

## TNUSRB SI Technical – Model Question Paper 4

1. Liquefied petroleum gas(LPG) consists of mainly
  - a)Methane, ethane and Hexane
  - b)Ethane, Hexane, and Neon
  - c)Methane, Butane and Propane**
  - d)Methane Hexane and Neon
2. The fastest acting enzyme in the biological kingdom is
  - a)Lipase
  - b)Amlyse
  - c)Carboxypeptidase
  - d)Carbonic anhydrase**
3. How much of salt is present in the human body
  - a)200      b)150      **c)250**      d)400
4. How much percentage of water is found in human body?
  - a)55%      b)60%      **c)65%**      d)80%
5. Leprosy is a?
  - a)**Bacterial Disease**      b)Viral Disease
  - c)Spread from animals      d)None
6. Who found the vaccine for Tuberculosis(TB)?
  - a)Albert Calmette**      b)Albert Edwin
  - c)Chris Morgan      d)None
7. Where is Synapse present in the human body?
  - a)Digestive System      b)Excretory system
  - c)Nervous System**      d)Blood
8. Who introduced the concept of Electro Magnetic Waves?
  - a)Darwin      b)Johansen
  - c)Maxwell**      d)None
9. Which are the blood vessels that carries blood from the heart?
  - a)Artery**      b)Vein
  - c)Capillaries      d)All the above
10. One Horse Power is equal to
  - a)846 watt      **b)746 watt**
  - c)900 watt      d)750 watt
11. Where did Gandhiji announce his “Action plan of Satyagraha” against Rowlatt Act?
  - A) Delhi      B) Sabarmathi
  - C) Bombay      **D) Chennai**
12. Permanent settlement was the feature of
  - A) Zamindari system**
  - B) Mahalwari system
  - C) Ryotwari system
  - D) None of these
13. Where, the first Residential School for the Transgender was established in India?
  - (A) Delhi      (B) Chennai
  - (C) Mumbai      **(D) Kochi**
14. Which one of the following officials, has the right to speak and take part in the proceedings of either house of parliament without right to vote?
  - A) Chairman of Union Public Service Commission
  - B) Attorney General of India**
  - C) Governor
  - D) Election Commissioner
15. Red Data Book provides data on
  - A) Biota of Red sea
  - B) Infra red rays
  - C) Red pigmented plants
  - D) Endangered species**
16. Political mentor of Kamaraj was
  - A) V.O. Chidambaram Pillai
  - B) Gandhiji
  - C) Bharathiar
  - D) Sathyamoorthy**
17. India’s longest highway tunnel is
  - A) Maliguda Tunnel      B) Pir Panjal Tunnel
  - C) Banihal Tunnel      **D) Patnitop Tunnel**
18. Name the first women President of India
  - A) Smt. Fatima Beevi
  - B) Smt. Pradeepa Devi Sing Patil**

