CURRENT AFFAIRS

Yojna IAS
yojnaias.com
योजना है तो सफलता है

website : www.yojnaias.com
Contact No. : +91 8595390705

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GOOGLE RELEASES AI PRODUCTS SIMA AND ALPHAGEOMETRY

THIS ARTICLE COVERS 'DAILY CURRENT AFFAIRS' AND THE TOPIC DETAILS OF "GOOGLE RELEASES AI PRODUCTS SIMA AND ALPHAGEOMETRY". THIS TOPIC IS RELEVANT IN THE "SCIENCE & TECHNOLOGY" SECTION OF THE UPSC CSE EXAM.

WHY IN THE NEWS?

Google DeepMind has recently unveiled a range of Artificial Intelligence (AI) products centred around Predictive AI Models. These include SIMA (Scalable Instructable Multiworld Agent) and AlphaGeometry.

ABOUT SIMA

- SIMA stands out from traditional AI models like OpenAI's ChatGPT or Google Gemini. Unlike AI models, SIMA is an AI Agent capable of independent decision-making and action.
- Enhancing gaming experiences with its ability to process data and take autonomous actions.
- SIMA serves as a versatile AI assistant that is adept at various tasks within virtual environments.

HOW SIMA WORKS

- Acting as a game-assisting AI, SIMA enhances gaming experiences through its autonomous capabilities.
- Capable of understanding and executing commands in diverse virtual settings, from dungeon exploration to castle construction.
- Learns and adapts through user interactions, continually improving its performance and versatility.
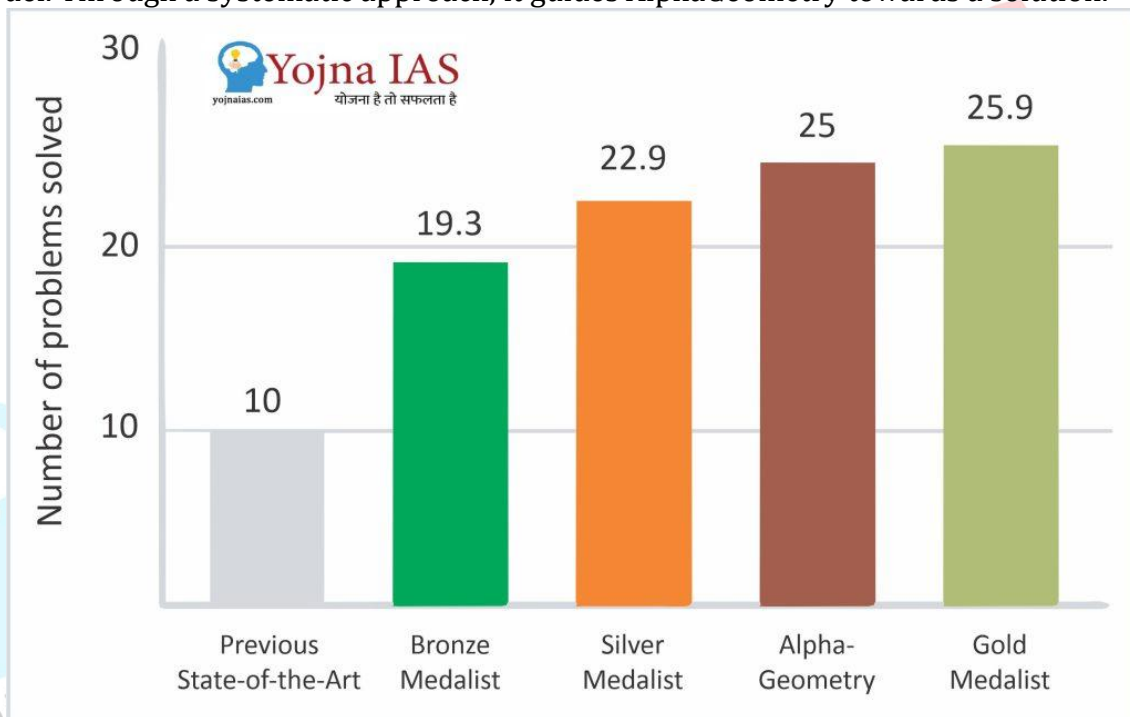
SIMA'S TRAINING JOURNEY

- Developed through a collaboration between Google DeepMind and eight game studios. Trained on nine different video games, including Teardown and No Man's Sky.
- Mastered skills like navigation, resource mining, and spaceship flying to excel in diverse gaming scenarios.
- Tested in various research environments, including Unity's Construction Lab, to validate its capabilities.

