

# CBSE | DEPARTMENT OF SKILL EDUCATION

## ARTIFICIAL INTELLIGENCE (SUBJECT CODE 843)

### CLASS XII (SESSION 2021-2022) BLUE-PRINT FOR SAMPLE QUESTION PAPER FOR TERM -1

Max. Time Allowed: 60 Minutes (1 Hr.)

Max. Marks: 25

#### PART A - EMPLOYABILITY SKILLS (05 MARKS):

UNIT NO.	NAME OF THE UNIT	NO. OF QUESTIONS (1 MARK EACH)
1	Communication Skills-IV	2
2	Self-Management Skills-IV	2
3	Information and Communication Technology Skills-IV	2
TOTAL QUESTIONS		6 Questions
NO. OF QUESTIONS TO BE ANSWERED		Any 5 Questions
TOTAL MARKS		1 x 5 = 5 marks

#### PART B - SUBJECT SPECIFIC SKILLS (20 MARKS):

UNIT NO.	NAME OF THE UNIT	NO. OF QUESTIONS (1 MARK EACH)
1	Capstone Project	14
2	AI Model Lifecycle	13
TOTAL QUESTIONS		27 Questions
NO. OF QUESTIONS TO BE ANSWERED		20 Questions
TOTAL MARKS		1 x 20 = 20 marks

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Max. Time Allowed: 60 Minutes (1 Hr.)

Max. Marks: 25

#### General Instructions:

1. Please read the instructions carefully
2. This Question Paper is divided into 03 sections, viz., Section A, Section B and Section C.
3. Section A is of 05 marks and has 06 questions on Employability Skills.
4. Section B is of 15 marks and has 20 questions on Subject specific Skills.
5. Section C is of 05 marks and has 07 competency-based questions.
6. Do as per the instructions given in the respective sections.
7. Marks allotted are mentioned against each Section/question.
8. All questions must be attempted in the correct order

#### SECTION A

Answer any 5 questions out of the given 6 questions on Employability Skills

(1 x 5 = 5 marks)

1.	Which of the following factors does not improve active listening?  a. Eye contact b. Being pre-occupied c. Gestures d. Giving feedback	1
2.	'MINTS' is a set of simple rules that helps in _____ words correctly.  a. Capitalize b. Punctuation c. Conjunction d. Interjection	1
3.	Which of the following sentences shows intrinsic motivation?  a. Reema help others as it gives her satisfaction. b. Rajesh serve in a restaurant for extra income. c. Sunil planted maximum trees to get the first prize in a plantation drive. d. Saksham visits old age for his social science project.	1
4.	What is the meaning of R in 'SMART' in goal setting?  a. Right b. Rigid c. Realistic d. Reasonable	

5.	A _____ is an arrangement of cells in a horizontal manner.  a. Row b. Column c. Cell d. Formula bar	
6.	Pressing _____ key opens the Start menu.  a. Windows b. Alt + Windows c. Ctrl + Windows d. d. Alt + Ctrl + Windows	

## SECTION B

Answer any 15 questions out of the given 20 questions

(1 x 15 = 15 marks)

7.	<b>A researcher wants to study the association between gender and using a mobile phone. Data collected for this study will be _____</b>  a. Qualitative data b. Quantitative data c. Continuous data d. Classified data	<b>1</b>
8.	<b>Primary way to collect DATA (Data Gathering process)?</b>  a. Experiment b. Survey c. Interview d. Observation	<b>1</b>
9.	<b>The data scientist will use _____ for predictive modelling?</b>  a. Artificial Intelligence b. Machine Learning c. Training Set d. Deep Learning	<b>1</b>
10.	<b>Which one does NOT belong with Classification loss?</b>  a. Log loss b. Mean Absolute Error c. Exponential Loss d. Hinge Loss	<b>1</b>
11.	<b>Which process does NOT come under Capstone Project?</b>  a. AI Model b. AI Project Cycle c. Deployment d. Data Gathering	<b>1</b>

