taste located?

1. Tip
2. Back
3. Sides
4. Middle

115. Stem cuttings are commonly used for re-growing –

1. Cotton
2. Banana
3. Jute
4. Sugar Cane

116. Which one of the following human nutrients plays an important role in the coagulation of blood?

1. Calcium
2. Iron
3. Potassium
4. Sodium

117. Which of the following is known as first line defense for the body?

1. Antibodies
2. WBC
3. Nails
4. Skin

118. In the case of a test tube baby

1. Fertilisation takes place inside the test tube
2. Development of the baby takes place inside the test tube
3. Fertilization takes place outside the mother's body
4. Unfertilized egg develops inside the test tube

119. Which of the following cell organelles is the site for Protein synthesis?

- Ribosome
- Mitochondria
- Chloroplast
- Golgi Complex

VERBAL ABILTY

In questions 120-123, the word which is opposite in meaning to the word given on the top is:

120. SPURIOUS
    1. genuine
    2. angry
    3. glorious
    4. antique
121. ENUNCIATE
    1. pray
    2. deliver
    3. request
    4. mumble
122. RESILIENT
    1. pungent
    2. worthy
    3. unyielding
    4. insolent
123. EXPEDITE

1. explore
2. obstruct
3. prompt
4. disburse

Instructions for Questions 124-128: Read the following passage and answer the questions after it.

Differentiation of the two kinds of socialization is to some extent explained by reference to the complex manpower requirements of the modern state. The social learning acquired through upbringing often needs to the extended because it does not provided for the national need in many countries for trained personnel like clerical workers technician, civil servants and so on. In this respect secondary socialization can be regarded as complementary to primary socialization. The former, we might say, provides the individual with skills which allow him to take on specialist employment and to have a role in a larger social environment, whereas the latter allows him to be integrated into the particular social group into which he is born. Thus we might argue that primary socialization defined the individual's role in a small social group and enables him to identify himself as a member of his family and his local community. Secondary socialization, on the other hand provides for the individual's role in society as a whole and enables him to identify himself as a citizen of the state. In Short, and to oversimplify, we might say that the first kind of socialization provides a sense of security and social interaction, whereas the second provides opportunity and the possibility of social mobility.

124. Which of the following is NOT possible through primary socialization?
    1. defining individual's role in a small social group
    2. identifying oneself with one's family
    3. identifying oneself as a citizen of the state
    4. integrating into the local community
125. The modern state very much requires:
    1. primary socialization of its citizens
    2. many unskilled workers
    3. a large social environment
    4. specialist manpower
126. The opportunity to go up in one's profession and society is:
    1. derived from one's upbringing
    2. derived form secondary socialization
    3. availed through complex manpower requirements
    4. availed by identifying oneself with one's state
127. Secondary socialization is important in one's life because it helps one to:
    1. take one specialized employment
    2. identify oneself with one's family
    3. define his role in his social group
    4. integrate with his community
128. Complex manpower requirements means –
    1. man requires complex powers
    2. highly trained personnel are required
    3. acquiring power in a complex process
    4. power of man is required to be complex

Instructions for questions 129-133: Read the following passage and answer the questions after it.

Nowadays the fine old simplicities are lost. Physicist's assure us that there is no such thing as matter and psychologists assure us that there is no such thing as mind. This is an unprecedented occurrence.

To begin with the latter some of them attempt to reduce everything that seems to the mental activity to an activity of the body. There are however various difficulties in the way of reducing mental activity to physical activity.

What we can really say on the basis of Physics itself is that what we have hitherto called out body is really as elaborate scientific construction, not corresponding to any physical reality. The modern would be materialist, thus finds himself in a curious conceptual dilemma. Evidently we have to look for something that is neither body nor mind, out of which both can spring.

The common man however thinks that material objects must certainly exist since they are evident to the senses. The

physicists disagree as matter in motion which in motion which used to seem so unquestionable turns out to be a concept quite inadequate for the needs of physics.