ABOUT ALPHAGEOMETRY

DeepMind's latest innovation, AlphaGeometry, is revolutionising the way AI tackles the complexities of geometry. Unlike its general-purpose AI counterparts, **AlphaGeometry is a specialised system designed to crack challenging geometric problems** often encountered in higher mathematics.

This powerful tool leverages a unique combination of two key techniques:

- **Neural Language Processing (NLP) Inspiration**: Borrowing from the human brain's structure and function, AlphaGeometry **utilises a cutting-edge neural language model.** This component excels at generating intuitive ideas and potential solutions, mimicking the initial brainstorming phase of human problem-solving.
- **Symbolic Reasoning**: AlphaGeometry doesn't stop at creative brainstorming. It houses a symbolic deduction engine, the system's reasoning powerhouse. This engine applies established logical rules and mathematical knowledge to refine the ideas suggested by the NLP model. Through a systematic approach, it guides AlphaGeometry towards a solution.

PREDICTIVE AI FUNCTIONALITY

Predictive AI models use a combination of techniques to analyse data and make forecasts about future events. Here's a breakdown of their key functionalities:

DATA ANALYSIS

Large Datasets: Predictive AI models are trained on massive amounts of historical data. This data can include anything from sales figures and customer behaviour to weather patterns and social media trends.

Pattern Recognition: The models use sophisticated algorithms to identify patterns and relationships within the data. These patterns can then be used to make predictions about future events.

Statistical Techniques: Predictive AI models often leverage statistical methods to analyse data and calculate probabilities. This allows them to quantify the likelihood of different future outcomes.

MAKING PREDICTIONS

Regression Analysis: This technique is used to identify relationships between variables and predict continuous outcomes, such as future sales or stock prices.

Classification: Classification algorithms categorise data points into different groups. This is useful for tasks like predicting whether a customer is likely to churn (cancel their service) or whether a loan applicant is a good credit risk.

Time Series Analysis: This technique focuses on analysing data that is collected over time, such as daily sales figures or website traffic patterns. It allows models to identify trends and forecast future values in the time series.

MODEL REFINEMENT

Machine Learning: Many predictive AI models are machine learning models. This means they can learn and improve over time as they are exposed to new data.

Validation: The accuracy of a predictive AI model is crucial. Model developers use validation techniques to assess the model's performance and identify areas for improvement.

REAL-WORLD APPLICATIONS

Predictive AI models are used in a wide range of industries and applications, including:

Finance: Predicting stock market trends, assessing credit risk, and detecting fraudulent activity.

Healthcare: Identifying patients at risk of developing certain diseases, optimising resource allocation, and personalising treatment plans.

Retail: Predicting customer demand, optimising inventory management, and personalising marketing campaigns.

Manufacturing: Predicting equipment failures, optimising production processes, and improving supply chain efficiency.

PRELIMS PRACTICE QUESTION

Q1. With the present state of development, Artificial Intelligence can effectively do which of the following?
1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text-to-Speech Conversion
5. Wireless transmission of electrical energy

Select the correct answer using the code given below:

(a) 1, 2, 3 and 5 only
(b) 1, 3 and 4 only
(c) 2, 4 and 5 only
(d) 1, 2, 3, 4 and 5

Answer: B

INDIA EMPLOYMENT REPORT 2024 AND UNEMPLOYMENT IN INDIA

SOURCE – THE HINDU AND PIB.

GENERAL STUDIES – GROWTH OF INDIAN ECONOMY, UNEMPLOYMENT, INDIA EMPLOYMENT REPORT 2024, NATIONAL SAMPLE SURVEY, PERIODIC LABOR FORCE SURVEY.