- C) Smt. Annie Besant  
D) Smt. Sarojini Naidu
19. With which country, does China describe it's ties, as 'iron brothers'?
- A) Sri Lanka                      B) Nepal  
C) **Pakistan**                      D) Indian
20. Who founded the 'Bahiskrit Hitkaraini Sabha'?
- A) Dr. Radhakrishnan  
B) Dr. Rajendra Prasad  
C) **Dr. Ambedkar**  
D) Dr. Annie Besant
21. Roger federer and Beluidia Benic won Hope man cup for Switzerland held in which country?
- A) Germany                      B) USA  
C) **Australia**                      D) France
22. India's first National Park for differently able inaugurated in which city?
- A) Bangalore                      B) **Hyderabad**  
C) Bhopal                      D) Pune
23. Which of the following airport has become the 5<sup>th</sup> airport in India having CATIIB landing system runaway OIR?
- A) **Kolkata's Netaji Subash Chandra Bose Airport**  
B) Kempe Gowda Airport, Bangalore  
C) Cochin International Airport  
D) Jawaharlal Nehru Airport Bangalore
24. D.N.A. is made up of
- a)Proteins                      b)Amino Acids  
c)**Nucleotides**                      d)None
25. Which is present in the Bacteria cell wall?
- a)Cellulose                      b)Fectose  
c)**Mucopeptide**                      d)Lactose
26. Which color of the light has the longest wavelength?
- a)Yellow                      b)**Red**  
c)Blue                      d)White
27. Where is ""Jim Corbett National Park"" (India First National park) situated?
- a)Tamil Nadu                      b)Assam
- c)**Uttrakhand**                      d)Orissa
28. What is the reason for the Blue Color Appearance of the SKY?
- a)Spectroscopy  
b)**Scattering of Light**  
c)Refraction  
d)Reflection
29. Where was Influenza(H1N1) first found?
- a)**Hong kong**                      b)Germany  
c)Singapore                      d)India
30. Which one of the following is found in the kidney stone
- a)Sodium Oxalate                      b)**Calcium Oxalate**  
c)Potassium Oxalate                      d)None
31. Which Gas is filled in the Fire Extinguisher?
- a)Oxygen                      b)**Carbon di oxide**  
c)Hydrogen                      d)Nitrogen
32. Polio virus affect Human Body through?
- a)Mosquito bite  
b)**Unsanitary food and water**  
c)Insect Bite  
d)Worms
33. How many railway stations are located in Tamil Nadu?
- a)589                      b)**536**  
c)489                      d)600
34. The train "Palace of wheels" runs in which state?
- a)West Bengal                      b)**Rajasthan**  
c)Tamil Nadu                      d)Delhi
35. To which Zone Madurai Railway station belongs to?
- a)South Eastern Railway  
b)South Central Railway  
c)**Southern Railway**  
d)Central Railway
36. Which is the 23rd State of India?
- (A) **Mizoram**                      (B) Manipur  
(C) Punjab                      (D) Odissa

37. Which is the imaginary line that passes diagonally through India?  
 a) Tropic of Capricorn      b) Polar circle  
 c) **Tropic of Cancer**      d) None
38. The Sun gets heat and light energy from  
 a) Nuclear Fission      b) **Nuclear Fusion**  
 c) Burning of Gas      d) None
39. Which is the Acid found in Ants?  
 a) Acetic Acid      b) Lactic Acid  
 c) **Formic Acid**      d) None
40. Which of the following is the lightest metal?  
 a) Mercury      b) Silver  
 c) **Lithium**      d) Lead
41. The most important ore of aluminum is  
 a) **Bauxite**      b) Calamine  
 c) Calcite      d) Galena
42. The chemical name of urea is  
 a) Aneurin      b) Chloroethane  
 c) **Carbamide**      d) None
43. Number of elected members to Lok Sabha from union territories is  
 A) 16      **B) 13**  
 C) 14      D) 15
44. 'Muhafiz' Scheme a major welfare Initiative by which state for Providing Institutionalized sector of the state?  
 A) Himachal Pradesh  
 B) **Jammu Kashmir**  
 C) Uttar Pradesh  
 D) Assam
45. The "Communal Award" was announced by  
 (A) Clouston  
 (B) Winston Churchill  
 (C) **Ramsay Macdonald**  
 (D) Bonnerman
46. Reliance Industries Ltd announced that it has commissioned and achieved design through put of the world's largest refinery off the gas at which country?  
 A) **Gujarat**      B) Rajasthan  
 C) Uttar Pradesh      D) Haryana
47. RBI Puts Allahabad Bank under Prompt Corrective Action. Allahabad Bank is the \_\_\_\_\_<sup>th</sup> Bank to face PCA.  
 A) 10      **B) 11**  
 C) 12      D) 13
48. Dhanu Yatra festival held in which state  
 A) Jharkhand      B) Chhattisgarh  
 C) Bihar      **D) Odisha**
49. If one cylinder of a diesel engine receives more fuel than the others, then for that cylinder the .....  
 a) **exhaust will be smoky**  
 b) piston rings would stick into piston grooves  
 c) scavenging occurs  
 d) engine starts overheating
50. The information is sent by CW transmitter by-  
 a) **Changing the audio frequency**  
 b) Interrupting radio signal  
 c) Using microphone  
 d) Using camera
51. What is the proper use of signal generator?  
 a) Designing      b) Testing  
 c) Repairing      **d) All the above**
52. Nasik is situated on the bank of which river?  
 a) **Godavari**      b) Narmada  
 c) Tapti      d) Shipra
53. Who started the Shaka era?  
 a) Ashoka  
 b) Chandragupta-II  
 c) **Kanishka**  
 d) Harsha
54. Where are the caves of Ajanta located?  
 a) Orissa  
 b) Kerala  
 c) **Maharashtra**  
 d) Madhya Pradesh
55. Calorie value is the least of the following materials-

