JNTU ONLINE EXAMINATIONS [Mid 2 - Neural Networks]

1. The Jacobian matrix is said to be _ _ _ _ _ _ _ _ _ if its rank is less than min (N, W), N total no. of examples used to train n/w, W total no. of tree parameters.
a. Efficient
b. Rank deficient
c. Zero matrix
d. Deficient

2. Hessian matrix concerned with
a. First derivative
b. Second derivative
c. Third derivative
d. Fourth derivative

3. To overcome the problem of systematic bias, we need to use _ _ _ _ _ _ _ _ _
a. Antisymmatric activation function
b. Symmetric activation function
c. Eigen values
d. Eigen vectors

4. Jacobian matrix is
a. Rank deficient
b. Rank efficient
c. Zero matrix
d. Has order only

5. The numbers of linearly independent columns or rows in the matrix, whichever one is smallest is called
a. Rank
b. Order
c. Range
d. Degree

6. Back propagation algorithm mainly uses
a. Integration rules
b. Co-ordinate geometry
c. Trigonometry
d. Partial derivatives

7. Many neural network training problems are intrinsically _ _ _ _ _ _ _ _
a. Well conditioned
b. Ill-conditioned
c. Rank deficient
d. Deficient

8. _ _ _ _ _ _ _ _ of Hessian matrix have a profound influence on the dynamics of back- propagation learning
a. Rank
b. Order
c. Eigen values
d. Range

9. _ _ _ _ _ _ _ _ _ of the Hessian matrix provides a basis for pruning
a. Rank
b. Order
c. Inverse
d. Range

10. _ _ _ _ _ _ _ _ _ is basis to the formulation of second - order optimization methods as an alternative to back-propagation learning
a. Jacobian matrix
b. Rank of Jacobian matrix
c. Order of Jacobian matrix
d. Hessian matrix

11. The learning process may be viewed as a _ _ _ _ _ _ _ problem
a. Curve-fitting
b. Over-fitting
c. Under fitting
d. Over training

12. When a network is _ _ _ _ _ _ _ _ , it loses the ability to generalize between similar Input-output patterns.
a. Over trained
b. Under trained
c. Over fitted
d. Under fitted

13. For a good generalization, the size of the training set, N must satisfy the condition Where W Total no. of free parameters,
ε Fraction of classification errors permitted on test data
O (.) Order of quality enclosed within
a. N=O (W ε)
b. N=O (ε W)
c. N=O (W*ε)
d. N= O (W+ε)

14. _ _ _ _ _ _ _ _ equation is in accordance with "Window's rule of thumb'' for the LMS algorithm Where W Total no. of free parameters,
ε Fraction of classification errors permitted on test data
O (.) Order of quality enclosed within
a. N=O (W ε)
b. N=O (ε W)
c. N=O (W*ε)
d. N= O (W+ε)

15. The curse of dimensionality was introduced by _ _ _ _ _ _ _ _
a. Richard Bellman
b. Sontag
c. Stove
d. Friedman

16. The error between the empirical fit and the best approximation may be viewed as an _ _ _ _ _ _ _ _ _ _ _ _
a. Estimation error
b. Bound error
c. Empirical error
d. Approximation error

17. Universal approximation theorem concerned with _ _ _ _ _ _ numbers of hidden layers in a multilayer perceptron with an input-output mapping.
a. Maximum
b. Minimum
c. Average
d. Total

18. In a 2-hidden layer n/w, local features are extended in _ _ _ _ _ _ _ _ _ _ layer to make the approximation process more manageable.
a. First hidden layer
b. Second hidden layer
c. I/P layer
d. O/P layer

19. In a 2-hidden layer n/w, global features are extracted in _ _ _ _ _ _ _ _ layer to make the approximation process more manageble.
a. First hidden layer
b. Second hidden layer
c. I/P layer
d. O/P layer

20. _ _ _ _ _ _ _ technique is an example of a piecewise polynomial approximation
a. Spline
b. Slice
c. Split
d. Slite

21. If N is the size of the training set and W is the number of free parameters in the network, then the condition for nonasymptotic mode is

a. N<W
b. N>30W
c. N=W
d. N < 30 W

22. If N is the size of the training set and W is the number of free parameters in the network, then the condition for asymptotic mode is
a. N<W
b. N>30W
c. N=W
d. N < 30 W

23. _ _ _ _ _ _ _ _ _ _ _ _ curve decreases monotonically for an increasing numbers of epochs in the usual manner
a. Estimation learning
b. Validation learning
c. Training
d. Testing