WHY IN THE NEWS ?

- Recently on 26 March 2024, the International Labor Organization (ILO) and the Institute for Human Development (IHD) have jointly published a report named India Employment Report 2024.
- According to this report, a total of 83% of the unemployed youth looking for work in India are unemployed.
- According to the report, overall labor force participation, workforce participation and employment rates in India have improved in recent years after a long-term decline during 2000-2019.
- India's youth population was 27% in 2021, which will reduce to 21% by 2036 and 70 to 80 lakh more youth will join the workforce every year.
- The report states that youth employment in India is largely of poor quality compared to adult employment.
- Youth in India are most likely to be employed in vulnerable occupations or informal sectors.
- According to this report, India has the highest youth unemployment rate among youth with graduate degrees and it is higher among women than men.
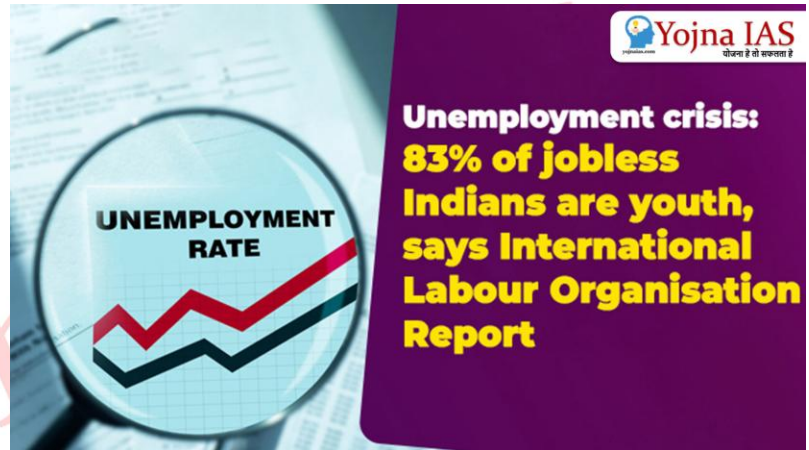
- The proportion of women who are not engaged in employment, education or training is almost 5 times higher than their male counterparts (48.4% vs. 9.8%).

INTRODUCTION TO HUMAN DEVELOPMENT INSTITUTE :
- The Institute of Human Development (IHD) was established in the year 1998 under the aegis of the Indian Society of Labor Economics (ISLE).
- Its objective is to contribute to the building of a society that promotes and values an inclusive social, economic and political system that is free from poverty and deprivation.
- It conducts research in the areas of labor and employment, livelihoods, gender, health, education and other aspects of human development.

IMPORTANT FACTS OF INDIA EMPLOYMENT REPORT 2024 :
- The India Employment Report 2024 is the third edition in a series of regular publications by the Human Development Institute on labor and employment issues, jointly released in partnership with the International Labor Organization (ILO).

- This report examines the emerging economic labor market, educational and skill scenarios in India and the challenges facing youth employment in the context of the changes witnessed over the last two decades.
- The report also highlights recent trends in the Indian labor market, indicating the challenges that currently exist with respect to youth unemployment and new challenges that may arise in the future, as well as improvements in some outcomes, including COVID-19. Challenges arising from the 19 pandemic are also included.

HIGHLIGHTS OF INDIA EMPLOYMENT REPORT 2024 :
- The India Employment Report 2024 is based primarily on the analysis of data from the National Sample Survey and Periodic Labor Force Survey between the year 2000 and the year 2022..
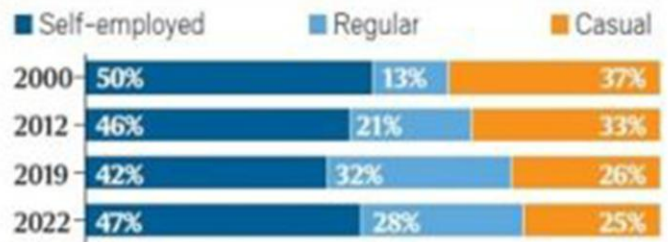
EMPLOYMENT SCENARIO AND CURRENT TRENDS IN INDIA :
- The female labor market participation rate in India, especially in rural areas, has increased rapidly by 2019 after a significant decline in earlier years.
- One of the most important features of the Indian labor market is the slow and steady transition of the workforce from agricultural to non-agricultural sectors.