- a) Coal gas                      **b) Producer gas**  
 c) Steam fiery gas              d) Oil gas
56. The colonial system of the company was formalized by-  
 a) Battle of Plassey  
**b) Battle of Buxar**  
 c) Battle of Panipat  
 d) Battle of Wand wash
57. In resistance heating, highest working temperature is obtained from heating elements made of ....  
 a) Nickel and copper              **b) Nichrome**  
 c) Silicon carbide                d) Silver
58. The least populated State in India is-  
 a) Goa

**PART -II**

61. The devices that provide the means for a computer to communicate with the user or other computers are referred to as:  
 a) CPU                                b) ALU  
**c) I/O**                                d) None of the above
62. The input and output operations are respectively similar to the operations  
 a) Read, Read                      b) Write, write  
**c) Read, write**                      d) Write, Read
63. To avoid loading during read operation, the device used is  
 a) Latch                                b) Flipflop  
 c) Buffer                                **d) Tristate buffer**
64. The ratio between differential gain and common gain is called  
 a) amplitude  
 b) Differential mode rejection  
**c) Common mode rejection**  
 d) Phase
65. The software used to drive microprocessor based systems is called:  
**a) Assembly language**  
 b) Firmware  
 c) Machine language code
66. Consider the following statements:  
 In 8085 microprocessor, data bus and address bus are multiplexed in order to

- b) Sikkim**  
 c) Manipur  
 d) Arunachal Pradesh
59. Who had appointed the first Prime Minister of India?  
**a) Lord Mountbatten**  
 b) C. Rajagopalachari  
 c) President of India  
 d) None of these
60. An electronics circuit in which different components such as Diode, Resistor and Capacitor etc. are connected separately is called-  
 a) Chassis                              b) Printed board  
**c) Integrated circuit**              d) Discrete circuit
- I) Increase the speed of microprocessor  
 II) Reduce the number of pins  
 III) Connect more peripheral chips. Which of these statements is /are correct?  
 a) I only                                **b) II only**  
 c) II & III                              d) I, II, III
67. What is the static charge that can be stored by your body as you walk across a carpet?  
 a) 300 volts                              b) 3,000 volts  
 c) 30,000 volts                        **d) Over 30,000 volts**
68. The bipolar TTL logic family that was developed to increase switching speed by preventing transistor saturation is:  
 a) Emitter –coupled logic (ECL)  
 b) Current-mode logic (CML)  
 c) Transistor – transistor logic (TTL)  
**d) Emitter – coupled logic (ECL) and transistor – transistor logic (TTL)**
69. The \_\_ ensures that only one IC is active at a time to avoid a bus conflict caused by two ICs writing different data to the same bus  
 a) Control bus  
 b) Control instruction  
**c) Address decoder**  
 d) CPU
70. Which of the following has direct addressing mode

