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ROLL NUMBER

**WRITTEN TEST FOR THE POST OF JR. TECHNICAL ASST (MRAC)**

DATE: 19/05/2026

Time 10 To 10.50 AM

DURATION: 50 MINUTES

Total Marks: 40 Mark

**INSTRUCTIONS TO THE CANDIDATES**

1. Write your Roll Number on the top of the Question Booklet and in the answer sheet.
2. Each question carries 1 mark.
3. There will not be any Negative Marking.
4. Write legibly the alphabet of the most appropriate answer (A, B, C or D) in the separate answer sheet provided.
5. Over-writing is not permitted.
6. Candidate should sign in the question paper and answer sheet.
7. No clarifications will be given.
8. Candidate should hand over the answer sheet to the invigilator before leaving the examination hall.

Signature of the Candidate

*Handwritten signature in blue ink.*

**VOP - JUNIOR TECHNICAL ASSISTANT (MRAC)**

1. Recommended relative humidity in operation theatres:  
A. 10–30%                      B. 40–60%  
C. 70–90%                      D. 100%
2. Air changes per hour (ACH) in ICU is typically:  
A. 2                      B. 6                      C. 12                      D. 25
3. HEPA filters remove particles of size:  
A. 5 microns                      B. 1 micron  
C. 0.3 microns                      D. 10 microns
4. Positive pressure rooms are used for:  
A. Clean areas                      B. Infectious patients  
C. Storage rooms                      D. Toilets
5. Negative pressure rooms are used for:  
A. Isolation rooms                      B. Surgery  
C. ICU                      D. Pharmacy
6. Laminar airflow is used in:  
A. Dietary                      B. Laundry  
C. Corridor                      D. Operation Theatre
7. Fresh air intake is required to:  
A. Maintain indoor air quality                      B. Reduce Temperature  
C. Reduce airflow                      D. Increase noise
8. Recommended temperature in operation theatre:  
A. 10–15°C                      B. 18–22°C  
C. 25–30°C                      D. 30–35°C
9. Airflow pattern in laminar flow system is:  
A. Turbulent                      B. Circular  
C. Unidirectional                      D. Random
10. Minimum ACH in operation theatre is:  
A. 6                      B. 10                      C. 12                      D. 20
11. Clean rooms require:  
A. High contamination                      B. Controlled environment  
C. Open windows                      D. Natural ventilation only



12. Supply air diffusers are used for:  
 A. Exhaust  
 B. Lighting  
 C. Heating water  
 D. Air distribution
13. Exhaust air systems remove:  
 A. Fresh air  
 B. Dry air  
 C. Contaminated air  
 D. Cool air
14. Differential pressure is measured using:  
 A. Manometer  
 B. Thermometer  
 C. Hygrometer  
 D. Barometer
15. HVAC zoning means:  
 A. One system for all  
 B. Dividing areas into zones  
 C. No control  
 D. Natural cooling
16. AHU is used to:  
 A. Heat water  
 B. Store air  
 C. Pump refrigerant  
 D. Condition air
17. Main components of AHU include:  
 A. Compressor  
 B. Filter, coil, fan  
 C. Boiler  
 D. Turbine
18. Pre-filters remove particles larger than:  
 A. 1 micron  
 B. 5 microns  
 C. 10 microns  
 D. 50 microns
19. What is sensible heat?  
 A. Heat causing temperature change  
 B. Heat causing phase change  
 C. Hidden heat  
 D. Chemical heat
20. What is latent heat?  
 A. Heat that raises temperature  
 B. Heat stored in solids  
 C. Heat loss  
 D. Heat causing phase change
21. What does a VAV system do?  
 A. Constant airflow  
 B. Variable airflow  
 C. Fixed temperature  
 D. Fixed pressure
22. In psychrometric chart, enthalpy lines are:  
 A. Vertical  
 B. Horizontal  
 C. Inclined  
 D. Curved

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23. What is the unit of COP?  
 A. Dimensionless                      B. Joule  
 C. Watt                                      D. Pascal
24. Which cycle is most efficient theoretically?  
 A. Rankine                                  B. Carnot  
 C. Brayton                                  D. Vapor compression
25. What is the function of a cooling tower?  
 A. Cool refrigerant directly              B. Compress refrigerant  
 C. Increase airflow                          D. Reject heat from condenser water
26. In a vapor compression cycle, Sub-cooling occurs in the:  
 A. Condenser                                  B. Evaporator  
 C. Compressor                                D. Expansion valve
27. COP of a refrigeration system is defined as:  
 A. Work/Heat removed                      B. Heat rejected/Work  
 C. Heat removed/Work input              D. Work input/Heat rejected
28. In a condenser, refrigerant changes from:  
 A. Liquid to vapor                          B. Liquid to solid  
 C. Solid to Vapor                              D. Vapor to liquid
29. The bypass factor of a cooling coil indicates:  
 A. Air leakage                                  B. Coil efficiency  
 C. Fraction of air not contacting coil surface      D. Refrigerant loss
30. The effectiveness of a heat exchanger is defined as:  
 A. Actual heat transfer / Maximum possible heat transfer      B. Heat transfer / Work input  
 C. Temperature difference / Pressure difference                  D. Energy loss / Energy input
31. AHU fans are generally:  
 A. Axial fans    B. Exhaust fans                      C. Propeller fans                              D. Centrifugal fans
32. HEPA filter efficiency is:  
 A. 80%                      B. 90%    C. 99.97%                                      D. 50%
33. Return air is:  
 A. Air Re-Circulated from room                      B. Exhaust air  
 C. Fresh air    D. Outdoor air

*has*

34. Mixing box is used for:  
A. Cooling  
C. Heating  
B. Supply Air  
D. Mixing fresh and return air
35. Cooling tower is used in:  
A. Air-cooled chiller  
C. Water-cooled chiller  
B. Split AC  
D. Ductable AC
36. Refrigerant absorbs heat in:  
A. Condenser  
C. Compressor  
B. Evaporator  
D. Expansion valve
37. Compressor function:  
A. Reduce pressure  
C. Filter air  
B. Increase pressure  
D. Mix air
38. Expansion valve reduces:  
A. Pressure  
B. Temperature  
C. Airflow  
D. Humidity
39. COP means:  
A. Cooling Output Power  
C. Cooling Operation Point  
B. Control of Pressure  
D. Coefficient of Performance
40. Chilled water Leaving temperature is typically:  
A. 0°C  
B. 2°C  
C. 7°C  
D. 10°C

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*Kas*

JUNIOR TECHNICAL ASSISTANT (MRAC)-VOP

ANSWER KEY

1	B	26	A
2	C	27	C
3	C	28	D
4	A	29	C
5	A	30	A
6	D	31	D
7	A	32	C
8	B	33	A
9	C	34	D
10	D	35	C
11	B	36	B
12	D	37	B
13	C	38	A
14	A	39	D
15	B	40	C
16	D		
17	B		
18	C		
19	A		
20	D		
21	B		
22	C		
23	A		
24	B		
25	D		

Key