- The main areas of employment available in India are self-employment and casual employment.
- In India, about 90 percent of the workforce is employed informally while about 82 percent of the workforce is engaged in the informal sector.
- There was a slight upward trend in wages of casual workers during 2012–22, while real wages of regular workers either remained stable or declined.

STATUS OF EMPLOYMENT OF YOUTHS

	Self-employed	Regular	Casual
2000	50%	13%	37%
2012	46%	21%	33%
2019	42%	32%	26%
2022	47%	28%	25%

Source: IHD-ILO India Employment Report 2024

- Migration levels in India have not been adequately recorded through official surveys.
- Rates of urbanization and migration are expected to increase significantly in the future.
- The migration rate in India is expected to be around 40 percent in 2030 and the urban population will be around 607 million.

MAJOR CHALLENGES RELATED TO YOUTH EMPLOYMENT IN INDIA :

- A large portion of India's population is of working age, which is expected to remain in the potential demographic dividend zone for at least another decade.
- Every year in India, about 7-8 million youth join the labor force whose productive utilization could yield a demographic dividend for India.
- Labor market participation of youth in India has been much lower than that of adults and was on a long-term (2000–19) declining trend, mainly due to greater participation in education.
- At present, youth unemployment in India has increased almost three times, from 5.7 percent in the year 2000 to 17.5 percent in 2019, but it is expected to reduce to 12.1 percent in the year 2022.

MAJOR SUGGESTIONS OF INDIA EMPLOYMENT REPORT 2024 TO IMPROVE THE EMPLOYMENT SECTOR :

The report recommends focusing on five key policy areas for action to tackle unemployment in India. Which is an important suggestion especially related to youth unemployment in India –

1. **To promote employment creation.**
2. **To improve the quality of employment.**
3. **Addressing labor market inequalities and making changes at the policy level.**
4. **strengthening skills and active labor market policies, and**
5. **Bridging the knowledge gap on labor market patterns and youth employment.**

PATH TO SOLUTION :

- **'The India Employment Report 2024'** The employment sector in India presents a disappointing scenario.
- Focusing on the current state of youth employment in India, the report paints a sobering picture of the

widely publicized 'demographic dividend' in the country, calling for prompt and targeted policy interventions to tackle it and for India's technologically growing economy. There is a need to give priority to the training of youth.

- A large number of educated youth are still unable to meet the job criteria due to unavailability of jobs and deficiencies in the quality of education relative to the participation of educated youth in better paying jobs in India. On which there is a great need to pay attention to the policy makers of India.
- India has high rates of youth deprived of employment, education or training, and working conditions among the majority of employed youth are poor, with large groups of youth taking advantage of broader socio-economic benefits. Wages in India have either stagnated or seen a decline due to inflation, even though India's economy is growing at a high rate.
- As the process of 2024 general elections to the Lok Sabha in India begins, politicians have focused on creating employment and improving the quality of education and training for a technologically growing economy, not only in their election campaigns but also in their policy making. There is an urgent need to consider the causes by giving priority.

PRACTICE QUESTIONS FOR PRELIMINARY EXAM :
Q.1. Consider the following statements regarding India Employment Report 2024.
1. According to this report, A total of 83% of youth in India are unemployed.
2. The Human Development Institute was established in the year 1998 by the Indian Society of Labor Economics.
3. This report is jointly published by the International Labor Organization and the Institute of Human Development.
4. There is a slow and steady transition of the workforce from agricultural to non-agricultural sectors in the Indian labor market.

Which of the above statement / statements is/are correct ?
(A). Only 1, 2 and 3
(B). Only 2, 3 and 4
(C). None of these.
(D). All of these.
Answer – (D)

PRACTICE QUESTIONS FOR MAIN EXAM :
Q.1. Underlining the important facts of India Employment Report 2024, Discuss in detail the major challenges related to youth employment in India and its solutions.

Akhilesh Kumar Shrivastava