Series : ΩQAΩA

SET-4

प्रश्न-पत्र कोड नं.
Question Paper Code No. **104**

रोल नं.
Roll No.

परीक्षार्थी कोड को उत्तर-पुस्तिका के मुख-पृष्ठ पर अवश्य लिखें ।
Candidates must write the Code on the title page of the answer-book.

- कृपया जाँच कर लें कि इस प्रश्न-पत्र में मुद्रित पृष्ठ **8** हैं ।
- प्रश्न-पत्र में दाहिनें हाथ की ओर दिए गए कोड नम्बर को छात्र उत्तर-पुस्तिका के मुख-पृष्ठ पर लिखें ।
- कृपया जाँच कर लें कि इस प्रश्न-पत्र में **21** प्रश्न हैं ।
- **कृपया प्रश्न का उत्तर लिखना शुरू करने से पहले, उत्तर-पुस्तिका में प्रश्न का क्रमांक अवश्य लिखें ।**
- इस प्रश्न-पत्र को पढ़ने के लिए 15 मिनट का समय दिया गया है । प्रश्न-पत्र का वितरण पूर्वाह्न में 10.15 बजे किया जाएगा । 10.15 बजे से 10.30 बजे तक छात्र केवल प्रश्न-पत्र को पढ़ेंगे और इस अवधि के दौरान वे उत्तर-पुस्तिका पर कोई उत्तर नहीं लिखेंगे ।

- Please check that this question paper contains **8** printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains **21** questions.
- **Please write down the Serial Number of the question in the answer-book before attempting it.**
- 15 minutes time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the students will read the question paper only and will not write any answer on the answer-book during this period. ✱

ARTIFICIAL INTELLIGENCE

निर्धारित समय : **1 घण्टे**
Time allowed : **1 hour**

अधिकतम अंक : **25**
Maximum Marks : **25**

General Instructions :

(i)   Please read the instructions carefully.

*(ii) This question paper is divided into **03 Sections** viz., **Section A; Section B and Section C.***

*(iii) **Section A** is of **05** marks and has **06** questions on Employability skills.*

   *(a) Question numbers **01** to **04** are **one** mark questions. Attempt any **three** questions.*

   *(b) Questions numbers **05** and **06** are **two** marks questions. Attempt any **one** question.*

*(iv) **Section B** is of **12** marks and has **12** questions on Subject specific skills.*

   *(a) Question numbers **07** to **12** are **one** mark questions. Attempt any **four** questions.*

   *(b) Question numbers **13** to **18** are **two** marks questions. Attempt any **four** questions.*

*(v)   **Section C** is of **08** marks and has **03** Competency-based questions.*

   *Question numbers **19** to **21** are **four** marks questions. Attempt any **two** questions.*

(vi) Do as per the instructions given in the respective sections.

(vii) Marks allotted are mentioned against each section/question.

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Section – A   (3 + 2 = 5 marks)

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Answer any 3 questions out of given 4 questions.   1 × 3 = 3

1.   What is wage employment ?   1

2. How food is one of the major problems related to sustainable development ? Discuss briefly. **1**

3. "To get success, every business idea needs to be unique or special."

   Is the above statement a myth or fact ? **1**

4. What is the major purpose of the Sustainable Development Goals ? **1**

   Answer any 1 question out of the given 2 questions. **2 × 1 = 2**

5. Write any four common functions of an entrepreneur. **2**

6. Sustainable development can actually happen only when each one of us works towards it. Mention any four ways which we can do at our end to reduce inequality. **2**

Section – B (4 + 8 = 12 marks)

Answer any 4 questions out of the given 6 questions. **1 × 4 = 4**

7. What is NLP ? **1**

8. Mention any two commonly used applications of NLP. **1**

9. Name any two currently popular virtual assistants. **1**

10. Name the process of dividing whole corpus into sentences. **1**

11. With reference to evaluation process of understanding the reliability of any AI model, define the term True Positive. **1**

12. What is F1 score ? **1**

Answer any 4 questions out of the given 6 questions. **2 × 4 = 8**

13. Differentiate between Script-bot and Smart-bot. **2**

14. What is the purpose of Evaluation stage of AI project cycle ? Discuss briefly. **2**

15. What is Tokenization ? Count how many tokens are present in the following statement : **2**

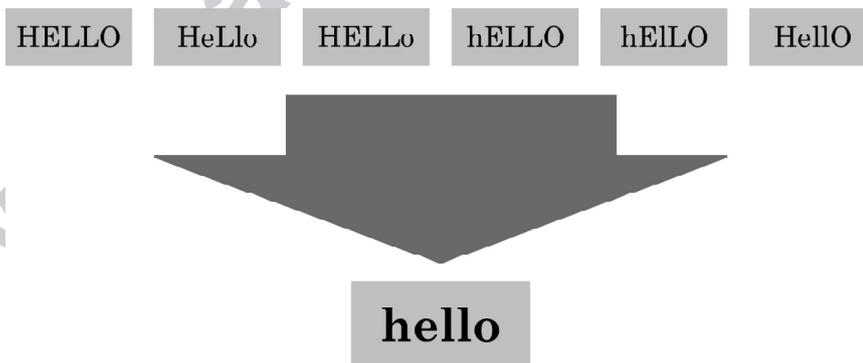**I find that the harder I work, the more luck I seem to have.**

16. Kaira, a beginner in the field of NLP is trying to understand the process of Stemming. Help her in filling up the following table by suggesting appropriate affixes and stem of the words mentioned there : **2**

S. No.	Word	Affixes	Stem
i.	Tries		
ii.	Learning		

17. With reference to evaluation stage of AI project cycle, explain the term Accuracy. Also give the formula to calculate it. **2**

18. Explain the following picture which depicts one of the processes on NLP. Also mention the purpose which will be achieved by this process. **2**

| HELLO | HeLlo | HELLo | hELLO | hElLO | HellO |

hello

<div align="center">

Section – C (4 × 2 = 8 marks)

(COMPETENCY-BASED QUESTIONS)

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Answer any 2 questions out of the given 3 questions.

19. Consider the text of following documents : 4

   Document 1 : Sahil likes to play cricket

   Document 2 : Sajal likes cricket too

   Document 3 : Sajal also likes to play basketball

   Apply all the four steps of Bag of words model of NLP on the above given documents and generate the output.

20. With reference to NLP, explain the following terms in detail with the help of suitable example : 4

   • **Term frequency**

   • **Inverse Document Frequency**

21. Traffic Jams have become a common part of our lives now-a-days. Living in an urban area means you have to face traffic each and every time you get out on the road. Mostly, school students opt for buses to go to school. Many times the bus gets late due to such jams and students are not able to reach their school on time. Thus, an AI model is created to predict explicitly if there would be a traffic jam on their way to school or not. The confusion matrix for the same is 4

The Confusion Matrix	Actual : 1	Actual : 0
Predicted : 1	50	50
Predicted : 0	0	0

Explain the process of calculating F1 score for the given problem.

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