

# R.R.B.

JE Question paper 2012

## Based on Memory

1. What is the value of knee voltage of silicon diode?  
1) 0.3 V                      2) 0.33 V                      3) 0.7 V                      4) 1.1 V
2. Which organisation has proposed first to constitute the Constitution Assembly to form the Indian Constitution?  
1) Swaraj Party in 1928                      2) Indian National Congress in 1936  
3) Muslim League in 1942                      4) By all parties convention in 1946
3. There is 20 volt across the inductor and 15 volt across the resistance in the a.c. supplied series R-L circuit. What would be the supply voltage?  
1) 20 volt                      2) 15 volt                      3) 25 volt                      4) 17.5 volt
4. A transformer mainly transforms .....  
1) Current                      2) Voltage                      3) Frequency                      4) Power
5. What is the power factor of a pure resistor circuit?  
1) One                      2) Zero                      3) Leading                      4) Lagging
6. Functions of N.S.D.L. are related to-  
1) Bearer bonds                      2) GDRs                      3) Electronic share                      4) Debenture
7. There are rings around which of the following planets?  
1) Uranus                      2) mars                      3) Jupiter                      4) Saturn
8. .... is used to heat the non-conductors.  
1) Eddy current heating                      2) Arc heating  
3) Induction heating                      4) Dielectric heating
9. What is the S.I. Unit of magnetic flux density?  
1) Gauss                      2) Tesla                      3) Oersted                      4) Weber

10. Which type of oscillator is most stable in simple circuit?
- 1) Crystalline oscillator
  - 2) Clapp oscillator
  - 3) Colpitts oscillator
  - 4) Armstrong oscillator
11. Where is the headquarters of Geological Survey of India located?
- 1) Patna
  - 2) Dehradun
  - 3) Kolkata
  - 4) Agra
12. What is the proper use of signal generator?
- 1) Designing
  - 2) Testing
  - 3) Repairing
  - 4) All the above
13. Nasik is situated on the bank of which river?
- a) Godavari
  - 2) Narmada
  - 3) Tapti
  - 4) Shipra
14. Who started the Shaka era?
- 1) Ashoka
  - 2) Chandragupta-II
  - 3) Kanishka
  - 4) Harsha
15. If one cylinder of a diesel engine receives more fuel than the others, then for that cylinder the .....
- 1) exhaust will be smoky
  - 2) piston rings would stick into piston grooves
  - 3) scavenging occurs
  - 4) engine starts overheating
16. The information is sent by CW transmitter by-
- 1) Changing the audio frequency
  - 2) Interrupting radio signal
  - 3) Using microphone
  - 4) Using camera
17. Moisture can be removed from lubricating oil using .....
- 1) Tubular centrifugal
  - 2) Clarifier
  - 3) Sparkler filter
  - 4) Vacuum leaf filter
18. The rank of the following matrix is-
- $$\begin{bmatrix} 1 & 1 & 0 \\ 1 & 1 & 0 \\ 1 & 1 & 0 \end{bmatrix}$$
- 1) 0
  - 2) 1
  - 3) 2
  - 4) 3
19. Germanium possesses-
- 1) Two valence electrons
  - 2) Three valence electrons
  - 3) Four valence electrons
  - 4) Five valence electrons



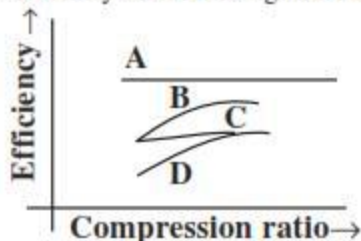
30. The capacitance, in force-current analogy, is analogous to-
- 1) Momentum
  - 2) Velocity
  - 3) Displacement
  - 4) Mass
31. .... signal will become zero when the feedback signal and reference signs are equal.
- 1) Input
  - 2) Actuating
  - 3) Feedback
  - 4) Reference
32. Most of the weather phenomena take place in the-
- 1) Stratosphere
  - 2) Troposphere
  - 3) Tropopause
  - 4) Ionosphere
33. Motor-generator set for D.C. are welding has generator of-
- 1) Series type
  - 2) Shunt type
  - 3) Differentially compound type
  - 4) Level compound type
34. Which of the following motors is preferred when quick speed reversal is the main consideration?
- 1) Squirrel cage induction motor
  - 2) Wound rotor induction motor
  - 3) Synchronous motor
  - 4) D.C. motor
35. In case of ball bearings, which part is made harder than others-
- 1) Ball
  - 2) Outer-race
  - 3) Inner race
  - 4) All are made equally hard
36. Selectivity of the receiver can be increased by which of the following?
- 1) By using more tuned circuit
  - 2) By decreasing number of tuned circuit
  - 3) By using loudspeaker
  - 4) By increasing gain of the receiver
37. An electronics circuits in which different components such as Diode, Resistor and Capacitor etc. are connected separately is called-
- 1) Chassis
  - 2) Printed board
  - 3) Integrated circuit
  - 4) Discrete circuit
38. Indicated power of a 4-stroke engine is equal to-
- 1)  $pLAN$
  - 2)  $2pLAN$
  - 3)  $\frac{pLAN}{2}$
  - 4)  $4pLAN$