24. _ _ _ _ _ _ _ _ _ _ _ _ curve decreases monotonically to a minimum it then starts to increase as the training continues
a. Estimation learning
b. Validation learning
c. Training
d. Testing

25. In cross-validation, training set is future partitioned into _ _ _ _ _ _ _ disjoint subsets.
a. 2
b. 3
c. 4
d. 5

26. _ _ _ _ _ _ _ _ _ subset is used to select the model
a. Estimation
b. Validation
c. Test set data
d. Input data

27. _ _ _ _ _ _ _ _ _ _ subset is used to test or validate the model
a. Estimation
b. Validation
c. Test set data
d. Input data

28. "Validate the model on a dataset different from the one used for parameters estimation". This motivates _ _ _ _ _ _ _ _ method.
a. Cross-Validation
b. Approximation
c. Universal approximation theory
d. Back-Propagation

29. Generally _ _ _ _ _ _ _ _ _ percentage of the training set is assigned to the estimation subset.
a. 80
b. 20
c. 60
d. 50

30. Generally _ _ _ _ _ _ _ _ _ percentage of the training set is assigned to the validation subset
a. 80
b. 20
c. 60
d. 50

31. In _ _ _ _ _ _ _ _ _ _ _ method the available set of N examples is divided into K subsets, where K > 1, and K is divisible into N.
a. Multifold cross validation
b. Multistructured cross validation
c. Cross validation
d. Universal cross validation

32. Which of the following methods have highest computational complexity for complexity regulation in multilayer perceptron
a. Weight decay
b. Weight elimination
c. Approximation smoother
d. Friedman method

33. If N is the available numbers of labeled examples, _ _ _ _ _ _ _ _ examples are used to train the model in leave-one-out method
a. N-1
b. N-2
c. N/2
d. N/2 +1

34. If N is the available numbers of labeled examples, _ _ _ _ _ _ _ _ examples are used to test the model in leave-one-out method
a. N-1
b. 1
c. N/2
d. N/2 + 1

35. In leaving one out method with N labelled examples, the experimented is repeated for a total no. of _ _ _ _ _ _ _ times, each time leaving out a different example for validation
a. 1
b. N
c. N-1
d. N/2

36. In network growing, we start with _ _ _ _ _ _ _ multilayer perceptron.
a. Small
b. Large
c. Complex
d. Very large

37. In network pruning, we start with _ _ _ _ _ _ _ multilayer perceptron.
a. Small
b. Large
c. Complex
d. Very large

38. In _ _ _ _ _ _ _ _ _ _ _ procedure, all the weights in the multilayer perceptron are treated equally.
a. Weight decay
b. Weight elimination
c. Approximate smoother
d. Hessian matrix

39. Which method distinguishes between the roles of synaptic weights in the hidden layer and those in the output layer
a. Weight decay
b. Weight elimination
c. Approximate smoother
d. Hessian matrix

40. Which method is better for complexity regulation in multilayer perceptrons
a. Weight decay
b. Weight elimination
c. Approximation smoother
d. Friedman method

41. In a multilayer perceptron containing a total of W synaptic weights, the computational complexity of Back-Propagation algorithm is
a. O(W)
b. O(log W)
c. $O(W_2)$
d. $O(W_3)$

42. Which of the following algorithm concerned with "locality constraint"
a. Back-Propagation
b. Optimal brain surgeon algorithm
c. LMS algorithm
d. RLS algorithm

43. The sensitivity of an input-output mapping function F w.r.t. a parameter of the function, denoted by W, is defined by
a.
b.
c.
d.

44. Which of the following pair of algorithms belongs to the class of H - optimal filters
a. LMS & Back-Propagation
b. LMS & RLS
c. RLS & Back-Propagation
d. RLS & LMS / Network

45. Which of the following algorithm is stochastic in nature.
a. Back-Propagation
b. RLS
c. LMS
d. Friedman

46. _ _ _ _ _ _ _ _ _ is an application of a statistical method known as stochastic approximation.
a. RLS algorithm
b. LMS algorithm
c. Back-Propagation learning
d. Friedman learning

47. The hidden neurons of a multilayer perceptron trained with the _ _ _ _ _ _ _ _ _ algorithm plays a critical role as feature detectors.
a. RLS
b. LMS
c. Back-Propagation
d. Friedman

48. Which of the following algorithm is an example of a connectionist paradigm
a. Back-Propagation
b. Optimal brain surgeon algorithm
c. LMS algorithm
d. RLS algorithm