129. In the sentence "To begin with the latter, some of them….." latter refers to :
    1. physicists
    2. matter
    3. psychologists
    4. mind
130. "But the philosopher was apt to reduce it usually to ……'. Here 'it' refers to :
    - his analysis of man
    - the human body
    - the mind of the man
    - idea in the mind

131. A plain man thinks that material objects exist because-
    1. they constitute the metaphysics
    2. they are real in his through process
    3. certain electrons and protons form them
    4. he can perceive them
132. Psychologists mentioned in the passage–
    1. believe that mental activities get manifested in abnormal physical activities
    2. try to equate mental activity to physical activity
    3. do not accept the distinction between body and soul
    4. support the physicist's perception of a body
133. Which of the following does the modern science support according to the passage?
    1. Mind the matter are necessary to organize events
    2. Metaphysical division of events
    3. The discovery of equally important mind and matter
    4. Mind and Soul do not exist as an entity

In questions 134-138, then word which is nearest in meaning to the word given on the top is:

134. ATROCITY
    1. endurance
    2. hatred
    3. brutality
    4. aversion
135. FORTITUDE
    1. enthusiasm
    2. bravery
    3. cleverness
    4. excitement
136. GARRULOUS
    1. sociable
    2. showy
    3. gourmet
    4. talkative
137. RESPERCUSSION
    1. reaction
    2. resistance
    3. repetition
    4. repulsion
138. SYCOPHANT
    1. fun-loving

2. self-controlled
3. benevolent
4. flatterer

In questions 139-143, the key word is used in four different ways. Choose the options in which the usage of the word is NOT correct.

139. COVER
    1. The light was so bright that I had to cover my eyes.
    2. Did you see the cover of the college magazine this year?
    3. We took cover from the rain in a bus shelter.
    4. People try to avoid tax by setting up a cover to donate money to charity.
140. PUSH
    1. The manufacturers are really pushing this new shampoo.
    2. He has difficulty pushing his feelings into words.
    3. We should be able to move this table if we push it together.
    4. She pushed through the crowd saying that she was a doctor.
141. FLASH
    1. Camera bulbs flashed as the Prime Minister appeared on the podium.
    2. The news on Tsunami flashed around the world within minutes.
    3. Violence flashed in many areas of the town last night.
    4. A strange through flashed through her mind.
142. OPENING
    1. The audience could hardly hear the opening remarks.
    2. I like to get out in the opening air on weekends.
    3. The films opening night was a huge success.
    4. the opening of the novel is by far its best part
143. ISSUE
    1. The problem came to a successful issue.
    2. My article appeared in the August issue of the magazine.
    3. The government issued a special stamp on World Health Day.
    4. There were problems of property as he died without any issue.

In questions 144-146, each statement has a part missing. Choose the best option to complete the statement.

144. Of the many technological advances that took place during the 19th Century none was to have _____ of the steam engine.
    1. quite such enormous impact as inventing
    2. quite such an enormous impact as the invention
    3. quite such enormous an impact like inventing
    4. quite such an enormous impact like invention
145. One of the most _____ which holds that America is a highly materialistic nation, a nation which exalts the money-grubber and has a minimum of respect for things of the mind and spirit.
    1. fashionable of the clichés is the one
    2. fashionable clichés is the one
    3. fashionable cliché is the one
    4. fashionable of the cliché is that
146. _____who watch a great deal of television and also among children, who view television shortly before bed time.
    1. Among children more common sleep disturbances are
    2. More common sleep disturbances among children are
    3. sleep disturbance among children are more common
    4. sleep disturbance are more common among children

In questions 147-149, a sentence with two blanks is given. From the alternative pairs, select the words of which best completes the given sentence.

147. State hospitality extended to a visiting foreign dignitary is often used symbolically to convey _____ messages, and very often pomp and ceremony serve to _____ sharp differences.
    1. subtle…..mask
    2. loud…..camouflage
    3. sharp…..hide
    4. important.....accentuate

148. A number of journalist and cameramen were _____ questioned by the police when they went to cover the _____ drive of the state government.
    1. deliberately…..constitute
    2. mistakenly…..discover
    3. inadvertently…..install
    4. wantonly..…create

149. It is _____ to try to destroy pests completely with chemical poisons, for as each new chemical pesticides is introduced, the insects gradually become _____ to it.