where  $p$  = Mean effective pressure,  $L$  = Stroke,  $A$  = Area of piston and  $N$  = rpm of engine

39. What are Ferrites?  
1) Magnetic but have low resistance      2) Magnetic but have high resistance  
3) Non-magnetic with low resistance      4) Non-magnetic with high resistance
40. The translator program that converts source code in high level language into machine code line by line is called-  
1) Assembler      2) Compiler      3) Loader      4) Interpreter
41. National Library, the largest in India is located at-  
1) Chennai      2) Mumbai      3) Delhi      4) Kolkata
42. Pak Strait joins which of the following two countries-  
1) India-Pakistan      2) India-Myanmar      3) India-Sri Lanka      4) None of these
43. Who had appointed the first Prime Minister of India?  
1) Lord Mountbatten      2) C.Rajagopalachari  
3) President of India      4) None of these
44. Who had demarcated the border-line between India and Pakistan?  
1) McMahon      2) Lord Durand      3) Radcliffe      4) None of these
45. Approximate thermal efficiency of petrol engine is-  
1) 20%      2) 30%      3) 50%      4) 75%
46. Which of the following is the universal gate?  
1) NAND-Gate      2) OR-Gate      3) AND-Gate      4) NOT-Gate
47. How will a red flower appear, if it is seen through a green glass?  
1) Red      2) Brown      3) White      4) Green
48. What is the unit of electrical energy?  
1) Ampere      2) volt      3) Watt      4) Kilowatt-hour
49. A diode .....
- 1) Functions only in one direction
  - 2) Functions in both the directions
  - 3) Does not function at all
  - 4) It gets damaged, when voltage is applied
50. What is the frequency of the receiver?  
1) 488 kHz      2) 445 kHz      3) 455 kHz      4) 456 kHz
51. When were the Indian States organised on the basis of language?  
1) 1947      2) 1950      3) 1956      4) 1952

52. What would be the expenditure in 30 days at the rate of 50 paise per unit, if a bulb of 100 W is used five hours per day?
- 1) Rs.10.50      2) Rs.8.50      3) Rs.7.50      4) Rs.9.50
53. Lever functions on which of the following principles?
- 1) Crank-shaft      2) Joining rod      3) Crank pin      4) Cross head
54. Protein is not available in which of the following?
- 1) Meat      2) Milk      3) Rice      4) Pulse
55. In steam turbine the action of steam is-
- 1) Stable      2) Dynamic  
3) Stable and dynamic      4) Neither stable nor dynamic
56. Among the following statement which is the false?
- 1) Only minority impurities are added in a junction diode  
2) Higher temperature increases the leakage current of diode  
3) A simple zener diode works when connected between anode to cathode  
4) Zener is mostly used in voltage regulator
57. In resistance heating, highest working temperature is obtained from heating elements made of ....
- 1) Nickel and copper      2) Nichrome  
3) Silicon carbide      4) Silver
58. In higher pair, the relative motion is-
- 1) Purely turning      2) Purely sliding  
3) Purely rotary      4) Combination of sliding and turning
59. The least populated Stae in India is-
- 1) Goa      2) Sikkim  
3) Manipur      4) Arunachal Pradesh
60. In case of gas turbines, the gaseous fuel consumption guarantees are based on-
- 1) High heat value      2) Low heat value  
3) Net calorific value      4) Middle heat value
61. In a resistive load, power dissipation would be proportional to-
- 1) Current      2)  $\frac{1}{\text{Current}}$       3) (Current)<sup>2</sup>      4)  $\frac{1}{(\text{Current}^2)}$

