Artificial Intelligence interview questions

1). Write a python program for drawing a flower shown below

2). Write a python program which should satisfy the following diagram:

3). In a family of four members, the father earns 30,000 and the mother earns 20,000 salary to live a life. The son earns 16,000 and the daughter earns 10,000. If all are going for a shopping to buy the following list of items for each one's interest then compare the expenditure and income for each person by writing a python program.

Chudithar – 5,000 For Daughter

Make-up-kit – 10,000 For Daughter

Movie ticket – 1500 For All

Shirt & Jean – 1000For Son

Saree – 6,000 For Mother

Groceries – 4,000 For Mother

Traveling Expense – 10,000 For All

Food & Beverages – 3,000 For All

4). Debug the code: >>print('Our good friend print') >>print = 77. If you see here, the reserved word is used as a variable. Whether the statement print = 77 is correct? If it is correct, justify the reason.

5). X is the input layer which contains the numbers from 0-9 and b is the bias. W is the weight and Y is the output of the network in which the number 8 when given as input will come as "eight" in words.

Mention what type of library function is used for classification technique and why?

Explain the training methodology.

Debug the code: >>import tensorflow as tf

7). What is wrong in the above code?

8). What is the system bit that is required to install tensorflow on windows and why?

9). Why is convolutional neural network prescribed for image processing rather than other types of neural networks?

10). What is the difference between Machine learning and Artificial Intelligence?

11). What are the two different categories of a Deep learning AMI?

12).What happens when we terminate the instance in AWS account?

13).What are the libraries that are already available in a deep learning AMI?

14).How to get connected to the Amazon server using putty?

15). What is the use of MxNet?

16). How to find the boundary line for classifying two objects in a neural network?

17). Describe about Classical AI & Weak AI?

18). What is a production rule consist of and the which search method take a less memory?

19). How A* algorithm is works with search method?

20). What is Heruistic Function & How Neural Networks working in AI?

21). How the Strong AI & Statistical AI works?

22). How to resolve a problem with the Game Playing Problem Methodology?

23). Simple Explanation about Alternate, Artificial, Compound and Natural Key?

24). What is an Agent and How Partial Order or Planning Involve?

25). On How many ways we can construct a plan and which property is considered as not a desirable property of a logical rule-based system?

26). How the Generality and Top-Down Parser works?

27). How FOPL works in AI?

28). How AI perform against Frames and Scripts?

29). Describe the Building Mehtodology of Bayesian Network and Bayes Model with resepect to AI?

30). Breif the Literal that help for top-down inductive learning methods?

31). What is Hidden Markov Model & Signal Flow In Speech Recoginition?

32). Which is the similar operation performed by the drop-out in neural network?

33) . How a neural networks became a universal function approximators?

34) . What are the possible reasons for slow learning rate in the Neural networks?

35). Comment on batch Normalization?

36). What are the different NLP tasks deep learning can be applied?

37). What are the disadvantages of representing the words with one hot vectors?

38). Simple explanation of one hot representation to lower dimension conversion?

39). How dropout is different from regularization related?

40). How BPTT varies from vanilla backpropagation?

41). What is the way of dealing with "Exploding Gradient" problem in RNNs?

42). What is advantage of pooling layer in convolutional neural networks?

43). Can RNN be unfolded into full CNN with infinite length?

44). Which of the following data augmentation technique would you prefer for an object recognition problem?

45). Size of Convolution kernel would necessarily increase the performance of CNN?

46). Why do we prefer LSTM over RNN?

47). What are techniques can be used for the keyword normalization?

48). Features used for accuracy improvement of in NLP classification model?

49). What is the major difference between CRF (Conditional Random Field) and HMM (Hidden Markov Model)?

50). What is generally the sequence followed when building a neural network architecture for semantic segmentation for image?

51). Can Normal Neural Network has long term dependencies on the Sentences?

52). How the new states can be generated in genetic algorithm. Choose option?

53). What is the main focus area of artificial intelligence?

54). The most primary method that people use to sense their surrounding is:

55). Where Natural language understanding applications can be seen:

56). Which algorithm that are to some extent similar to backward chaining algorithm?

57). For building a bayes model, how many terms are required?

58). Which among the following specifies the prior probability of each utterance?

