
Junior Mechanic Exam, CSE Department, IIT Bombay, 17 July 2025 (45 minutes)

Name: _____

Applicant ID: _____

For each Question tick **ALL** correct choices (there may be more than one).

Ticking **ALL correct choices and ONLY correct choices: 1 mark.**

Ticking any **wrong** choice or **missing** any correct choice: **Negative -1/3 mark**

1. What is the primary function of an SMPS (Switch-Mode Power Supply)?
 - A. To convert AC power to DC power for the system
 - B. To regulate voltage levels for the CPU
 - C. To provide cooling for the system
 - D. To manage data transfer between components
2. What normally happens to the data stored in RAM when the power is turned off?
 - A. The data is retained
 - B. The data is lost
 - C. The data is transferred to the hard drive
 - D. The data is compressed
3. Which type of printer is known for its high-quality printing?
 - A. Laser printer
 - B. Inkjet printer
 - C. Dot matrix printer
 - D. Thermal printer
4. A computer is experiencing intermittent display issues, including flickering and distortions. The user has already updated the graphics drivers and adjusted the display settings. What should be the first step to solve the problem?
 - A. Check all the connections in the motherboard
 - B. Change the CPU
 - C. Change the power supply
 - D. Purchase new RAM modules
5. What is the benefit of using UEFI firmware over traditional BIOS?
 - A. Faster boot times
 - B. Improved security features
 - C. Prevent virus
 - D. Can add more devices
6. What is the difference between an LED display and an OLED display?
 - A. LED uses a backlight, while OLED does not
 - B. LED has a faster response time, while OLED has a slower response time
 - C. LED has a wider viewing angle, while OLED has a narrower viewing angle
 - D. LED is more expensive, while OLED is less expensive

7. What is the primary advantage of using a mechanical keyboard over a membrane keyboard?
A. Lower cost B. Better tactile feedback C. Shorter lifespan D. None of the above
8. What does **bricking** a device mean in the context of firmware updates?
A. The device becomes more secure
B. The device's performance improves
C. The device becomes unusable or non-functional
D. The device's firmware is updated successfully
9. In a typical AV setup, what is the correct order of signal flow for displaying content from a laptop on a projector?
A. Projector → Laptop → HDMI cable
B. Laptop → HDMI cable → Projector
C. HDMI cable → Laptop → Projector
D. Laptop → Projector → HDMI cable
10. Which connector type is most likely used to connect a microphone to a professional PA system?
A. HDMI B. RCA C. XLR D. USB
11. In an AV rack, what device typically amplifies the signal before sending it to speakers?
A. Mixer B. Projector C. Audio Interface D. Power Amplifier
12. Which of the following devices would you use to switch between multiple video inputs to a single projector?
A. Audio compressor B. HDMI splitter C. HDMI switcher D. VGA to HDMI converter
13. A projector shows a "No Signal" message, even though the laptop is connected. What is the first thing you should check?
A. The brightness setting on the projector
B. Whether the projector's lamp is functional
C. If the correct input/source is selected on the projector
D. Whether the projector is connected to the internet
14. In a classroom, there is no sound from the speakers when using a wireless microphone. What should you check first?
A. The room temperature
B. The microphone's battery and transmitter power
C. The color of the microphone casing
D. The projector settings
15. A user complains that the projected image is cut off at the edges. What's the likely cause?
A. Projector lamp failure
B. Cable length is too long
C. Incorrect resolution or aspect ratio setting
D. Dirty projector lens

16. There is a loud feedback sound (high-pitched whine) in the PA system when the microphone is turned on. What should you do?
- A. Increase the volume on the amplifier
 - B. Move the microphone closer to the speaker
 - C. Mute all channels on the mixer
 - D. Move the microphone away from the speakers and reduce gain
17. Which of the following is a key aspect of tracking and maintaining IT equipment inventory?
- A. Performing daily backups of all data.
 - B. Conducting employee performance reviews.
 - C. Recording acquisition dates, specifications, locations, and warranty information.
 - D. Writing system automation and administration scripts.
18. Which tasks are part of an IT support ticketing systems?
- A. Logging incidents
 - B. Tracking status
 - C. Maintaining student ID card information database
 - D. Generating time table for courses
19. Which of the following are benefits of effective IT inventory/asset management?
- A. Reduced number of software updates
 - B. Reduced IT costs
 - C. Improved utilization of IT infrastructure
 - D. Improvement of student grades in courses
20. Machines (desktop, servers and laptops) of the department need to be tagged with a unique identifier (number). This statement is TRUE when the machines are used by which of the following users.
- A. Faculty
 - B. Students
 - C. Staff
 - D. Temporary visitors, guests and interns
21. What does a successful ping command response typically indicate?
- A. DNS resolution is working
 - B. Firewall is disabled
 - C. The destination host is reachable at the network layer
 - D. The HTTP port is open
22. What does the nslookup command primarily test?
- A. Network adapter driver status
 - B. TCP port connectivity
 - C. DNS name resolution
 - D. ARP cache entries

23. Which of the following is true about `ifconfig` on a Linux system?
- A. It configures firewall rules
 - B. It shows and sets network interface parameters
 - C. It manages wireless networks
 - D. It flushes the DNS cache
24. When you run `ping google.com` and get an "unknown host" message, what is the most likely issue?
- A. IP address conflict
 - B. The destination server is down
 - C. DNS resolution failure
 - D. Network cable unplugged
25. Which tool would you use on Linux to find your system's IP address and MAC address?
- A. `ping` B. `traceroute` C. `ifconfig` or `ip a` D. `netstat -r`
26. In which situation is multimode fiber optic cable more appropriate than single-mode fiber?
- A. Data center backbone within a building
 - B. Long-haul undersea communication
 - C. Outdoor telecom link spanning 20 km
 - D. Direct satellite communication
27. What type of connector is commonly used in fiber optic cables?
- A. RJ45 B. BNC C. LC D. DB9
28. What is the main reason CAT6 and CAT6a cables provide better performance than CAT5e?
- A. They are shielded with metal foil
 - B. They use optical fibers
 - C. They have tighter twists and improved insulation
 - D. They use thinner copper strands
29. What content does the file `resolv.conf` contain?
- A. Network logs B. Hostnames C. DNS server IP addresses D. IP routing rules
30. What command is used to test basic network connectivity in Linux?
- A. `ls` B. `ping` C. `whoami` D. `mkdir`

CSE Department, IIT Bombay
Junior Mechanic (Short Answers) 17 July 2025 (30 minutes)

Name: _____ **Applicant ID:** _____

Please answer the following 5 questions in the space provided for each.
Plan your answer first and write clearly. Each question carries **3 marks**.

1. Your laptop, running Linux OS, is not able to use the WiFi connection. Give 3 possible reasons for this and briefly explain a fix for each.

2. Briefly explain 2 types of hard disks and their differences.

3. For a teaching lab with 40 desktops, name 3 information items that are useful to store in an asset register. Briefly explain why each of them is useful.

4. Briefly explain what is display resolution? Give two examples.

5. What is Bluetooth? Name 3 devices that can be connected to a laptop using Bluetooth.