62. An automatic toaster is a ..... loop control system.
- 1) Open  
2) Closed  
3) Partially closed  
4) None of the above
63. A transistor draws a base current of 100 micro ampere when the collector current is 10 milli ampere, what is value of its ' $\alpha$ '?
- 1)  $\frac{101}{100}$   
2)  $\frac{100}{101}$   
3)  $\frac{1000}{10001}$   
4)  $\frac{10}{11}$
64. Who of the following was not the acting President of India?
1. V.V.Giri  
2) B.D.Jatti  
3) Hidayatullah  
4) Zakir Hussain
65. The northern most limit of India is-
- 1)  $36^{\circ}4'$  N latitude  
2)  $37^{\circ}8'$  N latitude  
3)  $37^{\circ}6'$  N latitude  
4)  $36^{\circ}12'$  N latitude
66. When the load is above ....., a synchronous motor is found to be more economical.
- 1) 2 kW  
2) 20 kW  
3) 50 kW  
4) 100 kW
67. The first summit of NAM was held at-
- 1) Cairo  
2) Lusaka  
3) Belgrade  
4) New Delhi
68. To convert moving coil galvanometer into an ammeter, which of the following methods is used?
- 1) Small resistance in series  
2) Small resistance in parallel  
3) High resistance in series  
4) High resistance in parallel
69. Following figure shows the curves of efficiency versus compression ratio for various cycles in I.C. engines. For constant volume cycle, the curve applicable is-



- 1) A  
2) B  
3) C  
4) D

70. The minimum value of the function  $y = x^5 - 4x^4 + 5x^3 - 1$  will occur when the value of x is equal to-
- 1) 0  
2) 1  
3) 2  
4) 3

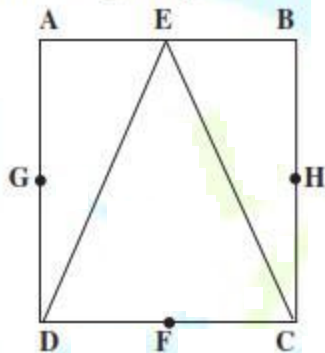
71. Which one of the natural regions is known as the 'Bread Basket' of the world?
- 1) The steppe region
  - 2) The mediterranean region
  - 3) The monsoon region
  - 4) The equatorial region
72. When input signal in transistor amplifier is applied between base and emitter and out put is taken from emitter and collector, then what the configuration is called?
- 1) Common emitter
  - 2) Common base
  - 3) Common collector
  - 4) None of these
73. Which of the following can be used to control the speed of a D.C. motor?
- 1) Thermistor
  - 2) Thyristor
  - 3) Thyatron
  - 4) Transistor
74. The transient response of a system is mainly due to-
- 1) Inertia forces
  - 2) Internal forces
  - 3) Stored energy
  - 4) Friction
75. Minority carrier in P-type semi-conductor are-
- 1) Free electrons
  - 2) Free holes
  - 3) Holes and electrons both
  - 4) Holes minus electrons
76. Pulley in a belt drive acts as-
- 1) Cylindrical pair
  - 2) Turning pair
  - 3) Rolling pair
  - 4) Sliding pair
77. D.C. shunt relays are made of-
- 1) Few turns of thin wire
  - 2) Few turns of thick wire
  - 3) Many turns of thin wire
  - 4) Many turns of thick wire
78. The movement that came to an abrupt end due to the Chauri-chaura incident was the-
- 1) Wahabi Movement
  - 2) Home rule movement
  - 3) Non-cooperation movement
  - 4) Civil disobedience movement
79. While checked with a multimeter, an open resistor reads-
- 1) Zero
  - 2) Infinite
  - 3) High but within tolerance
  - 4) Low but not zero
80. In amplitude modulation-
- 1) Amplitude of the carrier is kept constant
  - 2) Change occurs in carrier frequency
  - 3) Amplitude is varied according to the instantaneous value of modulating wave
  - 4) None of these