49. "Predicate Order" is used to measure _ _ _ _ _ _ _ _ of a computational task
a. Robustness
b. Local minima
c. Convergence
d. Size or complexity

50. _ _ _ _ _ _ _ _ _ _ is basically a hill climbing technique.
a. Back-Propagation
b. Training
c. Testing
d. Validation

51. Computational complexity of Quasi-Network method, where W is the size of weight vector w.
a. O (W)
b. O (W^2)
c. O (log W)
d. O (W^3)

52. Among second order optimization methods, which is applicable to large scale problems.
a. Conjugate-gradient method
b. Steepest descent method
c. Quasi-network method
d. Newton's method

53. Conjugate-gradient method belongs to a class of _ _ _ _ _ _ _ _ _ order optimization methods.
a. First
b. Second
c. Third
d. Fourth

54. _ _ _ _ _ _ _ _ _ _ is an iterative procedure that generates a sequence of estimates for each iteration of the conjugate-gradient algorithm.
a. Back-Propagation
b. Forward Propagation
c. Newton's method
d. Line search Algorithm

55. Computational complexity of the conjugate-gradient method, where W is the size of the weight vector w.
a. O (W)
b. O (W^2)
c. O (log W)
d. O (W^3)

56. Conjugate-direction methods are _ _ _ _ _ _ _ order optimization methods.
a. First
b. Second
c. Third
d. Fourth

57. Any line search algorithm has _ _ _ _ _ _ _ _ _ phases.
a. 1
b. 2
c. 3
d. 4

58. _ _ _ _ _ _ _ _ _ _ phases of a line search algorithm searches for a bracket.
a. Sectioning
b. Bracketing
c. Third
d. Fourth

59. In _ _ _ _ _ _ _ _ _ _ phases of a line search algorithm, the bracket is sectioned (divided).
a. Sectioning
b. Bracketing
c. Third
d. Fourth

60. Quasi-Network method use _ _ _ _ _ _ order (curvature) information about the error surface without actually requiring knowledge of the Hessian matrix H.
a. First
b. Second
c. Third
d. Fourth

61. _ _ _ _ _ _ _ _ _ _ model is specialized to mapping where the input dimension is the same as the output dimension.
a. Kohonen model
b. Willshaw-Vonder model
c. Luttrel model
d. Spatial

62. Kohonen model belongs to the class of _ _ _ _ _ _ _ _ _ algorithms.
a. Vector-decoding
b. Vector-encoding
c. Vector-coding
d. Scalar-coding

63. _ _ _ _ _ _ _ _ _ _ _ model facilitates data compression.
a. Kohnen model
b. Willshaw-Vanders model
c. Luttrel model
d. Spatial

64. Which model contains 2 separate two-dimensional lattices of neurons connected together, with one projecting onto the other.
a. Kohonen model
b. Willshaw-Vonder model
c. Luttrel model
d. Spatial

65. Self-Organizing maps are based on _ _ _ _ _ _ _ _ _ _ .

a. Complexity learning
b. Competitive learning
c. Winnees learning
d. Winnees training

66. Kohonen model is an example of _ _ _ _ _ _ _ _ _ _ _ .
a. Feature mapping model
b. Feature abstraction model
c. Feature selection model
d. Feature training model

67. Kohonen model can be derived in _ _ _ _ _ _ ways.
a. 1
b. 2
c. 3
d. 4

68. _ _ _ _ _ _ _ _ _ _ approach uses a model involving an encoder and a decoder.
a. Vector quantization
b. Scalar Quantization
c. Self-organization
d. Feature mapping

69. In Willshaw-vonder model, input neurons are called as _ _ _ _ _ _ _ _ neurons.
a. Presynaptic
b. Postsynaptic
c. Preexisting
d. Post existing

70. In Willshaw-vonder, output neurons are called as _ _ _ _ _ _ _ _ neurons.
a. Presynaptic
b. Postsynaptic
c. Preexisting
d. Post existing

71. Once the network has been properly initialized, what are the essential processes involved in the formation of self-organizing map.
a. Competition, Selection, Cooperation
b. Competition, Projection, Cooperation
c. Competition, Cooperation, Synaptic adaptation
d. Coupetets, Selection, Adaptation

72. _ _ _ _ _ _ _ _ _ _ _ _ provides the basis for competition among the neurons.
a. Electron
b. Selection
c. Discriminant function
d. Logarithmic function

73. In _ _ _ _ _ _ _ _ _ _ _ process, the winning neuron determines the spatial location of a topological neighborhood of excited neurons.
a. Competition
b. Cooperation
c. Synaptic Adaptation
d. Selection

