



# CBCS SCHEME

21AE/AS383

Question Paper Version : A

## Third Semester B.E. Degree Examination, Jan./Feb. 2023 Digitalization in Aeronautics

Time: 1 hr.]

[Max. Marks: 50

### INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1. What is a smart factory?
    - a) Robots who will replace people
    - b) Factories and logistic systems that will operate and organize themselves without human interaction
    - c) Factories and logistic systems that will organize themselves by human interaction
    - d) All of the above
  2. What are the advantages of industry 4.0?
    - a) Improved productivity and efficiency
    - b) Low cost of implementation
    - c) Creating more vacancies for workers
    - d) No risk of hacking into internal network
  3. The automation of communication between devices, with no human intervention
    - a) Sensor
    - b) Machine to Machine (M2M)
    - c) Big Data
    - d) Wearables
  4. What is the essential components of a smart factory
    - a) Smart machine
    - b) People at work
    - c) Trained personnel
    - d) All of the these
  5. Which of the following is a virtual representation of a real-world product or asset?
    - a) Poka - Yoke
    - b) Andon
    - c) Digital twin
    - d) 5S
  6. Which of the following is not a benefit of 3D printing?
    - a) It is faster
    - b) It is expensive
    - c) It is cost-effective
    - d) It takes a lot of time

7. When did industry 4.0 started  
a) 2007                      b) 2010                      c) 2013                      d) 2016
8. What are the objectives of Industry 4.0?  
a) Enabled self-controlling  
b) Increase efficiency  
c) Reduce complexity  
d) All of the above
9. This company was the first to utilize a robotics system in its production line  
a) Ford motor Co      b) Volkswagen      c) General motors      d) Toyota
10. Aircraft maintenance in the overhaul, repair, inspection or modification of an aircraft or aircraft components  
a) True                      b) False
11. Which of the following is the most extensive maintenance check to be performed on an aircraft  
a) A – Check      b) D – Check      c) B – Check      d) C – Check
12. The continuous inspection program for commercial aircraft in India, is approved by which of the following authorities?  
a) DGCA      b) EASA      c) FAA      d) DCGA
13. Where do the heavier checks [C-check and D – check] take place?  
a) Maintenance, repair and overhaul (MRO) company sites  
b) Airport bay  
c) Manufacturing sites  
d) Hangar
14. How many man hours does a D-check requires?  
a) 40      b) 400      c) 4000      d) 40,000
15. Which of the following issues air worthiness directives (Ads) in Australia  
a) CASA  
b) Transport Canada  
c) New Zealand Civil Aviation Authority  
d) DGCA
16. The maintenance carried out while an airplane is parked at an airport waiting for the next take off is generally referred to as \_\_\_\_\_  
a) Line maintenance  
b) Major maintenance  
c) General maintenance  
d) Base maintenance
17. Which one of the following is not true with respect to line maintenance?  
a) Quick turnaround time  
b) Aircraft is refueled  
c) Critical instruments are checked for defects  
d) Performed at MRO sites
18. Preflight inspection is conducted by \_\_\_\_\_  
a) do-pilot      b) Pilot      c) Purser      d) Ground staff