12.	<p><b>Which one does NOT belong with Regression loss?</b></p> <ul style="list-style-type: none"> <li>a. Log Loss</li> <li>b. Mean Absolute Error</li> <li>c. Log cosh Loss</li> <li>d. Quantile Loss</li> </ul>	1
13.	<p><b>Choose Correct Option</b></p> <ul style="list-style-type: none"> <li>a. Scope &gt;&gt; Acquire &gt;&gt; Explore &gt;&gt; Prepare&gt;&gt; Model&gt;&gt; Assess &gt;&gt;Deploy&gt;&gt; Batch</li> <li>b. Scope &gt;&gt; Acquire &gt;&gt; Explore &gt;&gt; Prepare&gt;&gt; Model&gt;&gt; Deploy&gt;&gt;Real Time&gt;&gt; Batch</li> <li>c. Scope &gt;&gt; Acquire &gt;&gt; Prepare &gt;&gt; Assess &gt;&gt;Deploy&gt;&gt; Batch&gt;&gt;Real Time&gt;&gt; Explore</li> <li>d. Scope &gt;&gt; Acquire &gt;&gt; Explore &gt;&gt; Model &gt;&gt; Prepare&gt;&gt;Assess &gt;&gt;Deploy&gt;&gt; Batch</li> </ul>	1
14.	<p><b>Adding a non-important feature to a linear regression model may result in.</b></p> <p><b>1)Increase in R-square</b> <b>2)Decrease in R-square</b></p> <ul style="list-style-type: none"> <li>a. Only 1 is correct</li> <li>b. Only 2 is correct</li> <li>c. Either 1 or 2</li> <li>d. Neither 1 nor 2</li> </ul>	1
15.	<p><b>Which of the following options is/are true for K-fold cross-validation?</b></p> <ul style="list-style-type: none"> <li><b>1) Increase in K will result in higher time required to cross validate the result.</b></li> <li><b>2) Higher values of K will result in higher confidence on the cross-validation result as compared to lower value of K.</b></li> <li><b>3) If <math>K=N</math>, then it is called Leave one out cross validation, where N is the number of observations</b></li> </ul> <ul style="list-style-type: none"> <li>a. 1 and 2</li> <li>b. 2 and 3</li> <li>c. 1 and 3</li> <li>d. 1, 2 and 3</li> </ul>	1
16.	<p><b>Which of these statements about deep learning programming frameworks are true?</b></p> <ul style="list-style-type: none"> <li><b>1) A programming framework allows you to code up deep learning algorithms with typically fewer lines of code than a lower-level language such as Python.</b></li> <li><b>2) Even if a project is currently open source, good governance of the project helps ensure that the it remains open even in the long term, rather than become closed or modified to benefit only one company.</b></li> <li><b>3) Deep learning programming frameworks require cloud-based machines to run.</b></li> </ul> <ul style="list-style-type: none"> <li>a. 1</li> <li>b. 1 &amp; 2</li> <li>c. 1, 2 &amp; 3</li> <li>d. 1 &amp; 3</li> </ul>	1

17.	<b>Choose Correct Option</b> <ul style="list-style-type: none"> <li>a. Data Requirements &gt;&gt; Data Collection &gt;&gt; Data understanding &gt;&gt; Data preparation</li> <li>b. Data Requirements &gt;&gt; Data understanding &gt;&gt; Data Collection&gt;&gt; Data preparation</li> <li>c. Data Requirement &gt;&gt; Data Deployment&gt;&gt; Data Collection &gt;&gt; Data Gathering</li> <li>d. Data Collection &gt;&gt; Data Request &gt;&gt; Data Filtering &gt;&gt; Data Evaluation</li> </ul>	1
18.	<b>In AI development which framework is used?</b> <ul style="list-style-type: none"> <li>a. Scikit-learn</li> <li>b. Tkinter</li> <li>c. PyCharm</li> <li>d. Matplotlib</li> </ul>	1
19.	<b>If your Neural Network model seems to have high variance, what of the following would be promising things to try?</b> <ul style="list-style-type: none"> <li>a. Make the Neural Network deeper</li> <li>b. Get more training data</li> <li>c. Get more test data</li> <li>d. Increase the number of units in each hidden layer</li> </ul>	1
20.	<b>Which stage in Design Thinking missing [Prototype, Ideate, Test, Define]</b> <ul style="list-style-type: none"> <li>a. Evaluation</li> <li>b. Empathies</li> <li>c. Evolution</li> <li>d. Enrichment</li> </ul>	1
21.	<b>Why do we normalize the inputs x?</b> <ul style="list-style-type: none"> <li>a. Normalization is another word for regularization–It helps to reduce variance</li> <li>b. It makes it easier to visualize the data</li> <li>c. It makes the cost function faster to optimize</li> <li>d. It makes the parameter initialization faster</li> </ul>	1
22.	<b>Which language is Most suitable for developing AI?</b> <ul style="list-style-type: none"> <li>a. Kotlin</li> <li>b. Swift</li> <li>c. Python</li> <li>d. HTML</li> </ul>	1
23.	<b>A random sample of n=6 taken from the population has the elements 6, 10, 13, 14, 18, 20. Then, which option is False?</b> <ul style="list-style-type: none"> <li>a. Point estimate for population mean is 13.5</li> <li>b. Point estimate for population standard deviation is 4.68</li> <li>c. Point estimate for population standard deviation is 3.5</li> <li>d. Point estimate for standard error of mean is 1.91</li> </ul>	1
24.	<b>Which of the following statement is False in the case of the KNN Algorithm?</b> <ul style="list-style-type: none"> <li>a. For a very large value of K, points from other classes may be included in the neighborhood.</li> <li>b. For the very small value of K, the algorithm is very sensitive to noise.</li> <li>c. KNN is used only for classification problem statements.</li> <li>d. KNN is a lazy learner.</li> </ul>	1