74. _ _ _ _ _ _ _ _ _ process enables the excited neurons to increase their individual values of the discriminant function in relation to the input pattern.
a. Competition
b. Cooperation
c. Synaptic Adaptation
d. Selection

75. In which phase of the adaptive process topological ordering of the weight vectors takes place
a. Convergence
b. Self-organizing
c. Third
d. Fourth

76. Which phase of the adaptive process is needed to fine tune the feature map
a. Convergence
b. Self-organizing
c. Third
d. Fourth

77. Random numbers generator is used for _ _ _ _ _ _ _ _ in the network.
a. Initializing synaptic weights
b. Competition
c. Cooperation
d. Synaptic adaptation

78. Once the network has been properly initialized, these are _ _ _ _ _ _ _ _ _ _ essential processes involved in the formation of self-organizing map.
a. 2
b. 3
c. 4
d. 5

79. Winner neuron can be declared in _ _ _ _ _ _ _ _ _ process
a. Competition
b. Cooperation
c. Synaptic Adaptation
d. Selection

80. Adaptive process is divided into _ _ _ _ _ _ _ _ phases.
a. 2
b. 3
c. 4
d. 5

81. As a general rule, the number of iterative constituting the convergence phase must be at least _ _ _ _ _ _ _ _ _ _ _ _ times the number of neurons in the network.
a. 100
b. 200
c. 400
d. 500

82. The ordering phase may take as many as _ _ _ _ _ _ _ _ _ iterations of the SOM algorithm and possibly more.
a. 200
b. 500
c. 1000
d. 2000

83. What are the 3 basic steps involved in the application of the SOM algorithm after initialization .
a. Ordering, Sampling, Updating
b. Ordering, Organizing, Updating
c. Sampling, similarity matching, Updating
d. Matching, Updating, Ordering

84. In which step of the SOM algorithm, a sample is drawn from the input space with a certain probability.
a. Initialization
b. Sampling
c. Similarity matching
d. Updating

85. In which step of the SOM algorithm, best-matching (winning) neuron can be found.
a. Initialization
b. Sampling
c. Similarity matching
d. Updating

86. In which step of the SOM algorithm, the synaptic weight vectors of all neurons are adjusted by using the update formula.
a. Initialization
b. Sampling
c. Similarity matching
d. Updating

87. The Self-organizing phase of adaptive process is also called as _ _ _ _ _ _ _ _ _ _ _ .
a. Ordering phase

b. Convergence phase
c. Divergence phase
d. Unordering phase

88. How many basis steps involved in the application of the SOM algorithm after initialization.
a. 2
b. 3
c. 4
d. 5

89. In which step of the SOM algorithm random values are chosen for the initial weights vectors.
a. Initialization
b. Sampling
c. Similarity matching
d. Updating

90. In SOM algorithm, best matching neurons can be found by using _ _ _ _ _ _ _ _ criterion.
a. Minimum-distance Euclidean
b. Minimum-distance Manhattan
c. Maximum cohesion
d. Maximum cohence

91. The feature map computed by the SOM algorithm tends to _ _ _ _ _ _ _ _ regions of _ _ _ _ _ _ _ _ input density.
a. Overrepresent, Low
b. Overrepresent, High
c. Underrepresent, Low
d. Underrepresent, Very Low

92. The _ _ _ _ _ _ _ _ _ _ _ _ computed by the SOM algorithm displays important stastical Characteristics of the input space.
a. Feature map
b. Weight vector
c. Activation pattern
d. Learning rate parameter

93. _ _ _ _ _ _ _ _ _ algorithm provides a good approximation to the input space.
a. Friedman
b. Ritter
c. Luttrell
d. SOM

94. Self-organizing features maps can be viewed as a _ _ _ _ _ _ _ _ generalization of principal components analysis.
a. Linear
b. Nonlinear
c. Polynomial
d. Nonpolynomial

95. The necessary conditions for the minimization of the expected distortion are embodied in the _ _ _ _ _ _ _ _ _ _ _ algorithm
a. Generalized Lloyd algorithm
b. Nearest-neighbors
c. APEX
d. LMS

96. _ _ _ _ _ _ _ _ _ _ _ _ _ _ is the output of the SOM algorithm.
a. Feature map
b. Weight vector
c. Activation pattern
d. Learning rate parameter

97. In feature map, the input space is _ _ _ _ _ _ _ _ _ _ .
a. Continuous
b. Discrete
c. Countinuous and discrete
d. Empty