Quantitative Aptitude

150. Two pipes A and B can fill a tank in 36 minutes and 45 minutes respectively. Pipe C can empty the tank in 30 minutes. First A and B are opened. After 7 minutes, C is also opened. In how much total time, the tank will be full.
    - 36 minutes
    - 42 minutes
    - 46 minutes
    - 45 minutes

151. A toy was sold at a loss for Rs. 60. Had it been sold for Rs. 81, the gain would have been 3/4th of the former loss. The cost of the toy is -
    - Rs. 65
    - Rs. 70
    - Rs. 81
    - Rs. 72

152. Vijay invested Rs. 50,000 partly at 10% and partly at 20%. His total income after a year was Rs. 6000. How much did he invest at the rate of 10%?
    - Rs. 30,000
    - Rs. 40,000
    - Rs. 12,000
    - Rs. 20,000

153. Two alloys A and B contain iron in the ration 7:3. IF 25 kg of alloy A and 25 kg of alloy B are mixed to form a new alloy which contains 35% of iron, find the amount of iron in alloy B.
    - 15 kg
    - 7.8 kg
    - 8.7 kg
    - 18.2 kg

154. Two trains 121 m and 99 m long, are running in opposite directions at speeds of 40 km/hr and 32 kg/hr respectively. In what time will they completely clear each other form the moment they meet?
    - 7 seconds
    - 9 seconds
    - 10 seconds
    - 11 seconds

155. The rate of interest on a sum of money is 4% per annum for the first two years, 6% per annum for the next 4 years and 8% per annum for the period beyond 6 year. If the simple interest accrued by the sum for a total period of 9 years is Rs. 1120, what is the sum?

- Rs. 1500
- Rs. 2000
- Rs. 2500
- Rs. 4000

156. A soldier ascends a greased pole 36 meters high. He ascends 3 metres in first minute and descends 1 metre in second minute. He again ascends 3 meters in third minute and descends 1 metre in fourth minute and so on. In how much time will he reach to top?
    - 36 minutes
    - 33 minutes
    - $33\frac{5}{6}$ minutes
    - $34\frac{2}{3}$ minutes
157. The current of a stream runs at 1 km.hr. A motor boat goes 35km upstream and is back again to the starting point in 12 hours. The speed of motorboat in still water is:
    - 6 km/hr
    - 7 km/hr
    - 8 km/hr
    - 8.5 km/hr
158. The average age of a couple (a husband and wife) was 23 years when they were married 5 years ago. The average age of the husband, the wife and a child, who was born during the interim period, is 20 years now. What is the present age of the child?
159. Kripal, Vinay and Apoorva went for lunch to a restaurant. Kripal had Rs. 100 with him, Vinay had Rs. 104 and decided to give a tip of Rs. 16. They further decided to share to total expenses in the ratio of the amounts of money each carried. The amount of money which Kripal paid more than what Apporva paid is
    - Rs. 120
    - Rs. 200
    - Rs. 60
    - Rs. 36
160. Two merchants each sell an article for Rs. 1000. If merchants A computes his profit on cost price, while merchant B computes his profit on selling price, they end up making profits of 25% respectively. By how much is the profit made by merchant B greater than that of merchant A?
    - Rs. 66.67
    - Rs. 50
    - Rs. 125
    - Rs. 200
161. What is the greatest value of a positive integer ‘n’ such that 3n is a factor of 1818?
    - 15
    - 18
    - 30
    - 33
162. If x+y=5; x+z=7 and y+z=12, then the value of x+y+z=?
    - 12
    - 2
    - 5
    - 24
163. What is the remainder when 3x2–2x2y-13xy2+10y3 is divided by (x-2y)?
    - 0
    - y
    - x+y
    - x+2y
164. At a certain ice cream parlor, customers can choose from among five different ice cream flavors and can choose either a sugar cone or a waffle cone. Considering both ice cream flavor and cone types, how many distinct triple-

scoop cones with three different ice cream flavors are available?

- 12
- 16
- 20
- 24

165. If a straight line y = ax+b passes through (2,1) and (-1,0), then ordered pair (a,b) is:
    - (3, -1)
    - $(\frac{1}{3}, \frac{1}{3})$
    - (-1,3)
    - (3,3)
166. If ABCD is a quadrilateral such that its diagonals AC and BC intersect at O to form four triangles equal in area . Then ABCD must be a:
    - parallelogram
    - Rectangle
    - Square
    - All of the above
167. The chords AP and AQ of a circle of radius 6 cm are at a distance 3cm and $3\sqrt{2}$ respectively from the centre O of the circle, then the area of the smaller sector POQ is :
    - 24 p cm2
    - 21 p cm2
    - 15 p cm2
    - 12 p cm2
168. On the xy-coordinate plane, points A and B both lie on the circumference of a circle whose center is O, and the length of AB equals the circle's diameter. If the (x,y) coordinates of O are (2,1) and the (x,y) coordinates of B are (4,6), what are the (x,y) coordinates of A?
    - $\left(3, \frac{3}{2}\right)$
    - $\left(1, \frac{2}{2}\right)$
    - $(0, -4)$
    - $\left(\frac{2}{2}, 1\right)$
169. ABCD is a square, each of side of which is 2 cm. Taking AB and AD as axes, the equation of the circle circumscribing the square is :
    - x2+y2 = (x+y)
    - x2+y2 = 2(x+y)
    - x2+y2 = 4
    - x2+y2 = 16
170. If 'a' is the length of the base and 'b' the height of a right angled triangle hypotenuse of which is h and if the values of a and b are positive integers, which of the following cannot be a value of the square of the hypotenuse?
    - 13
    - 23
    - 37
    - 41
171. The circumference of the front wheel of a cart is 30 ft long and that of the back wheel is 36 ft long. What is the distance travelled by the cart, when the front wheel has done five more revolutions than the rear wheel?
    - 200 ft
    - 250 ft
    - 750 ft