- a)STA 4567H                      **b)STAX B**  
c)ADI,30H                        d)SUB M
71. Output of the assembler in machine codes is referred to as  
**a)Object program**  
b)Source program  
c)Macroinstruction  
d)Symbolic addressing
72. What will a design engineer do after he/she is satisfied that the design will work?  
a)Put it in a flow chart  
**b)Program a chip and test it**  
c)Give the design to a technician to verify the design  
d)Perform a vector test
73. The processor status word of 8085 microprocessor has five flags  
**a)S,Z,AC,P,CY**                      b)S,OV.AC,P,CY  
c)S,Z,OV,P,CY                      d)S,Z,AC,P,OV
74. The clock speed of 8085 is  
a)1MHZ                              b)1KHZ  
c)3.2KHZ                            d)**3.2MHz**
75. The operations executed by two or more control units are referred as  
a)Micro operations  
**b)Macro operations**  
c)Multi operations  
d)Bi control operations
76. The serial communication  
a)Cheaper communication  
b)Requires less number of conductors  
c)Slow process of communication  
**d)All of the mentioned**
77. During serial reception, the buffer that receives serial bits and converts to a byte is  
a)Receive buffer 0                      **b)Receive buffer 1**  
c)Receive buffer 1                      d)None
78. In the microcontroller is expected to communicate is multiprocessor system, then the required condition is  
a)SM0 is set                            b)SM1 I set  
**c)SM2 is set**                            d)REN is set
79. The device that enables the microprocessor to read data from the external devices is:
- a)Printer                              **b)Joystick**  
c)Display                              d)Reader
80. Convert the following decimal number to 8bit binary:187  
**a)10111011<sub>2</sub>**                              b)11011101<sub>2</sub>  
c)10111101<sub>2</sub>                              d)10111100<sub>2</sub>
81. The voltages in digital electronics are continuously variable  
a)True                                      **b)False**
82. The octal numbering system:  
a)Simplifies tasks  
b)Groups binary numbers in groups of 4  
c)Saves time  
**d)Simplifies tasks and saves time**
83. The difference of 111-001 equals  
a)100                                      b)111  
c)001                                      **d)110**
84. What is the primary motivation for using Boolean algebra to simplify logic expression  
a)It may make it easier to understand the overall function of the circuit  
b)It may reduce the number of gates  
c)It may reduce the number of inputs required  
**d)All of the above**
85. FPGA means  
**a)Field Programmable Gate Array**  
b)Forward Programmable Gate Array  
c)Forward Parallel Gate array  
d)Field Parallel Gate Array
86. Which on of the following is not a vectored interrupt?  
a)TRAP                                      b)INTR  
c)RST 7.5                                      **d)RST 3**
87. Which Boolean algebra property allows us to group operands in an expression in any order without affecting the results of the operation [For example, A+B=B+A]?  
a)Associative                                      **b)Commutative**  
c)Boolean                                      d)Distributive
88. A karnaugh map is a systematic way of reducing which type of expression  
a)Product of sums  
b)Exclusive NOR  
**c)Sum of products**