98. In feature map, the output space is _ _ _ _ _ _ _ _ .
a. Continuous
b. Discrete
c. Countinuous and discrete
d. Empty

99. SOM algorithm is _ _ _ _ _ _ _ _ _ _ _ _ _ algorithm.
a. Vector Quantization
b. Scalar Quantization
c. Weight Quantization
d. Learning Quantization

100. _ _ _ _ _ _ _ _ algorithm is closely related to the SOM algorithm.
a. Generalized Lloyd algorithm
b. Nearest-neighbors
c. APEX
d. LMS

101. The second step in pattern classification is _ _ _ _ _ _ _ _ _ _ .
a. Feature selection
b. Classification
c. Feature Projection
d. Clustering

102. The combination of a self-organizing map and a supervised learning scheme Forms the basis of an _ _ _ _ _ _ _ _ _ _ _ _ .
a. Pattern recognition
b. Clustering
c. Adaptive pattern classification
d. Feature selection

103. Adaptive pattern classification is _ _ _ _ _ _ _ _ _ in nature.
a. Monolithic
b. Hybrid
c. Linear
d. Non linear

104. _ _ _ _ _ _ _ _ _ _ _ is a technique that exploits the underlying structure of input vector for the purpose of data compression.
a. Vector Quantization
b. Scalar Quantization
c. Winner Selection
d. Vector Selection

105. The first and most important step in pattern classification is _ _ _ _ _ _ _ _ .
a. Feature selection
b. Classification
c. Feature Projection
d. Clustering

106. The collection of possible reproduction vector is called _ _ _ _ _ _ _ of the quantizer.
a. Code Text
b. Text Code
c. Code Book
d. Code Words

107. Members of the code book are called _ _ _ _ _ _ _ _ _ .
a. Sentences
b. Code words
c. Letters
d. Code text

108. A vector quantizer with minimum encoding distortion is called a _ _ _ _ _ _ _ _ _ .
a. Voronoi
b. Code book
c. Code word
d. Code vector

109. Nearest-neighbor quantizer is also called as _ _ _ _ _ _ _ _ _ _ _ _ _ .
a. Voronoi
b. Code book
c. Code word
d. Code vector

110. LVQ is a _ _ _ _ _ _ _ _ _ _ _ _ Technique.

a. Unsupervised Learning
b. Supervised Learning
c. Supervised Training
d. Unsupervised Training

111. LVQ technique uses _ _ _ _ _ _ _ _ _ information to move the Voronoi vectors.
a. Class
b. Vector
c. Feature
d. Label

112. The way in which time can be built into the operation of a neural network in an implicit manner is through the use of _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ .
a. Feedback
b. Quantization
c. Memory Segmentation
d. Vector Quantization

113. The subject of neural networks viewed as nonlinear dynamical systems with particular emphasis on the stability problem is referred to as _ _ _ _ _ _ _ _ _ .
a. Dynamics
b. Neurodynamics
c. Network dynamics
d. Neuro stabilism

114. There are _ _ _ _ _ _ _ _ _ _ _ _ _ _ ways of applying feedback to a neural network.
a. 2
b. 3
c. 4
d. 5

115. _ _ _ _ _ _ _ _ _ _ _ _ feedback is applied at the level of a single neuron in side the network.
a. Local
b. Global
c. Forward
d. Backward

116. Which feedback encompasses the whole network.
a. Local
b. Global
c. Forward
d. Backward

117. Neural networks with one or more feedback loops are referred to as _ _ _ _ _ _ _ _ .
a. Recursive networks
b. Redundant networks
c. Recurrent networks
d. Real networks

118. Neurodynamics need a _ _ _ _ _ _ _ _ _ for describing the dynamics of a nonlinear system.
a. Mathematical model
b. Dynamic model
c. Static model
d. Encoder-decoder model

119. State-space model is a _ _ _ _ _ _ _ _ _ _ _ _ .
a. Mathematical model
b. Dynamic model
c. Static model
d. Encoder-decoder model

120. Which of the following model uses state variables
a. State-space model
b. Encoder-decoder model
c. Static model
d. Dynamic model

121. How many trajectories will pass through an initial state for an autonomous system.
a. 1
b. 2
c. 3
d. 4

122. The motion of the space of states with in itself is called _ _ _ _ _ _ _ _ of a dynamical system
a. State motion
b. Space motion
c. Space protract
d. Flow

123. If x and u are a pair of vectors in an open set and F(x) be a vector function and denote the noun of the vector x then which of the following is the Lipschitz condition
a.
b.
c. F (x) - F (u) > K x - u
d.