172. Four circular card-board pieces; each of radius 7 cm are placed in such a way that each piece touches two other pieces. The are of the space enclosed by the four pieces is:
    - 21 cm2
    - 42 cm2
    - 84 cm2
    - 168 cm2
173. The circumcircle of an equilateral triangle of side 6 cm is drawn. Find the area that is inside the circle but outside the triangle?
    - 22.21
    - 19.78
    - 22.11
    - 18.76
174. A spherical lead ball of radius 10 cm is melted and small lead balls of radius 5mm are made. The total number of possible small lead balls is:
    - 800
    - 125
    - 400
    - 8000
175. A rectangle, having a 72 cm perimeter, is divided into 9 congruent rectangles and two congruent squares. The edge of square is the same as one of the edges of the smaller rectangle. What is the perimeter and area of the smaller rectangle?
    - 24 cm, 36 cm2
    - 24 cm, 32 cm2
    - 12 cm, 32 cm2
    - 12 cm, 36 cm2
176. In a triangle ABC, the sum of the exterior angles at B and C is equal to:
    - 180o - ĐBAC
    - 180o + ĐBAC
    - 180o - 2ĐBAC
    - 180o + 2ĐBAC
177. If x = sin0+cos0 and y = sin 20, then which of the following is true?
    - x2-y=1
    - x2 =1-y
    - y=x2+1
    - y2=x+1
178. The angle of elevation of the top of a 30 m high tower, from two points on the level ground on its opposite sides are 45 degrees and 60 degrees. What is the distance between the two points?
    - 30
    - 51.96
    - 47.32
    - 81.96
179. A person aims at a bird on top of a 5m high pole with the elevation of 30 degree. If a bullet is fired, it will travel P m before reaching the bird. The a value of P (in m) is :
    - $\frac{5\sqrt{3}}{2}$
    - 10
    - $5\sqrt{3}$
    - $10\sqrt{3}$
180. Of the two boxes, Box 1 contains 2 Pink and 5 White chalks while Box 2 contains 4 Blue and 3 Green chalks. Four chalks are taken out, two from Box 1 and remaining from Box 2. What is the probability of getting four

different colour chalks?

- $\frac{40}{147}$
- $\frac{4}{17}$
- $\frac{40}{441}$
- $\frac{17}{2}$

181. A problem is given to three students x,y,z whose chances of solving the problem are $\frac{1}{2}, \frac{1}{3}$ and $\frac{1}{4}$ respectively. What is the probability that the problem will be solved?

- $\frac{1}{2}$
- $\frac{1}{3}$
- $\frac{1}{24}$
- $\frac{3}{4}$

In questions 182-183, a series is given. Which one of the number or letter-number clusters in the given series is wrong.

182. G 4 T, J 10 R, M 20 P, P 43 N, S 90 L
    - G 4 T
    - J 10 R
    - M 20 P
    - P 43 N
183. 5, 12,19,33,47,75,104.
    - 33
    - 47
    - 75
    - 101

In questions 183 to 185, a number-series is given. Which one of the alternatives will ensure the sequential continuity of the series?

184. 3, 6, 5, 20, 7, 42, 9,……..
    - 54
    - 60
    - 66
    - 72
185. 0, 2, 8, 14, 24, …….
    - 34
    - 35
    - 36
    - 42

In question 186-187, a series is given with a blank shown by a question mark. Which one of the alternatives can correctly fill-in the question mark?