- d)Those with overbars
89. The cycle required to fetch and execute an instruction in a 8085 microprocessor is which one of the following?  
 a)Clock cycle                      b)Memory cycle  
 c)Machine cycle                    d)**Instruction cycle**
90. Which of the following will not normally be found on data sheet?  
 a)Minimum HIGH level output voltage  
 b)Maximum LOW level output voltage  
 c)**Minimum LOW level output voltage**  
 d)Maximum HIGH level; input current
91. How many 3 line to 8 line decoders are required for a 1 of 32 decoder?  
 a)1                                      b)2  
 c)**4**                                      d)8
92. Which of the following accurately represents the two BEST methods of logic circuit simplification?  
 a)**Boolean algebra and karnaugh mapping**  
 b)Karnaugh mapping and circuit waveform analysis  
 c)Actual circuit trial and error evaluation and wave form analysis  
 d)Boolean algebra and actual circuit trial and error evaluation
93. Single bit indicators that may be set or cleared to show the results of logical nor arithmetic operations are the:  
 a)**Flags**                                b)Registers  
 c)Monitors                            d)Decisions
94. The technique of assigning a memory address to each I/O device in the computer system is called:  
 a)**Memory lapped I/O**            b)Ported I/O  
 c)Dedicated I/O                    d)Wired I/O
95. What is the indication of short on the input of a load gate?  
 a)Only the output of the defective gate is affected  
 b)There is s signal loss to all gates on the node  
 c)The affected node will be stuck in the LOW state  
 d)**There is signal loss to all gates on the node, and the affected node will be stuck in the LOW state**
96. Which of the following expression is in the sum of products form?  
 a) $(A+B)(C+D)$                       b) $(AB)(CD)$   
 c) $AB(CD)$                               d) **$AB+CD$**
97. An ideal operational amplifier has  
 a)Infinite output impedance  
 b)Zero input impedance  
 c)**Infinite bandwidth**  
 d)All of the above
98. A series dissipative regulator is an example of a:  
 a)**Linear regulator**  
 b)Switching regulator  
 c)Shunt regulator  
 d)dc-to-dc converter
99. In an open loop op-amp circuit, whenever the inverting input(-) is negative relative to the non inverting input(+), the output will be  
 a)Swing negative                      b)Close loop  
 c)Be balanced                         d)**Swing positive**
100. For n bus power system size of Y bus matrix is  
 a) $(n-1)*(n-1)$                       b) $(n-2)*(n-2)$   
 c) **$n*n$**                                     d) $(n-1)(n-2)$
101. Which of the following logic families has the highest maximum clock frequency  
 a)S-TTL                                 b)**AS-TTL**  
 c)HS-TTL                                d)HCMOS
102. A20m antenna gives a certain uplink gain at frequencies of 4/6 GHz. For getting same gain in the 20/30 GHz band, antenna size required is meter  
 a)100                                      b)**4**  
 c)1                                         d)10
103. Sum of the elements of row I equal to shunt admittances connected to bus i. If this summation is zero, indicates there is no  
 a)Shunt admittance                    b)Mutual coupling  
 c)**Both 1 & 2**                         d)None of the above
104. If sparsity of a bus 5 bus transmission line is 0.4. Find the number of transmission lines?  
 a)6                                         b)**5**  
 c)4                                         d)3
105. Inductor does not allow the sudden change of  
 a)**Current**                                b)Voltage  
 c)Power                                 d)None of the above

106. 2's complement of 10101011 is  
 a) **01010101**                      b) 00111100  
 c) 10101011                      d) 10101100
107. Which among the following is not an advantage of an open loop system?  
 a) Simplicity in construction & design  
 b) Easy maintenance  
 c) Rare problems of stability  
 d) **Requirement of system recalibration from time to time**
108. How is an output represented in the control systems?  
 a)  $r(t)$                               b)  **$c(t)$**   
 c)  $x(t)$                               d)  $y(t)$
109. Which addresses are related to the processes involved in an application layer of TCP/IP architecture?  
 a) Physical (link) Addresses  
 b) Logical (IP) addresses  
 c) Port addresses  
 d) **Specific addresses**
110. Basically, poles of transfer function are the laplace transform variable values which causes the transfer function to become \_\_\_\_\_  
 a) Zero                              b) Unity  
 c) **Infinite**                              d) Average value
111. Which type of node comprises incoming as well as outgoing branches?  
 a) Source node                      b) Sink node  
 c) **Chain node**                      d) Main node
112. If the anode current is 800 A, then the amount of current required to turn off the GTO is about  
 a) 20A                              b) 600A  
 c) 400A                              d) **200A**
113. Which semi conductor device acts like a diode and two transistor?  
 a) UJT                              b) Diac  
 c) **Triac**                              d) SCR
114. Which quantity consists of a unit 1Kwh?  
 a) **Energy**                              b) Time  
 Power                              d) Charge
115. Which number system has a base of 16  
 a) Decimal                              b) Octal  
 c) **Hexadecimal**                      d) None
116. In ward-Leonard system, the lower limit of the speed imposed by  
 a) Field resistance  
 b) Armature resistance  
 c) **Residual magnetism of the generator**  
 d) None of the above
117. A latch is \_\_\_\_\_ sensitive  
 a) Both level and edge              b) Edge  
 c) **Level**                              d) None
118. Which logic family provide minimum power dissipation  
 a) TTL                              b) CMOS  
 c) ECL                              d) JFET
119. Convert the binary number(1111000011110000) to hexadecimal number  
 a) 1010                              b) **F0F0**  
 c) 7070                              d) 5050
120. In a transmitter \_\_\_\_\_ oscillator is used  
 a) Hartley                              b) RC phase shift  
 c) Wien – bridge                      d) **Crystal**
121. The most widely used 7-bit alphanumeric code is the  
 A. **ASCII**                              B. EBCDIC  
 C. Straight binary code              D. Graycode
122. What is the hex equivalent of an ASCII code which means“ HELP”?  
 A. **48 45 46 50**                      B. 4C 50 51 52  
 C. 58 57 58 48                      D. 48 45 50 50
123. A takes the complete decimal number and represents it in binary.  
 A. BCD                              B. Graycode  
 C. Excess-3code                      d) **Straight binarycode**
124. The number of input combinations will equal for an N-input truth table.  
 A.  $2N-1$                       B. N              C.  **$2^n$**               D. N-1
125. The operation result will be 1 if any one or more variables is 1.  
 A. NOT                              B. AND  
 C. **OR**                              D. NOR
126. A circuit that operates in such a way that its output is high when all its inputs are high.  
 A. OR                              B. NAND  
 C. NOR                              d) **AND**