124. The curve which represents the changes in the state of the system with time t is called _ _ _ _ _ _ _ _ _ .
a. Trajectory
b. Tangent vector
c. State curve
d. Time curve

125. Trajectory of a system is also called as _ _ _ _ _ _ _ _ _ _ .
a. Orbit
b. Tangent vector
c. State curve
d. Time curve

126. The instantaneous velocity of the trajectory is represented by _ _ _ _ _ _ _ _ _ _ _ _ .
a. Orbit
b. Tangent vector
c. State curve
d. Time curve

127. The family of trajectories, for different initial conditions is referred to as the _ _ _ _ _ _ _ of the system.
a. System portrait
b. Space portrait
c. State portrait
d. Vector portrait

128. A nonlinear dynamical systems for which the vector function F(x (t)) does not depend explicitly on time t is said to be _ _ _ _ _ _ _ _ .
a. Non autonomous
b. Autonomous
c. Strict
d. Anotony

129. A nonlinear dynamical system for which the vector function F(x (t)) depend explicitly on time t is said to be _ _ _ _ _ _ _ _ _ .
a. Non autonomous
b. Autonomous
c. Strict
d. Anotony

130. A dynamical system is a system whose state varies with _ _ _ _ _ _ _ _ _ _ _ .
a. Time
b. Level
c. Speed
d. Size

131. The Equilibrium state is said to be _ _ _ _ _ _ _ _ _ stable if it is both stable and convergent
a. Asymptotically
b. Symptotically
c. Equally
d. Unequally

132. If type of Equilibrium state is stable node, then Eigen values of the Jacobian matrix are
a. Real and Positive
b. Real and Negative
c. Real with opposite sign

d. Conjugate purely imaginary

133. If type of Equilibrium sate is Unstable node, then Eigen values of the Jacobian matrix are

a. Real and Positive

b. Real and Negative

c. Real with opposite sign

d. Conjugate purely imaginary

134. If type of Equilibrium sate is Saddle node, then Eigen values of the Jacobian matrix are

a. Real and Positive

b. Real and Negative

c. Real with opposite sign

d. Conjugate purely imaginary

135. If type of Equilibrium sate is Center, then Eigen values of the Jacobian matrix are

a. Real and Positive

b. Real and Negative

c. Real with opposite sign

d. Conjugate purely imaginary

136. Modern stability theory was founded by _ _ _ _ _ _ _ _ _ _ .

a. Cook

b. Lyapunov

c. Ott

d. Peretto

137. Direct method of Lyapunov makes use of a function called _ _ _ _ _ _ _ _ _ .

a. Lyapunov function

b. Positive definite function

c. Negative definite function

d. Asymptotic function

138. A constant vector x ε M is said to be in _ _ _ _ _ _ _ _ _ _ state of the system if F(x)=O, Where O is the null vector.

a. Moving state

b. Normal

c. Equilibrium

d. accelerating

139. Equilibrium state is also called as _ _ _ _ _ state

a. Stationary

b. Rotating

c. Normal

d. Equal

140. The Equilibrium state is also referred to as a _ _ _ _ _ _ _ _ _ _ .

a. Equal state

b. Normal point

c. Equal point

d. Singular point

141. The manifold which consist of a single point in the state space is concerned With _ _ _ _ _ _ _ _ .

a. Point attractor

b. Limit cycle

c. Basin

d. Separatrix

142. Each attractor is encompassed by a distinct region of its own such a region is called _ _ _ _ _ _ of attraction.

a. Point attractor

b. Limit cycle

c. Basin

d. Separatrix

143. An attraction is said to be _ _ _ _ _ _ _ _ if all the eigen values of the Jacobian matrix have an absolute value less than 1.

a. Point

b. Circus

c. Hyperbolic

d. Linear

144. _ _ _ _ _ _ _ _ attractors are of particular intrest in the study of a problem known as the vanishing gradients problem.

a. Point

b. Circus

c. Hyperbolic

d. Linear

145. Vanishing gradient problem arises in dynamically driven _ _ _ _ _ _ networks.

a. Redundant

b. Recurrent

c. Repeated

d. Reply

146. A limit cycle constitutes an oscillatory behaviour that marises when an equilibrium point of a nonlinear system becomes _ _ _ _ _ _ _ _ .

