

# “Emerging Technologies”

## A- Rules of Quiz Buzz Competition Grade 6 to 8:

1. **Team Composition:** Each team must consist of 2 students.
2. **Student Manual:** Teams will be provided with a manual at the time of registration for preparation.
3. **Buzzer System:** A buzzer system will be used during the competition. The first team to press their buzzer gets the chance to answer.
4. **Answering Format:** After buzzing, the team must provide their answer within a specified time limit.
5. **Scoring System:** Correct answers will receive positive marks, while incorrect answers will result in negative marks.
6. **Knockout Rounds:** The competition will be conducted in multiple rounds, with teams being eliminated based on their scores in each round.
7. **Question Format:** Questions will cover a range of topics relevant to the emerging technologies curriculum and general knowledge in science.
8. **Fair Play:** Teams must adhere to the principles of fair play and sportsmanship throughout the competition.
9. **Judges' Decision:** The decisions made by the judges will be final and binding in all aspects of the competition.
10. **Timeliness:** Teams must be present at their designated times for each round of the competition.

"In this booklet, we have prepared a comprehensive set of questions to enhance your understanding and knowledge. **80% of these questions are directly drawn from the core content mentioned within this booklet. The remaining 20% are meticulously crafted to cover Emerging Technologies,** offering you insights into the latest advancements and trends. The subdomains of these Emerging Technologies include:

- 1) **Robotics** – where machines can move and do tasks by themselves.
- 2) **Virtual Reality (VR)** – where you can put on special glasses and feel like you're in a different world.
- 3) **3D Printing** – where you can make real objects from designs on a computer.

- 4) **Artificial Intelligence** - where computers are programmed to think and learn like humans.
- 5) **Drones** – small flying machines that can move around and sometimes take photos or carry things.

## **B- Multiple Choices**

1. What primary sensory input do robots commonly rely on for object detection?

**A) Visual data from a camera**

B) Auditory data from a microphone

C) Temperature readings from a temperature sensor

2. In which domain is block chain technology most crucial?

**A) Cryptocurrencies**

B) Video game development

C) Social media analytics

3. How will 5G technology notably enhance communication?

**A) Accelerating internet speed**

B) Improving television reception

C) Enhancing radio signal clarity

4. What does the acronym HTML stand for in the context of web development?

A) High Tech Main Language

**B) Hypertext Markup Language**

C) Heavy Text Made Light

5. What is the primary function of industrial robots?

- A) Execution of tasks in hazardous environments**
  - B) Educational assistance for students
  - C) Entertainment through gaming
6. Which of the following exemplifies artificial intelligence (AI)?
- A) Calculator
  - B) Self-driving car**
  - C) Television
7. What does the abbreviation AR represent in technology?
- A) Alternative Reality
  - B) Augmented Reality**
  - C) Advanced Robotics
8. What essential equipment is required to engage in virtual reality (VR)?
- A) VR headset**
  - B) Special suit
  - C) Big screen TV
9. What is the primary purpose of utilizing block chain technology?
- A) Gaming experience
  - B) Secure storage of information**
  - C) Artistic drawing capabilities
10. What characterizes 5G technology?
- A) Innovative aircraft design
  - B) High-speed internet connectivity**

C) A specific type of robotic system

**11.** Identify a renewable source of energy from the options below.

**A) Sun**

B) Oil

C) Coal

**12.** What does the term "coding" primarily involve?

A) Creating covert messages

**B) Instructing computers on actions**

C) Artistic drawing techniques

**13.** What function does a DC motor serve in a robotics kit?

A) Facilitating visual perception

**B) Propelling the robot's movement**

C) Generating auditory outputs

**14.** What tool is essential for linking a robotics kit to a computer for programming?

A) Screwdriver

**B) USB cable**

C) Light bulb

**15.** What is the principal role of a sensor in a robotics kit?

A) Supplying power

**B) Detecting and responding to environmental stimuli**

C) Producing musical sounds

16. Which component in a robotics kit acts as the 'brain' of the robot?
- A) The battery
  - B) The microcontroller**
  - C) The motor
17. What is the purpose of gears in a robotics kit?
- A) To make the robot look cool
  - B) To control the movement and speed**
  - C) To store extra power
18. South Korea is a global leader in the production of:
- A) Furniture
  - B) Smartphones and consumer electronics**
  - C) Agricultural equipment
19. Which South Korean company is known for its advancements in industrial robotics?
- A) Toyota
  - B) Hyundai Robotics**
  - C) General Electric
20. South Korea has been investing heavily in the research and development of:
- A) Traditional arts
  - B) Artificial Intelligence (AI)**
  - C) Fashion design
21. The country was one of the first to adopt and deploy:
- A) 3G networks
  - B) 5G networks**
  - C) Satellite communication
22. STEM education in South Korea focuses on:
- a) Social studies and literature
  - b) Science, Technology, Engineering, and Mathematics**
  - c) Performing arts