19. How much time is required for line maintenance?  
a) 45 minutes                      b) 450 minutes                      c) 45 hours                      d) 450 hours
20. Line maintenance is also known as \_\_\_\_\_  
a) Heavy maintenance  
b) Electrical maintenance  
c) General maintenance  
d) Routine maintenance
21. How much time is required for C-check?  
a) 2 week                      b) 2 months                      c) 2 days                      d) 2 years
22. Base maintenance is more extensive than line maintenance  
a) True                      b) False
23. The estimation of weight, fuel weight etc is done by \_\_\_\_\_ process  
a) Sizing                      b) Drawing                      c) Lofting                      d) Drafting
24. What is the initial phase of an aircraft design?  
a) Conceptual design  
b) Preliminary design  
c) Detail design  
d) Sizing
25. The whole design philosophy of an aircraft is termed as \_\_\_\_\_  
a) Design wheel                      b) Anatomy                      c) Design evaluation                      d) Sizing
26. What is meant by the term Lofting?  
a) Specification and requirements  
b) Conceptual drawing  
c) Mathematical modelling of the skin  
d) Trade study specification
27. The main objective of the preliminary stage is  
a) Manufacture                      b) Fabrication                      c) First order sizing                      d) Lofting
28. Murphy's law is perpetuated mainly by  
a) Violations                      b) Poor aircraft design  
c) Complacency                      d) None of these
29. What type of maintenance is most effective?  
a) Shutdown maintenance  
b) Corrective maintenance  
c) Breakdown maintenance  
d) Preventing maintenance
30. Condition monitoring is the basis for \_\_\_\_\_ maintenance  
a) Preventive                      b) Shutdown                      c) Breakdown                      d) Predictive
31. What is EEC?  
a) Engine Electronic Control  
b) Electronic Engine Control  
c) Engine Electric Control  
d) None of the above

32. What is FMS
- Flying Management Systems
  - Flight Management Systems
  - Flight maintenance System
  - None of the above
33. DOC is subdivided as
- Operation, service and depreciation
  - Operation, inspection and service
  - Operation, repair and service
  - None of the above
34. What is CPS approach?
- Centre-physical system
  - Cyber physical system
  - Center portable system
  - None of the above
35. How does the digital implementation in the FEW system reduce weight
- Light weight materials
  - Fever Components
  - System integration
  - Automated control
36. Which of the following is not a result of digital implementation?
- Hardware economy
  - Flexibility in updating
  - Move power
  - Built in test capabilities
37. Which of the following is not a advantage of using a digital data bus?
- Self test
  - Multiplexing
  - Less weight
  - Not affected by electromagnetic interference
38. Where was the First Fly-By-Light system used?
- Fighter aircraft
  - Bomber aircraft
  - Airships
  - Spacecrafts
39. MIL STD 10SE was first issued in \_\_\_\_\_
- 1949
  - 1937
  - 1945
  - 1950
40. The type of Ethernet data bus adapted for airborne application is \_\_\_\_\_
- Airborne Simplex Ethernet
  - Airborne Duplex Ethernet
  - Multiplexed Ethernet
  - Avionic full duplex switched Ethernet
41. In an aircraft, serial data transfer is achieved by \_\_\_\_\_
- Time division multiplexing
  - Code division multiplexing
  - Frequency Division multiplexing
  - Pulse modulation

42. What type of cable does MIL STD 1553 use?  
a) Coaxial cable  
b) Single twisted pair cable with shielding  
c) Single twisted pair cable without shielding  
d) Fibre optic cable
43. What is MOR  
a) Method order reduction  
b) Model order reduction  
c) Method of reduction  
d) None of the above
44. What is PMOR?  
a) Periodical method order reduction  
b) Parametric model order reduction  
c) Periodical model order reduction  
d) Parametric method order reduction
45. What is IRS method?  
a) Increased radial system  
b) Improved reduced system  
c) Improved radial system  
d) None of the above
46. What is FEM?  
a) Finite Element Module  
b) Finite Element Method  
c) First Element Module  
d) First Element Method
47. MOR technique are used to  
a) Decrease computational efficiency  
b) Increase computational efficiency  
c) Increase design parameters  
d) Decreases design parameters
48. What is the limitation of IRS method?  
a) Too slow  
b) Accuracy of the result  
c) Too fast  
d) None of the above
49. What is SVD method?  
a) Singular value decomposition  
b) Simple value decomposition  
c) Singular vertex decomposition  
d) None of the above
50. What is CFD?  
a) Computer fluid dynamics  
b) Complex Fluid dynamics  
c) Computational fluid dynamics  
d) None of the above.

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