186. 6, 15, 3, (?), 143, 221
    - 63
    - 77
    - 90
    - 56
187. 7T19, 9Q16, 11N13, 13K10, 15H7, (?)
    - 17 E 4
    - 18 F 5
    - 17 E 3
    - 18 D 4

In questions 188-189, a letter series is given, in which some letters are missing. The missing letters are given in the proper sequence as one of the alternatives. Find the correct alternative.

188. aa _ ab _ aaa _ a
    - aaab
    - aabb
    - abab
    - baaa
189. mnonopqopqrs _ _ _ _ _ _
    - mnopq
    - oqrst
    - pqrst
    - qrstu
190. The arrangement of letters of which of the given clusters is different from the rest?
    - GTSH
    - BYXC
    - ETUF
    - LONM
191. The arrangement of letters of which of the given clusters is different from the rest?
    - BD
    - CI
    - EY
    - AC
192. In a certain code ‘MANISH’ is written as 415918. How will ‘PRASHANT’ be written in the same code?
    - 79181152
    - 79181125
    - 79118125
    - 79118152
193. If in an cricket season, Mumbai defeated Hyderabad twice. Bangalore defeated Mumbai twice, Hyderabad defeated Bangalore twice, Mumbai defeated Kolkata twice and Bangalore defeated Kolkata twice. Which of the teams lost the largest number of matches?
    - Mumbai
    - Hyderabad
    - Bangalore
    - Kolkata

194. A bus for Bombay leaves after every forty minutes from a bus stand. An enquiry clerk told a passenger that the bus had already left ten minutes ago and the next bus will leave at 10.45 a.m. At what time did the enquiry clerk give this information to the passenger?
    1. 10:05 a.m.
    2. 9:55 a.m.
    3. 10:35 a.m.

4. 10:15 a.m.

195. As a ‘Lion’ is to ‘Cub’, a ‘Camel’ is to:
    1. Signet
    2. Stag
    3. Calf
    4. Foal

196. Identify the correct deduction.

Statements: All labourers are wrestlers. All grocers are labourers.
Conclusions:

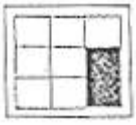
    1. All grocers are wrestlers
    2. Some wrestlers are grocers.
    3. Some wrestler are labourers.
    4. Some labourers are grocers.
        1. All conclusions are correct
        2. Only 1 and 4 conclusions are correct
        3. Only 4 conclusion is correct
        4. Only 2 and 3 conclusions are correct

197. Identify the correct deduction.

Statements: All fruits are sweets.
All sweets are chocolates.
Conclusions:

    1. All sweets are fruits.
    2. All fruits are chocolates
    3. Some chocolates are sweets.
    4. No chocolate is sweet.
        1. Only conclusion 1 is correct
        2. All conclusions are correct
        3. Only conclusion 2 and 3 are correct
        4. Only conclusion 3 and 4 are correct

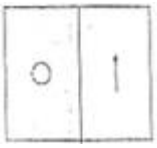
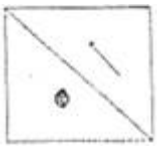
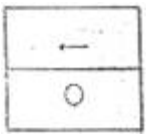
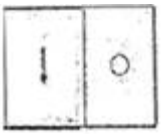
198. In the question, five figures marked 1,2,3,4 and 5 are given on the top. Which among the figures marked a,b,c,d given below it would continue the series 1-2-3-4-5.

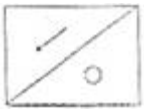
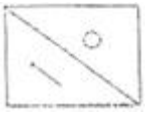
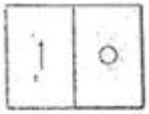
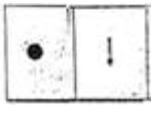
1. 
2. 
3. 
4. 
5. 

1. 
2. 
3. 
4. 

In each of the questions 199 to 200, five figures marked 1,2,3,4 and 5 continuous a continuous series with a gap marked (?) are given. Which figure from among the figures marked a,b,c,d given below them would accurately fill-in the place marked with the questions mark.

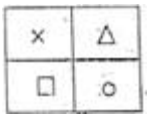
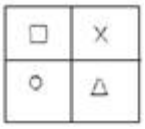
199. Answer the Question:

1. 
2. 
3. 
4. 
5. 

- 
- 
- 
- 

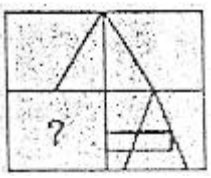
200. Answer the Question:

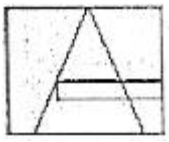
1. 
2. 
3. 
4. 
5. 

