IAS PARLIAMENT
Information is a Blessing
A Shankar IAS Academy Initiative

GIST OF YOJANA

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1. CYBER SECURITY: ISSUES AND CHALLENGES

Why Cyber security is important?

- The world we live in is highly connected and digitally exhaustive.

- Of the 1.6 billion humans on earth, around 3.6 billion are online.

- Today, social networks have become one of the main communication channels.

- Within relatively short time social media has empowered people and connected them.

- But, at the same time, they have also provided platforms for some decidedly unhealthy and destructive behavior.

- Social media platforms have become just one of the endless data channels that cybercriminals are exploiting.

- In the year 2016, there were a total of 758 million online attacks worldwide, which amounts to around 2 million in a single day.

- Even technically legal activities often involve misuse of individuals' Personally Identifiable Information (PII).

- Every organization, be it big or small, has been the victim of cyber attacks.

- This reiterates that cyber attacks are real and your and my account can fall prey to it, counting on any random day.

- Therefore, it is required to create awareness on learning to mitigate the attacks.

What are the various dimensions of Cyber Attacks?

- **Bots :** Bot programs target specific hash tags and work by auto commenting and auto-liking in order to attract followers who are mostly other fake bot accounts.

- These are automated systems which can on their own get engaged with other users without any active presence.

- Developed primarily for companies to engage with their users automatically for increasing customer engagement, bots are now being used much beyond their harmless cause and are misused for manipulating a conversation to creating a mirage of someone's personality and much more.

- **Terrorist Attacks:** Terrorists have always sought attention and that is what they receive from the social media.

- Whenever there is any terror attack, as a response to the horrific events, people share images and videos of the devastating attack on social media.

- Social media thus spread the horror far and wide and unknowingly amplify the chaos that the terrorists intend to spread. In the process, misinformation and fear spread.

- Misinformation, the rapid spread of false information through social media

is among the emerging risks identified in Global Risks Report.

- Fake news and rumors spread like wildfire in the social media and it is also increasingly used for militancy.

- **Mobile Technologies:** All the apps that you use let your smart phone know who you are, where you are, where you have been, who you know, where the people you now currently are, what you bought, where you bought, what you ate, whether you went and even your current mood.

- A popular third-party app recently disclosed a data breach that compromised all of its 4.7 million users' email addresses and phone numbers.

- This data can be used to execute large-scale phishing attacks meant to compromise a company's network and systems.

- Internet of Things (IoTs) is another such challenge posed by the new technology whereby every object we use is equipped with the capabilities to identify, locate, sense its surroundings, compute and communicate.

- **Ransomware:** This ransom demanding malware is a virus which gets into your computer, either when you download an attachment containing the virus or when you visit any such website and click on a link. Once it gets into your computer, it starts to encrypt all your files thereby rendering them useless.

- The only way to unlock your files is to get a secret key from the hacker by paying a ransom.

- And this ransom is usually demanded through bitcoin which keeps the payee anonymous.

- There has been a 600% increase in ransomware variants since 2016.

- **Big Data:** In just 60 seconds 149,513 emails can be sent, 3.3 million FB posts can be made, 3.8 million Google searches can be performed, 500 hours of YouTube videos can be uploaded.

- 29 million WhatsApp messages can be sent and 448,800 Tweets can bo made and millions of other online activities can be performed leaving incredibly large digital footprint.

- Unfortunately, humans are the weakest link in cyber security chain. Amateurs hack systems but professionals hack people.

- It is way easier to con people using social engineering techniques and make them reveal information rather than using tools and technology.

- The weakest link happens to be our password with which social accounts, mail accounts and millions of bank accounts have been hacked.

- An analysis of 32 million breached accounts has revealed that people most often use insecure passwords.

- **How can we protect ourselves from these kinds of Cyber Attacks?**

- Limit the amount of information that you disclose on the social networking sites.

- Do not establish friendship with strangers.

- Do not believe online information blindly as it can be misleading.

- Customize your system settings according to your needs by changing the default settings.

- Learn how to use privacy settings on your social profiles properly.

- Avoid applications that seem suspicious, and make sure to modify your settings to limit the amount of information which the applications can access.

- Secure your system, because unsecured network can lead to loss of your personal data.

- Use antivirus software to secure your computers and electronic devices.

- Use strong passwords to protect your account and personal information. Change your passwords frequently.

- Do not set the same password for all social accounts, because if one site's password is compromised, all other accounts will be exposed to threats.