**C- True False**

1. Robots can only do tasks that they are programmed for. **T**
2. IoT devices can communicate with each other over the Internet. **T**
3. Wind turbines can generate electricity without polluting the environment.  
**T**
4. Drones are an example of advanced robotics technology. **T**
5. Robots can only perform tasks they are programmed to do. **T**
6. AI systems can learn and improve over time. **T**
7. AR can be used in medical training. **T**
8. VR can only be used for playing video games. **F**
9. Block chain is a type of chain used in bicycles. **F**
10. 5G technology will allow us to download movies faster than ever before. **T**
11. Solar panels can turn sunlight into electricity. **T**
12. Learning to code can help you make your own video games. **T**
13. A servo motor is used for precise control of angular position in a robot. **T**
14. The main difference between a DC motor and a servo motor is that the servo motor can rotate continuously in any direction. **F**
15. A controller in a robotics kit is only used for turning the robot on and off. **F**
16. Servo motors are commonly used in robotics kits for creating robots that need to grip or hold objects. **T**
17. In robotics, sensors are used to enable the robot to interact with its surroundings. **T**
18. South Korea is not a significant player in the global technology industry. **F**
19. Hyundai Robotics is primarily involved in the development of consumer electronics. **F**
20. South Korea's government has not shown interest in supporting AI research initiatives. **F**
21. The adoption of 5G technology in South Korea has had a limited impact on connectivity. **F**
22. South Korea's emphasis on STEM education is only at the university level. **F**
23. Bioplastics are designed to reduce the impact of plastic on the environment. **(T)**
24. Block chain technology can only be used for financial transactions. **(F)**

25. AI can't be used in creative fields like art and music. **(F)**
26. 5G networks can potentially revolutionize IoT applications. **(T)**
27. Quantum computers are currently used for everyday personal computing. **(F)**
28. Nanotechnology is primarily focused on space exploration. **(F)**
29. Renewable energy sources can fully replace fossil fuels today. **(F)**
30. Autonomous vehicles are fully independent of human intervention. **(F)**
31. Virtual reality can be used for psychological therapy. **(T)**
32. The Internet of Things (IoT) is making devices less interconnected. **(F)**

### **D- Trivia Questions**

1. Which AI program beat the world champion in the game Go?
  - A) Deep Blue
  - B) AlphaGo**
  - C) Siri
2. What is a common use of IoT technology in homes?
  - A) Smart thermostats**
  - B) Electric toothbrushes
  - C) Refrigerators
3. What fundamental skill is primarily learned through robotics kits?
  - A) Geography

**B) Programming**

C) Cooking

4. Who is considered the pioneer of modern robotics?

A) Isaac Newton

B) Nikola Tesla

**C) George Devol**

5. Which AI beat the world chess champion Garry Kasparov in 1997?

**A) Deep Blue**

B) AlphaGo

C) Watson

6. Which popular game is an example of AR technology?

A) Minecraft

B) Fortnite

**C) Pokémon Go**

7. In what field is VR NOT commonly used?

A) Education

B) Construction

**C) Cooking**

8. Blockchain technology is important for what kind of digital currency?

**A) Bitcoin**

B) Euro

C) Dollar



9. Which is NOT a form of renewable energy?
- A) Solar power
  - B) Wind power
  - C) Gasoline**
10. What symbol is often used at the end of a line of code in many programming languages?
- A) Exclamation mark (!)
  - B) full stop (.)
  - C) Semi colon (;)**
11. 5G is the \_ generation of cellular network technology.
- A) Third
  - B) Fifth**
  - C) Seventh
12. What is the primary purpose of a controller in a robotics kit?
- A) To store extra energy
  - B) To send commands to different parts of the robot**
  - C) To make the robot change colors
13. What kind of battery is most commonly used in robotics kits for kids?
- A) Lithium-ion
  - B) Alkaline**
  - C) Nickel-Cadmium