25.	<p>The following data is used to apply a linear regression algorithm with least squares regression line <math>Y=a_1X</math>. Then, the approximate value of <math>a_1</math> is given by:(X-Independent variable, Y-Dependent variable)</p> <table border="1" data-bbox="277 253 1316 344"> <tr> <td>X</td> <td>1</td> <td>20</td> <td>30</td> <td>40</td> </tr> <tr> <td>Y</td> <td>1</td> <td>400</td> <td>800</td> <td>1300</td> </tr> </table> <p>a. 27.876 b. 32.650 c. 40.541 d. 28.956</p>	X	1	20	30	40	Y	1	400	800	1300	1
X	1	20	30	40								
Y	1	400	800	1300								
26.	<p>The robotic arm will be able to paint every corner in the automotive parts while minimizing the quantity of paint wasted in the process. Which learning technique is used in this problem?</p> <p>a. Supervised Learning. b. Unsupervised Learning. c. Reinforcement Learning. d. Both (a) and (b).</p>	1										

**SECTION C**  
**(COMPETENCY BASED QUESTIONS)**

Answer any 5 questions out of the given 7 questions

(1 x 5 = 5 marks)

27.	<p>Which of the following statements is/are INCORRECT</p> <p>i) The volume of test data can be large, which presents complexities. ii) Your testing team should test the AI and ML algorithms keeping model validation, successful learnability, and algorithm effectiveness in mind. iii) Test data should include all irrelevant subsets of training data, i.e., the data you will use for training the AI system.</p> <p>a. None of the Below b. ii) c. iii) d. i),ii) &amp; iii)</p>	1
28.	<p>Which of the following is FALSE about Correlation and Covariance?</p> <p>a. A zero correlation does not necessarily imply independence between variables. b. Correlation and covariance values are the same. c. The covariance and correlation are always the same sign. d. Correlation is the standardized version of Covariance.</p>	1
29.	<p>Which of these is NOT analytic based on type of question?</p> <p>a. Descriptive b. Statistical Analysis c. Forecasting d. Data evaluation</p>	1

30.	<p><b>Which of the following statements is/are INCORRECT:</b></p> <p>i) Different transforms of the data used to train the same machine learning model.  ii) Different machine learning models cannot be trained on the same data.  iii) Different configurations for a machine learning model trained on the same data</p> <p>a. i)  b. ii)  c. Both ii) &amp; iii)  d. Both i) &amp; ii)</p>	1
31.	<p><b>Which of the following is FALSE about Deep Learning and Machine Learning algorithms?</b></p> <p>a. Deep Learning algorithms work efficiently on a high amount of data.  b. Feature Extraction needs to be done manually in both ML and DL algorithms.  c. Deep Learning algorithms are best suited for unstructured data.  d. Deep Learning algorithms require high computational power.</p>	1
32.	<p><b>If the problem is based on probabilities of an action, then which analytic approach can be used?</b></p> <p>a. Predictive Model  b. Prescriptive  c. Diagnostic  d. Descriptive</p>	1
33.	<p><b>Which of the following is FALSE for neural networks?</b></p> <p>a. Artificial neurons are similar in operation to biological neurons.  b. Training time for a neural network depends on network size.  c. Neural networks can be simulated on conventional computers.  d. The basic unit of neural networks are neurons.</p>	1