- Choose suitable authentication scheme so that no one can access the details.

- In two factor authentication along with username and password, another form of identification, often a security code in the form of a "Captcha", is used.

- In multi-factor authentication, more than, in one form of authentication to verify an identity is used. Some examples are facial recognition, iris recognition, voice ID and finger scanning.

2. ARTIFICIAL INTELLIGENCE : CHALLENGES AND OPPORTUNITIES FOR INDIA

What is meant by Artificial Intelligence?

- Artificial Intelligence can be described as a system's ability to learn and interpret external data via software/algorithms or machines/devices for problem solving by performing specific roles and tasks currently executed by humans.

- The term AI has been used interchangeably with other closely related terms such as expert systems, decision-support system, knowledge-based systems, machine learning, natural language processing, neural networks, pattern recognition, recommender systems and text mining.

What are the applications and opportunities of AI?

- A multitude of opportunities have been presented for the application and use of Al-based systems in various domains particularly to assist where structured decision making is needed.

- The ability of AI to the computationally intensive, intellectual and perhaps creative limitations of humans opens up new application domains within manufacturing, law, medicine, healthcare, education, government, agriculture, marketing, sales, finance, operations and supply

chain management, public service delivery and cyber security.

- Within the education sector, AI can be deployed to improve teacher effectiveness and student engagement by offering capabilities such as intelligent game-based learning environments, tutoring systems and intelligent narrative technologies.

- Specifically, AI can help in achieving good health and well-being goals within rural and remote areas in developing countries where access to medical care is limited.

- In such scenarios, AI-based systems can be utilized for conducting remote diagnosis supporting doctors to help improve health service delivery.

- AI-based systems can also help achieve the "Zero Poverty and Zero Hunger" (SDG 2) by assisting in resource allocation for predicting adverse environmental conditions, diagnose crop diseases and identify pests in timely manner to mitigate the risk of catastrophic agricultural events.

- Similarly, AI-based systems can be used to predict energy and utility demand to help in achieving SDGs such as "Clean water, sanitation" and "Affordable clean energy".

What are the examples of AI implementation in India?

- The Tamil Nadu e-Governance Agency has partnered with Anna University to launch a Tamil smart assistant called "Anil".

- This NLP-based smart assistant provides a step-by-step guide to people in helping them apply online for scores of critical government services.

- The agency has recently launched an AI-based agricultural pest and disease identification system and made it available to over half a million farmer families through a mobile app.

- The farmer clicks an image of diseased crop or a pest and the system processes the image through an AI algorithm to identify the pest or disease and sends a message to the farmer advising the remedial measure.

- The Tamil Nadu Government is implementing an innovative use of AI through face recognition for recording attendance.

- The system is saving more than 45 minutes per day and is freeing up extra time for core educational activities in schools.

- **What are the challenges and shortcomings of AI?**

- Generally AI operates effectively as a black-box-based system that does not transparently provide the reasoning behind a particular decision, classification or forecast made by the systems.

- Unlike human, AI-based systems cannot learn from their environment and this limits the application of AI to specific types of domains.

- Increasing automation will lead to significant job losses particularly at operational and lower skill levels for repetitive tasks.

- Users' sensitive and highly granular data is likely to be stored and shared across the AI network (for example, a person's location for the day based on face recognition and CCTV feeds, food habits, shopping preferences, movies, music etc.), which questions the Right to Privacy of an individual.

- AI can disrupt social order and hierarchy creating new social paradigms, which could damage the social fabric exposing people lower in the bargaining hierarchy with a real threat of exploitation and unfair treatment.

3. QUALITY EDUCATION FOR WEAKER SECTION AND DISADVANTAGED GROUPS

What does RTE Act say about Inclusive education?

- The Right of Children to Free and Compulsory Education (RTE) Act, 2009, entitles every child of age 6 to 14 years to a right to free and compulsory education in a neighborhood school till completion of elementary education. Section 8(c) of the RTE Act, 2009 provides that the appropriate government would ensure that the child belonging to weaker section and belonging to disadvantaged group are not discriminated against and prevented from pursuing and completing elementary education on any grounds.

- Further, Section 12(1)(c) of RTE Act, 2009 provides that all specified category schools and unaided schools shall admit at least 25% children belonging to weaker section and disadvantaged group in the neighborhood in class I and provide free and compulsory elementary education till its completion.

What are the steps taken by GOI to ensure education of Children with Disability?