a. Stable

b. Unstable

c. Steady

d. Ready

147. Basin of attraction is also called as _ _ _ _ _ _ of attraction.

a. Domain

b. Separatrix

c. Point

d. Limit cycle

148. The boundary separating one basin of attraction from another is called a _ _ _ _ _ .

a. Domain

b. Separatrix

c. Point

d. Limit cycle

149. Limit cycle are particularly characteristic of _ _ _ _ _ _ _ _ order systems.

a. First

b. Second

c. Third

d. Fourth

150. Manifolds are called as _ _ _ _ _ _ _ _ _ _ _ .

a. Attractors

b. Basins

c. Domains

d. Separatrix

151. Which of the following is not a characteristic of the neurodynamic system

a. Linearly

b. Non linearly

c. Dissipative

d. Noise

152. Additive & related neurodynamic models are related to each other by _ _ _ _ _ _ , _ _ _ _ _ _ transformation.

a. Linear, Invertible

b. Nonlinear, Invertible

c. Nonlinear, Noninvertible

d. Linear, Noninvertible

153. Which of the following model uses Kirchhoff's current law.

a. Additive

b. Related

c. Encoder-decoder

d. Redundant

154. The Hopfield network and Brain-state-in-a-box model are example of an _ _ _ _ _ Memory with no hidden neurons.

a. Random

b. Non-volatile

c. Secondary

d. Associative

155. Which model is concerned with the concept of "Energy Minimization"

a. Additive

b. Encoder-Decoder

c. Hopfield
d. Related
156. The human cortex possess about _ _ _ _ _ _ _ billion neurons.
a. 10
b. 20
c. 30
d. 50
157. A neurodynamical system is _ _ _ _ _ _ _ .
a. Linear
b. Non-linear
c. Unstable
d. Redundant
158. A neurodynamical system is _ _ _ _ _ _ _ .
a. Dissipative
b. Linear
c. Unstable
d. Redundant
159. Which model is useful for clustering types of applications
a. Brain-state-in-a-box
b. Hopfield
c. Additive
d. Encoder-Decoder
160. In Hopfield network the number of feedback loops is _ _ _ _ _ _ _ _ _ to the number of neurons.
a. 2 times
b. 3 times
c. Equal
d. 5 times
161. The presence _ _ _ _ _ _ _ _ surface is an intrinsic characteristic of the Hopfield network.
a. Full
b. Partial
c. Null
d. Half
162. _ _ _ _ _ _ _ _ _ states represent stable states of the Hopfield network that are different from the fundamentals memories of the network.
a. Attractors
b. Spurious
c. Fundamentals
d. Final
163. _ _ _ _ _ _ _ _ _ model is useful as a content addressable memory.
a. Hopfield network
b. Brain-state-in-a-box
c. Additive
d. Encoder-decoder
164. _ _ _ _ _ _ _ _ _ _ model is useful as an analog computer for solving combinational-type Optimization problems.
a. Hopfield network
b. Brain-state-in-a-box
c. Additive
d. Encoder-decoder
165. Which of the following is energy minimization model
a. Additive
b. Hopfield network
c. Encoder-decoder
d. Related
166. The Hopfield network can be operated in _ _ _ _ _ _ _ _ models depending on the model adopted for describing the neurons.
a. 2
b. 3
c. 4
d. 5
167. The continuous mode of Hopfield network is based on _ _ _ _ _ _ _ _ _ model.
a. Additive
b. McCulloch-Pitts
c. Encoder-decoder
d. Redundant
168. The discrete mode of Hopfield network is based on _ _ _ _ _ _ _ _ model.
a. Additive
b. McCulloch-Pitts
c. Encoder-decoder
d. Redundant
169. There are _ _ _ _ _ _ _ _ phases to the operation of the discrete Hopfield network as a contentaddressable memory.
a. 2
b. 3
c. 4
d. 5
170. At what value of load parameter, Hopfield network breaks down.
a. 0.51
b. 0.75
c. 0.14
d. 1.57
171. Fundamental memories are also called as _ _ _ _ _ _ _ _ _ .
a. Prototype spaces
b. Prototype states
c. State spaces
d. Fixed memories
172. The reciprocal of signal to noise ratio is called _ _ _ _ _ _ _ _ _ _ .
a. Load parameters
b. Critical value
c. Central limit
d. Vector projector
173. The signal-to-noise ration is represented by _ _ _ _ _ _ _ _ _ .
a. α
b. β
c. ρ
d. γ
174. Hopfield network breaks down at _ _ _ _ _ _ _ _ _ _ .
a. Critical value
b. Central limit
c. Limit value
d. Central value
175. A major limitation of the Hopfield network is _ _ _ _ _ _ _ .
a. Its storage capacity must be maintained small
b. Its storage capacity must be maintained large
c. Its complexity
d. Its scalability
176. The attractor fixed points of the state space of the network are the _ _ _ _ _ _ _ of the network.
a. Fundamental memories
b. Fixed memories
c. Associate memories
d. Secondary memories
177. Load parameter is represented by _ _ _ _ _ _ _ _ _ _ .
a. α
b. β
c. ρ
d. γ
178. Storage capacity of the Hopfield network scales essentially _ _ _ _ _ with the size of the network.
a. Linearly
b. Non-linearly
c. Randomly