127. .What is the only input combination that will produce a high at the output of a five-input ANDgate?  
A.At least one lowinput  
B.At least one highinput  
C.All inputs should below  
**D.All inputs should behigh**
128. The output of an inverter is connected to the input of a second inverter. Determine the output level of the secondinverter.  
A.Output level is the complement of the inputlevel  
**B.Output level is the same as the inputlevel**  
C.High output isobserved  
D.Undeterminedstate
129. .Given:  $x = A'BC (A+D)'$ . Determine the output of the circuit x if  $A = 0, B = 1, C = 1$  and  $D = 0$ .  
A.0      **B.1**      C.2      D.10
130. With OR operation,  $1 + 1 =$   
**A.1**      B.0      C.1      D.2
131. Low speed modems method of modulation isusually  
A.phase-shiftmodulation  
B.dibitmodulation  
**C.frequency shiftkeying**  
D.amplitudemodulation
132. Low speed modems generally handle data ratesbetween  
A.3000 and 9000bps      **B.300 and 2400bps**  
C.2400 and 9600bps      D.100 and 2400bps
133. The most important memory element which is made of an assembly of logic gates is called  
A.latch  
B.bistablemultivibrator  
**C.flip-flop**  
D.all of thechoices
134. What is the normal resting state of the SET and CLEAR inputs in aflip-flop  
**A.Low,high**      B.High,low  
C.High,high      D.Low,low
135. What will be the states of Q and Q' after a flip-flop has been cleared?  
A.  $Q = 1, Q' = 0$       **B.  $Q = 0, Q' = 1$**   
C.  $Q = 0, Q' = 0$       D.  $Q = 1, Q' = 1$
136. When capacitors are connected in series, the total capacitance is  
**A.Smaller than the smallestcapacitor**  
B.Smaller than the largestcapacitor  
C.Greater than any of thecapacitor  
D.Greater than the largestcapacitor
137. What theorem is generally used in the analysis of vacuumtubes?  
A.Superpositiontheorem  
B.Millman'stheorem  
**C.Thevenin'stheorem**  
D.Norton'stheorem
138. Another term of the quality factor of the resonantcircuit.  
**A.Figure ofmerit**      B.Figure ofdemerit  
C.Noise factor      D.Noisefigure
139. Which of the following represents the energy stored in acapacitor?  
**A.CV<sup>2</sup>/2**      B.2Q<sup>2</sup>/C  
C.C<sup>2</sup>/V      D.CV
140. 80. What theorem is usually used in the analysis of transistorcircuit?  
A.Superpositiontheorem  
B.Millman'stheorem  
C.Thevenin'stheorem  
**D.Norton'stheorem**
141. Which of the following capacitors has the highest cost per $\mu$ F?  
A.Plastic      B.Air  
C.Mica      **D.Electrolytic**
142. Under the conditions of maximum power transfer, a voltage source is delivering a power of 15 W to the load. What is the power generated by the source?  
A.60W      **B.30W**  
C.15W      D.4W
143. . Which of the following is neither a basic physical law nor deliverable fromone?  
**A.Ohm'slaw**  
B.Coulomb'slaw  
C.Kirchhoff's firstlaw  
D.Kirchhoff's secondlaw
144. Another term for superconductor.  
A.Genericconductor