- **Samagra Shiksha:** An overarching programme for tire school education sector extending from pre-school to class XII, aims to ensure inclusive and equitable quality education at all levels of school education.

- It envisages the 'school' as a continuum from pre-school, primary, upper primary, secondary to senior secondary levels.

- Bridging gender and social category gaps at all levels of school education is one of the major objectives of the scheme.

- The scheme reaches out to girls, Children with Special Needs (CWSN) and children belonging to Scheduled Castes (SC), Scheduled Tribes (ST), minority communities and transgenders. Tire focus of major interventions under the Scheme includes provision of RTE.

- Entitlements include free uniforms, text books, special training of outof-school children etc., provision for inclusive education of Children with Special Needs (CWSN) and vocational education among others.

- **Padhe Bharat Badhe Bharat:** The 'Padhe Bharat Badhe Bharat' (PBBB)

is a sub-programme of erstwhile Sarva Shiksha Abhiyan (SSA) which is continued under the new integrated scheme Samagra Shiksha to ensure quality at the foundational years of schooling.

- The objectives of the programme are to promote early reading and writing with comprehension skills in children, and also basic numeracy skills.

- States/UTs are implementing PBBB in their respective States/UTs using multiple strategies and approaches.

- These include adoption of NCERT model of early reading, provision of supplementary reading material, and development of State specific models for early Maths and early reading.

- **Navodaya Vidyalaya Scheme:** The Navodaya Vidyalaya Scheme provides for opening of one JNV in each district of the country to bring out the best of rural talent.

- Its significance lies in the selection of talented rural children as the target group and the aim to provide them quality education comparable to the best in a residential school system.

What are the steps taken to promote Vocational Education in Backward regions?

- The government has recognised the requirement for spreading vocational education throughout the country including backward regions.

- Presently, there are 188 Community Colleges, 289 Institutes and 68 DDU Kaushal Kendras functioning under University Grants Commission (UGC)

and operating vocational education in various sectors. State governments can offer vocational education through their institutional network as per UGC guidelines.

- Developing internship/apprenticeship based degree courses in sectors like Retail, Logistics, Media and Entertainment, etc.

- Increasing number of institutions offering B.VoC courses in the country.

- Aligning the content of existing skill courses with National Skill Qualification Framework (NSQF).

- The Draft National Education Policy 2019 is presently under consideration. The revision of curriculum, syllabi and textbooks for school education would depend on the finalisation and approval of the New Education Policy.

4. KEY INITIATIVES IN EDUCATION

What are the interventions of GOI to promote Education?

- **NISHTHA –** National Initiative for School Heads' and Teachers' Holistic Advancement : A National Mission to improve learning outcomes at the elementary level through an Integrated Teacher Training Programme called NISHTHA – National Initiative for School Heads' and Teachers' Holistic Advancement has been launched on 21st August, 2019.

- This integrated programme aims to build the capacities of around 42 lakh

teachers and Heads of Schools, faculty members of SCERTs and DIETs and Block Resource Coordinators and Cluster Resource Coordinators.

- The new Programme **'DHRUV'** will act as a platform to explore the talent of outshining and meritorious students, and help them achieve excellence in their specific areas of interest may it be science, performing arts, creative writing, etc.

- **School Education Shagun** is an over-arching initiative to improve school education system by creating a junction for all online portals and websites relating to various activities of the Department of School Education and Literacy in the Government of India and all States and Union Territories.

- The portal seeks to connect approximately 92 lakh teachers and 26 crore students.

- The website provides a very robust feedback mechanism.

- Common people can directly give their feedback about schools which will further increase the public participation and will ensure accountability and transparency.

- To ensure quality, credibility and timely availability of information from all the schools in the country, the revamped UDISE + has been launched by the Department.

- The GIS based mapping portal gives information about location of more than 15 lakh schools in the country along with some salient highlights.

- The Data Analytics portal gives percent information about the aggregate position of the school.

- **Digital Infrastructure for Knowledge Sharing (DIKSHA) 2.0:** Diksha Portal was launched in 2017 for providing digital platform to teachers giving them an opportunity to learn and train themselves and connect with teacher community.

- This initiative has been taken forward to enhance coverage and improve the quality of e-content for teachers.

- **Operation Digital Board (ODB) :** The aim is to provide by March 2023, two smart classrooms for every Secondary/Senior Secondary schools in1,01,967 Government and 42,917 Aided schools in all States/UTs and 1704 KVs and NVs making a total of 1,46,588 schools.