14. In robotics kits, what is commonly used to control the speed and direction of a DC motor?
- A) Speedometer
  - B) Motor Driver**
  - C) Color Sensor
15. What does 'DC' stand for in 'DC motor'?
- A) Direct Current**
  - B) Digital Circuit
  - C) Dynamic Component
16. In robotics, what is a 'potentiometer' used for?
- A) Measuring temperature
  - B) Controlling rotational position**
  - C) Increasing power
17. What is the term for the emphasis on Science, Technology, Engineering, and Mathematics education in South Korea?
- A) STEM**
  - B) ARTS
  - C) SPORTS
18. Which South Korean city is known for its focus on technology and innovation, often referred to as the "Silicon Valley of South Korea"?
- A) Pangyo**
  - B) Busan
  - C) Incheon
19. Which company first introduced Neuralink, a brain-computer interface?
- A) Google
  - B) Neuralink Corp**
  - C) Apple

20. What is the primary use of Lidar technology?
- A) Measuring ocean depths
  - B) Mapping and surveying terrain**
  - C) Tracking weather patterns
21. What does GAN stand for in AI?
- A) Global Area Network
  - B) Generative Adversarial Network**
  - C) General Analytics Node
22. In which country was the world's first 3D printed office building constructed? **A) United Arab Emirates**
- B) United States
  - C) Japan
23. The term "singularity" in tech refers to:
- A) A type of black hole
  - B) The point where AI surpasses human intelligence**
  - C) A unique algorithm
24. Who is known for coining the term "Metaverse"?
- A) Mark Zuckerberg
  - B) Tim Berners-Lee
  - C) Neal Stephenson**
25. What does 'Li-Fi' utilize for data transmission?

A) Sound waves

**B) Light**

C) Magnetic fields

26. The first digital currency ever created was:

**A) Bitcoin**

B) Ethereum

C) Litecoin

27. Synthetic biology is mainly concerned with:

A) Designing synthetic organs

B) Building robots

**C) Engineering biological systems**

28. What is the goal of the Hyperloop transportation concept?

A) Underwater travel

**B) High-speed ground transportation**

C) Space exploration

### **E- Riddle Questions**

1. I can take you to places you've never been without leaving your room.

What am I? **(Answer: VR)**

2. I can think and learn but don't have a brain. What am I? **(Answer: Artificial Intelligence)**

3. I can create websites and apps but am not a person. What am I?  
**(Answer: Code)**

4. I can be programmed to do tasks, sometimes I have arms but no legs.  
What am I? **(Answer: Robot)**
5. I overlay digital images on the real world, but I'm not a camera. What am I?  
**(Answer: Augmented Reality)**
6. I can take you to different worlds without you ever leaving your room.  
What am I? **(Answer: Virtual Reality)**
7. I can help you turn on your lights from your phone. What am I? **(Answer: IoT device)**
8. I can spin fast or slow, power wheels or propellers, but I don't move myself.  
What am I? **(Answer: DC Motor)**
9. I can make your robot's wheels turn and its arms lift, but I don't have muscles. What am I? **(Answer: Motor)**
10. I can spin fast or slow, power wheels or propellers, but I don't move myself.  
What am I? **(Answer: DC Motor)**
11. I help control your robot but don't make any physical movements. What am I?  
**(Answer: Controller)**
12. I have a brain but no thoughts of my own. I follow your commands. What am I?  
**(Answer: Microcontroller)**
13. I'm the technology that allows you to experience new worlds up close.  
What am I?  
**A) Virtual Reality (VR)**  
B) Augmented Reality (AR)  
C) Blockchain
14. I'm a city in South Korea where you can find numerous tech startups and innovation hubs. What city am I?  
A) Jeju  
B) Daejeon  
**C) Pangyo (Bundang)**
15. I am invisible but transmit vast amounts of data. What am I?  
**(Answer: Wi-Fi)**
16. I can learn and adapt, but I do not breathe. What am I?  
**(Answer: Artificial Intelligence)**
17. I can print houses and bridges, but I am not a construction worker. What am I?  
**(Answer: 3D Printer)**



18. I can assist doctors in surgeries, but I am not a medical student. What am I? **(Answer: Surgical Robot)**
19. I am a key to the future of transportation, but I do not need wheels. What am I? **(Answer: Hyperloop)**
20. I am a part of the smart home, controlling devices yet invisible. What am I? **(Answer: IoT Device)**
21. I can store energy from the sun, but I am not a plant. What am I? **(Answer: Solar Panel)**
22. I can help you interact with digital worlds, but I am not a game console. What am I? **(Answer: Augmented Reality Device)**
23. I connect you to the digital world, but I am not a phone or computer. What am I? **(Answer: Neuralink)**
24. I am small, but my potential impact on technology is huge. What am I? **(Answer: Quantum Dot)**

**~Good Luck for Quiz Buzz Competition~**