81. Oscillator operates on sub-harmonic frequency because-
- 1) Lower frequency gives better stability
  - 2) It gives linear out put
  - 3) Less stages are used
  - 4) More stages are used
82. Hopkinson's test on D.C. machines is conducted at-
- 1) No-load
  - 2) part load
  - 3) Full-load
  - 4) Over load
83. Emitter follower is also called as-
- 1) Common emitter
  - 2) Common base
  - 3) Common collector
  - 4) SCR
84. The example of lower pair is-
- 1) Shaft revolving in a bearing
  - 2) Straight line motion mechanisms
  - 3) Automobile steering gear
  - 4) All of the above
85. Which is true statement among the following?
- 1) Main function of the detector is to suppress the image signal
  - 2) Noise is very low in crystal detector
  - 3) Super-regenerative is less sensitive
  - 4) Diode detector is more sensitive
86. The first governor-General of India under East India Company was-
- 1) Cornwallis
  - 2) Wellesley
  - 3) Warren Hastings
  - 4) Sir John Shore
87. The expression  $\int p \, dV$  can be used for obtaining work of-
- 1) Non-flow reversible process
  - 2) Steady flow reversible process
  - 3) Adiabatic irreversible process
  - 4) Throttling process
88. In connection with oscillator, which is FALSE statement?
- 1) Oscillator converts d.c. into a.c.
  - 2) Oscillator is that amplifier which provides its own input
  - 3) All types of oscillator produce sine wave
  - 4) In phase, feedback used in oscillator is also called positive feedback.

89. The index of compression  $n$  tends to reach ratio of specific heats  $\gamma$  when-
- 1) flow is uniform and steady
  - 2) process is isentropic
  - 3) process is isothermal
  - 4) process is isentropic and specific heat does not change with temperature
90. Who of the following attended all the three Round Table Conferences?
- 1) B.R. Ambedkar
  - 2) M.M. Malaviya
  - 3) Vallabhbhai Patel
  - 4) None of the above
91. For which of the following substances, the internal energy and enthalpy are the functions of temperature only-
- 1) Any gas
  - 2) Saturated steam
  - 3) Water
  - 4) Perfect gas
92. Frequency multiplier stage of the transmitter operates under-
- 1) Class C
  - 2) Class A
  - 3) Class AB
  - 4) Class B
93. Which of the following is used in the blast furnace as flux?
- 1) Fluorspar
  - 2) Quartzite
  - 3) Limestone
  - 4) Ferro-manganese
94. An air vessel is usually provided at the summit of a syphon in order to-
- 1) Regulate the flow
  - 2) Increase discharge
  - 3) Avoid interruption in flow
  - 4) Increase velocity
95. An exciter for a turbo generator is a-
- 1) Separately excited generator
  - 2) Shunt generator
  - 3) Series generator
  - 4) Compound generator
96. Which of the following instruments is most accurate?
- 1) Vertical caliper
  - 2) Manometric screw gauge
  - 3) Optical projector
  - 4) Mechanical comparator
97. The value of  $\lim_{x \rightarrow 0} \frac{\sin x}{x}$  is equal to-
- 1) 1
  - 2) -1
  - 3) Zero
  - 4) Infinity

98. In the given figure we see a square ABCD and a triangle EDC within it. E, F, G and H are the midpoints of the four sides of the square AB, DC, AD and BC respectively. If these midpoints are joined together with straight lines e.g., E with F and G with H, then how many triangles will the figure have?



- 1) 9                      2) 10                      3) 11                      4) 12
99. Two generators A and B have 6-poles each. Generator A has wave wound armature while generator B has lap wound armature. The ratio of the induced e.m.f. in generator A and B will be .....
- 1) 2 : 3                      2) 3 : 1                      3) 3 : 2                      4) 1 : 3
100. A frame-structure is nice if the number of its constituents is equal to .....
- 1)  $2n-3$                       2)  $n-1$                       3)  $2n-1$                       4)  $n-2$

## ANSWERS

1-3; 2-2; 3-3; 4-2; 5-1; 6-4; 7-4; 8-4; 9-2; 10-1; 11-2; 12-4; 13-1; 14-3; 15-1; 16-1; 17-1; 18-2; 19-3; 20-1; 21-1; 22-3; 23-2; 24-3; 25-2; 26-2; 27-2; 28-3; 29-2; 30-4; 31-2; 32-2; 33-3; 34-4; 35-4; 36-4; 37-3; 38-3; 39-2; 40-2; 41-4; 42-3; 43-1; 44-3; 45-2; 46-1; 47-2; 48-4; 49-1; 50-4; 51-3; 52-3; 53-1; 54-3; 55-2; 56-1; 57-2; 58-4; 59-2; 60-3; 61-3; 62-1; 63-2; 64-4; 65-3; 66-3; 67-3; 68-2; 69-2; 70-1; 71-1; 72-1; 73-2; 74-2; 75-2; 76-1; 77-2; 78-3; 79-2; 80-3; 81-2; 82-3; 83-3; 84-2; 85-4; 86-3; 87-1; 88-3; 89-2; 90-1; 91-4; 92-1; 93-1; 94-1; 95-1; 96-3; 97-3; 98-2; 99-2; 100-1.