- B.Ultraconductor  
C.Cryotron  
**D.Cryogenic conductor**
145. A circuit whose parameters change with voltage or current.  
**A.Non-linear circuit**      B.Linear circuit  
C.Complex circuit      D.Passive circuit
146. Which of the following devices uses a helix?  
A ) Klystron amplifier  
B ) Klystron oscillator  
**C ) TWT**  
D ) Both (a) and (b)
147. The diagram to show distance time history of electrons in klystron amplifier is called  
**A ) apple gate diagram**  
B ) asynchronous diagram  
C ) bunching diagram  
D ) velocity modulation diagram
148. A line has a phase constant of 29.8 rad/m. At 1000 MHz the wavelength is  
A ) 29.8 m      B ) 2.98 m  
C ) 2.1 m      **D ) 0.21 m**  
HINTS- $\lambda = 2\pi/\beta = 2 \times 3.14/29.8 = 0.21$  m
149. The action of backward wave oscillator is similar to that of  
A ) klystron amplifier  
B ) reflex klystron oscillator  
**C ) TWT**  
D ) magnetron
150. Which TM mode in rectangular waveguide has lowest cutoff frequency?  
**A ) TM<sub>11</sub>**      B ) TM<sub>01</sub>  
C ) TM<sub>10</sub>      D ) TM<sub>21</sub>
151. In a turnstile antenna two-half wave resonant wire radiators are placed at 90° to each other in the same plane and are excited  
A ) in phase  
B ) in phase opposition  
**C ) 90° out of phase with each other**  
D ) 45° out of phase with each other
152. A waveguide section in a microwave circuit acts as  
A ) LP filter      B ) Bandpass filter  
**C ) HP filter**      D ) Band stop filter
153. High speed logic circuits use  
**A . pulses with very small width**  
B. pulses with very large width  
C. pulses whose width is neither small nor large  
D . either (b) or (c)
154. To couple a coaxial line to a parallel wire line it is best to use  
A .slotted line  
**B .balun**  
C . directional coupler  
D .  $\lambda/4$  transformer
155. A balun should have  
**A ) low SWR at both ports**  
B ) high SWR at both ports  
C ) high SWR at input port and low SWR at output port  
D ) low SWR at input port and high SWR at output
156. In a TWT the loss in attenuator is  
**A ) almost equal to forward gain of tube**  
B ) much less than forward gain of tube  
C ) much higher than forward gain of tube  
D ) almost infinite
157. Klystron amplifier is not used to amplify very weak microwave signals due to  
A) low gain for weak signals  
B ) low noise for weak signals  
C ) high noise  
**D ) both (a) and (b)**
158. Which of the following modes in circular waveguides are circularly symmetric?  
A ) TE<sub>01</sub>  
B ) TE<sub>02</sub>  
**C ) both (a) and (b)**  
D ) neither (a) nor (b)
159. FM has poor efficiency than  
A ) AM      **B ) AM-SC**  
C ) PAM      D ) PCM
160. In which of the following schemes are several channels interleaved and transmitted together?  
A ) TDM      **B) FDM**  
C ) group      D ) subgroup

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