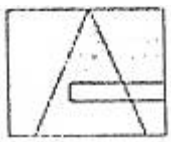
1. 
2. 
3. 
4. 

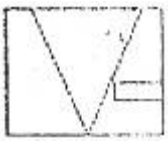
In each of the questions 201 to 203, the figure marked as X is incomplete. Which of the figures marked as a, b, c, and d would accurately complete the given figure?

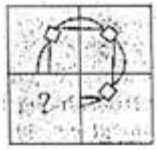
201.



1. 
2. 

3. 

4. 

202. 

1. 

2. 

3. 

4. 

203. 

1. 

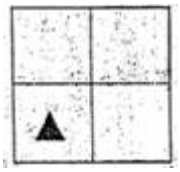
2. 

3. 

4. 

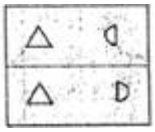
In each of the questions 204 to 206, a figure drawn on a transparent paper is given on the left hand side. Which (from among the given four figures given on the right hand side marked as abcd) will this figure take if its is folded along the dotted lines.

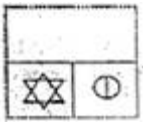
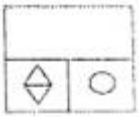
204.



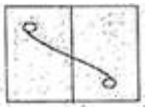
1. 
2. 
3. 
4. 

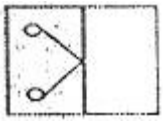
205.

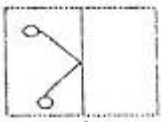


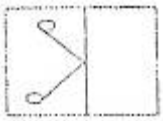
1. 
2. 
3. 
4. 

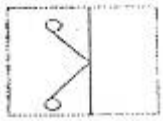
206.



1. 

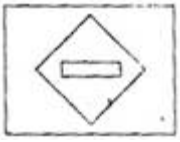
2. 

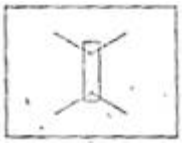
3. 

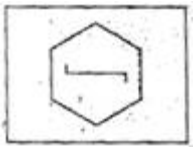
4. 

In each of the questions 207 to 209, figure 1 and 2 as also 3 and 4 (?) have a certain relationship. From among the given figures a, b, c and d which one, when placed at the position of the question mark, would establish the same relationship.

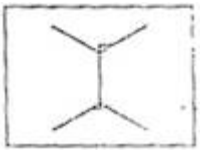
207.

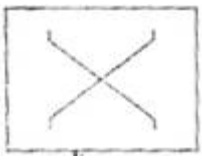
1. 

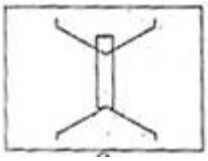
2. 

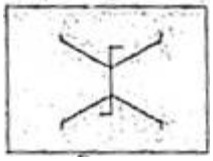
3. 

4. 

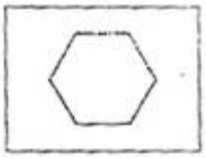
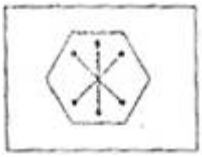
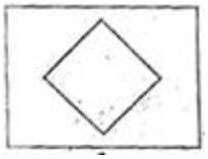
1. 

2. 

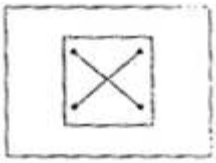
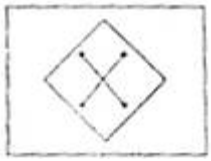
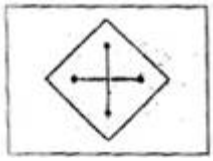
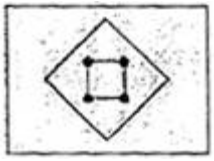
3. 

4. 

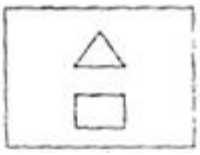
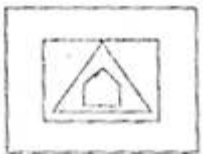
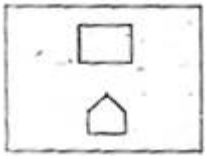
208.

1. 
2. 
3. 
4. 

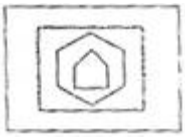
209.

1. 
2. 
3. 
4. 

209.

1. 
2. 
3. 

4. 

1. 
2. 
3. 
4.