d. Inversly

179. Manifold are called as _ _ _ _ _ _ _ _ _ _ _ _ .

a. Basins

b. Attractors

c. Domains

d. Separatrie

180. Generalization does not influenced by _ _ _ _ _ _ _ _ _ _ .

a. The size of the training set

b. The architecture of the neural network

c. The physical complexity of the problem at hand

d. The size of the test set

181. In _ _ _ _ _ _ _ procedure the complexity penalty term is defined as the squared norm of the weight vector.

a. Weight decay

b. Weight elimination

c. Approximate smoothes

d. Hessian based network pruning

182. _ _ _ _ _ _ _ _ _ _ _ _ _ favor the use of parallel architectures as an efficient method for the implementation of artificial neural networks.

a. Global computations

b. Local computations

c. Synaptic connections

d. Synaptic weights

183. Back-Propagation is a specific technique for implementing _ _ _ _ _ _ _ _ _ _ in weight space for a multilayer feed forward network.

a. Gradient ascent

b. Gradient descent

c. Vector descent

d. Vector ascent

184. Each row of the Jacobian matrix corresponds to a particular example in the _ _ _ _ _ _ _ _ set.

a. Training

b. Testing

c. Validating

d. Debugging

185. The eigen structure of the Hessian matrix has a profound influence on the _ _ _ _ _ _ Properties of the LMS algorithm.

a. Convergence

b. Divergence

c. Conjugate

d. Associative

186. If is the largest eigen value of the Hessian and is it's smallest nonzero eigen value then condition number is _ _ _ _ _ _ _ .

a. /

b.

c.

d.

187. "Learning process" means _ _ _ _ _ _ _ _

a. Training of a neural networks

b. Testing of a neural networks

c. Validating of a neural networks

d. Debugging of a neural networks

188. The essence of Back-Propagation learning is to _ _ _ _ _ _ _ _ an input-output Mapping into the synaptic weights and thresholds of a multilayer perceptron.

a. Encode

b. Decode

c. Train

d. Test

189. The learning process may be viewed as a _ _ _ _ _ _ _ _ problem.

a. Over fitting

b. Overtraining

c. Curve-fitting

d. Under fitting

190. In order to produce a significant improvement in the convergence performance of a multilayer perceptron, we have to use _ _ _ _ _ _ _ _ order information in the training process.

a. Lower

b. Very lower

c. Higher

d. Medium

191. Which of the following is not a performance measure for Back-Propagation algorithm.

a. Cost function

b. Sharpe ratio

c. Reward-to-volatility ratio

d. Sensitivity ratio

192. For a given epoch of training data, the Back-Propagation algorithm operates in one of _ _ _ _ _ _ _ _ _ _ _ _ modes.

a. 2

b. 3

c. 4

d. 5

193. In _ _ _ _ _ _ _ mode of the Back-propagation algorithm the synaptic weights of all neurons in the network are adjusted on a pattern-by-pattern basis.

a. Sequential

b. Batch

c. Standard

d. Random

194. In _ _ _ _ _ _ _ _ mode, the adjustments to all synaptic weights and biases are made on epochby-epoch basis.

a. Sequential

b. Batch

c. Standard

d. Random

195. Among the 2 modes of Back-Propagation learning which mode is faster one ?

a. Random

b. Sequential

c. Stochastic

d. Batch

196. Steepest-descent method operates on the basis of a _ _ _ _ _ _ _ _ approximation the Cast function.

a. Linear

b. Non-linear

c. Quadratic

d. Polynomial

197. Sequential mode of Back-Propagation algorithm is also called as _ _ _ _ _ _ _ _ mode.

a. Batch

b. Stochastic

c. Standard

d. Sampling

198. The self-Organizing map may also be viewed as a _ _ _ _ _ _ _ _ .

a. Vector Quantizer

b. Scalar Quantizer

c. Vector Equalizer

d. Scalar Equalizer

199. In kohonen feature mapping model the output neurons are arranged in a _ _ _ _ _ _ _ _ _ _ _ _ dimentional lattice

a. two

b. three

c. One

d. four