- One-time amount of Rs.2.40 lakhs will be required to procure hardware, including accessories and a recurring cost of Rs.3.00 lakhs (for 5 years) for electricity charges, internet connection etc.

- **Institution of Eminence (IoE):** 10 institutions in public sector and 10 institutions in private sector have to be declared as IoE.

- Each Public institute (IoE) will be eligible to receive Rs. 1000 crore during next 5 years.

- **SWAYAM 2.0** – Higher Scalability and Performance Enhanced features for faculty and students Improved assessment and evaluation Internationalization Translation to

Indian languages Local chapters and mentors Offering of On-line Degrees.

- SWAYAM 1.0 was Launched on 9th July 2017 by the President of India with the Objectives of Equal access to Quality education ,Increase GER in Higher Education from 26 to 30 in next 5 years and Anyone, Anywhere, Anytime learning.

- **Deeksharambh** – A guide to Student Induction Programme has been launched.

- **Learning outcomes based curriculum framework (LOCF) revision** – New Curriculum in 16 subjects which is based on LOCF has been uploaded on UGC website to facilitate universities to revise the curriculum.

- **Scheme for Trans-disciplinary Research for India's Developing Economy (STRIDE)** – Launched for promoting quality research by faculty and creation of new knowledge.

- **PARAMARSH** – A scheme to mentor institutions seeking National Assessment and Accreditation Council accreditation.

5. GLOBAL SYNERGY IN HIGHER EDUCATION

What is the need for investment in Higher Education?

- India aims to become a five trillion dollar economy by 2024-25; the realization of this goal is incumbent upon the capability of its education and training institutions to equip young Indians with knowledge and skills relevant to an evolving job markets.

- With the size of Indian young demographic dividend and demand, an increased and sustained focus on the development on human resources is imperative.

- The current GER stands at just 26.3%, which is lower than the global average of 36.7%.

What are the challenges in Higher Education?

- India enjoys a demographic dividend and it is the world's youngest country with an average age of 29 years.

- This section of Indian youth need education and skills, and the current education system has to be equipped to handle it.

- Private college cater to 66.4 percent of the total enrollment in higher education, which means mere 22 percent of Government colleges cater to a disproportionately large number of students who could not afford to seek higher education in Private Higher Educational Institutions.

- Increasing social aspirations made the education divide between urban and rural centres more obvious.

- Low employability of graduates, poor quality of teaching, weak governance, insufficient funding and the complex regulatory norms continue to affect higher education sector.

- The number of international students is generally a reliable indicator of the

quality and robustness of a higher education system.

- As of 2018-19, only 47,427 foreign students were enrolled in the Indian higher education system (China – more than 400000, Germany – More than 3,00,000).
- Globally India caters to less than one per cent of all International students.
- Indian institutes have failed to feature in the top 100 of world university rankings published by reputed ranking frameworks.
- The outflow of Indian students for education abroad is itself more than 15 times the inflow of international students to India.
- Lack of knowledge of India's higher education sector, including how to address regulatory issues, contributes to low faculty participation in mobility schemes.

What are the recent interventions by GOI in Higher Education Sector?

- India's recently released draft National Education Policy 2019 proposes inviting the top 200 global universities to establish foreign branch campus in India.
- MHRD developed a five-year action plan named EQUIP (Education Quality Upgradation and Inclusion Programme).
- The initiative is made to bring transformation in the higher education system in the upcoming 5 years.
- NITI Aayog has more recently favoured the development of Exclusive

Education Zones (EEZs) akin to SEZs in a few select cities in Bengaluru, Hyderabad, Ahmedabad, Pune, Chandigarh and parts of Sikkim, to boost growth in the flow of foreign students.

What can be done further to improve Higher Education?

- Linkages between HEIs and industries with diversified course offerings can prepare the students for the job market.
- Global education institutes may also consider looking at building partnerships, beyond HEIs in metro cities of tier 2 and tier 3 cities and regional/state institutions, which offered tremendous possibilities because of large number of students with untapped potential and lack foreign collaborations currently.
- The joint student-academic mobility programmes, joint research, international collaborations boost rankings.
- India must seek to attract international faculty into the country for short-term research and teaching visits.
- Indian government initiatives like the Global Initiative of Academic Networks (GIAN), which provides funding for teaching at selected Indian higher education institutions and Scheme for Promotion of Academic and Research Collaboration (SPARC) are opportunities to be explored.