59). How can you evaluate 1.25 + sqrt (144) in LISP?

60). Answer True or False: Zero sum games are the one in which there are two agents whose actions is most alternate and in which the utility values at the end of the game are always the same.

62). Describe Game Theory with AI Relation?

63). How an AI can find Conference Information?

64). How Relational Knowledge used in AI?

65). Describe the methodology of Inheritable Knowledge in AI?

66). How NLP works against AI?

67). Describe about Supervised Learning?

68). State the Unsupervised Learning?

69). In Which Scenario AI Accomplished?

70). How the Semantic Analysis used in AI?

71). What is PERCEPTRON?

72). Define backpropagation?

73). One of the primary purposes of using activation function is to find non-linear decision surface?

74). If the number of input and output nodes are 8 and 2 respectively. What should be the number of nodes in the hidden layer according to geometric pyramid rule?

75). Is the output range of the sigmoid activation function is (0,1)?

76). Is the output range of tangent activation function is (-1,0)?

77). A multi-layer neural network can address the XOR problem?

78) Momentum is used to diminish the fluctuations in weight changes. Is the statement true or false?

79). Recurrent Neural Network can handle various length of the input sequence. Is the statement true or false?

80). Recurrent neural networks have different weights at different times. Is the statement true or false?

81). DL overcomes bias and variance by using large datasets, building small nets and using large regularizations. Is the statement true or false?

82). What information is to be thrown away from cell state?

83). How much information is to be added to cell state?

84). How much of context has to be taken into the next state?

85). Which of the following techniques can be used when more contexts are needed?

86). Problem: Image Recognition of a crack on the walls. Synthesized data: 1000000 images of cracks and non-cracked. Real Data: 10000 cracks captured in a real scenario. Which of the following is the best split?

87). What is Activation function for a multi-category classification?

88). If a linear programming problem has a solution at all, it will have a solution at some corner of the feasible region

89). The conditional probability exists when one event is dependent on another. Is the statement true or false?

90). For solving the integer programming problem using linear programming technique, we round-off the numeric solution? Is the statement true or false?

91). Every LP problem has a solution. Is the statement true or false?

92). In linear programming, what is objective function and constraints?

93). Give a valid objective function for a linear programming problem?

94). When the problem involves the allocation of n different facilities to n different tasks, it is often termed as?

95). Maximize $Z = 3x + 4y$. Subject to the constraints: $x + y <= 4$, $x >= 0$, $y >= 0$. What is the max value of Z?

96). On what the number of constraints in dual depends on?

97). Name any one of the problem with Neural Networks with more layers.

98). Auto-encoders are a supervised learning algorithm. Is the statement true or false?

99). Which technique performs similar operations as a dropout in a neural network?

100). In Deep Learning, back propagation uses which method?

101). Which of the following gives non-linearity to a neural network?

102). What is a dead unit in a neural network?

103). Why Batch Normalization is helpful?

104). When we incorrectly reject a true null hypothesis Type, I error occurs. Is the statement true or false?

105). A Type II error occurs when we incorrectly fail to reject a false null hypothesis. Is the statement true or false?

106). Statistical power is the probability of rejecting the null when it is false. Is the statement true or false?

107). A normally distributed population has mean 16. Consider all samples of size 7 and standard deviation 's'. The values of $(mean(x) - 16)/ (s/sqrt(7))$ are distributed as?

108). The t-distributions are skewed or symmetrical.

109). A random sample of size n = 25 is drawn from a population with mu = 50 and sigma = 10. If the mean of the sample is 45, what is sampling distribution mean of the sample mean?

110). T-distribution has a variance: can be less than or greater than one or always greater than one?

111). At 90% confidence level, what is the probability of type-I error?

112). What is the X2 test for independence?

113). An ANOVA is applied to data obtained from 6 samples where each sample contains 20 observations. What are Degrees of freedom for the critical value of F?

114). Continuity correction for x <= 7 would be.

115). For Independent observations X and Y, Var(X-Y) =……?

116). The correct set of definitions for the following symbols: $\mu \ \sigma \ \bar{x} \ s$ is.

117). The presence of an outlier has more impact on the median than the mean. Is the statement true or false?

118). What is the use of Q-Q plot?

119). Higher standard deviation usually implies higher consistency. Is the statement true or false?