TEST - 2015

AE	COURSE	DAY : SUNDAY
	AERONAUTICAL	TIME : 10.00 A.M. TO 1.00 P.M.

MAXIMUM MARKS	TOTAL DURATION	MAXIMUM TIME FOR ANSWERING
180	200 MINUTES	180 MINUTES

MENTION YOUR DIPLOMA CET NUMBER					QUESTION BOOKLET DETAILS	
					VERSION CODE	SERIAL NUMBER
					A – 2	180074

DOs :

1. Check whether the Diploma CET No. has been entered and shaded in the respective circles on the OMR answer sheet.
2. This Question Booklet is issued to you by the invigilator after the **2nd Bell i.e., after 09.50 a.m.**
3. The Serial Number of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
4. The Version Code of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
5. compulsorily sign at the bottom portion of the OMR answer sheet in the space provided.

DON'Ts:

1. **THE TIMING AND MARKS PRINTED ON THE OMR ANSWER SHEET SHOULD NOT BE DAMAGED / MUTILATED / SPOILED.**
2. **The 3rd Bell rings at 10.00 a.m., till then;**
   - Do not remove the paper seal of this question booklet.
   - Do not look inside this question booklet.
   - Do not start answering on the OMR answer sheet.

SEAL

IMPORTANT INSTRUCTIONS TO CANDIDATES

1. This question booklet contains 180 (items) questions and each question will have one statement and four answers. (Four different options / responses.)
2. After the **3rd Bell is rung at 10.00 a.m.** remove the paper seal of this question booklet and check that this booklet does not have any unprinted or torn or missing pages or items etc., if so, get it replaced by acomplete test booklet. Read each item and start answering on the OMR answer sheet.
3. During the subsequent 180 minutes:
   - Read each question (item) carefully
   - Choose one correct answer from out of the four available responses (options / choices) given under each question / item. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose only one response for each item.
   - **Completed darken / shade the relevant circle with a BLUE OR BLACK INK BALL POINT PEN against the question number on the OMR answer sheet.**

Correct Method of shading the circle on the OMR answer sheet is as shown below:
①●③④

4. Use the space provided on each page of the question booklet for Rough Work. Do not use the OMR answer sheet for the same
5. After the **last Bells is rung at 1.00 p.m.** stop marking on the OMR answer sheet and affix your left hand thumb **impression** on the OMR answer sheet as per the instructions.
6. Hand over the **OMR ANSWER SHEET** to the room invigilator as it is. .
7. After separating the top sheet, the invigilator will return the bottom sheet replica (Candidate's copy) to you to carry home for self-evaluation.
8. Preserve the replica of the OMR answer sheet for a minimum period of **ONE year.**

PART - A
APPLIED SCIENCE

1. One Pascal is equal to

   1. 10 dynes/cm^2
   2. 1 dyne / cm^2
   3. 100 dynes / cm^2
   4. 0.1 dyne / cm^2

2. To calm down turbulent sea, sailors use oil to

   1. Decrease surface tension
   2. Increase surface tension
   3. Decrease viscosity
   4. Increase cohesive force

3. The thrust on the bottom of the container having a base area of 20 m^2 filled with water to a height of 3 m is _____ (given g =10m/s^2)

   1. 6×10^5 N
   2. 6×10^4 N
   3. 6×10^3 N
   4. 6×10^2 N

4. Amount of heat required to raise the temperature of 1 kg of water through 1^{o}C is

   1. One calorie
   2. One joule
   3. One kilo-calorie
   4. One kilojoule

5. Absolute scale of temperature has its zero at

   1. 0^{o}C
   2. –100^{o}C
   3. 273^{o}C
   4. –273^{o}C

6. In case of an ideal gas, the value of pressure or volume co-efficient is

   1. $\frac{1}{273}$
   2. $-\frac{1}{273}$
   3. 273
   4. –273

7. The distance travelled by the disturbance per unit time in a given direction is

   1. Wave amplitude
   2. Wave velocity
   3. Wave frequency
   4. Wavelength

8. The speed of the transverse wave along the stretched string is given by

   1. $V=\sqrt{\frac{T}{m}}$
   2. $V=\sqrt{\frac{m}{T}}$
   3. $V=\sqrt{\frac{1}{T}}$
   4. $V=\frac{\sqrt{m}}{T}$

Space For Rough Work

9. Absorption co-efficient of sound wave is given by _____. Where E_m is energy absorbed by the given medium E_{ow} is the energy absorbed by open window.

1. $a = \frac{E_m}{E_{ow}}$ 2. $a = \frac{E_{ow}}{E_m}$ 3. $a = E_m \times E_{ow}$ 4. $a = E_m + E_{ow}$

10. The rich quality of a musical note depends on
    1. Fundamental frequency 2. Loudness
    3. Larger number of over tones 4. Pitch

11. Waxing and waning are the characteristics of
    1. Periodic motion 2. Oscillations 3. Beats 4. Frequency

12. Velocity of sound in air varies
    1. Inversely as the square root of the density of the medium
    2. Directly as the square root of the density of the medium
    3. Directly as the density of medium
    4. Inversely as the density of medium

13. The vibrations of a body of decreasing amplitude are called
    1. Undamped free vibrations 2. Damped free vibrations
    3. Resonant vibrations 4. Forced vibrations

14. Another name for field emission is
    1. Cold cathode emission 2. Thermionic emission
    3. Photoelectric emission 4. Secondary emission

15. In case of photoelectric emission, the rate of emission of electron is
    1. Independent of frequency of radiation
    2. Dependent on frequency of radiation
    3. Dependent on wavelength of incident radiation
    4. Independent of intensity of radiation

16. Emission of radiation from radioactive element is
    1. Slow 2. Fast 3. Spontaneous 4. Very slow

Space For Rough Work

17. In the spectrum of scattered light the lines corresponding to wavelength greater than that of incident light are called

1. Stokes lines
2. Antistokes lines
3. Fluorescent lines
4. Incident lines

18. Resolving power of telescope is given by

1. $\frac{d}{1.22\lambda}$
2. $\frac{1.22\lambda}{d}$
3. $\frac{1.22d}{\lambda}$
4. $\frac{\lambda}{1.22d}$

19. To observe diffraction pattern the obstacle should be

1. Very big
2. Dark
3. Absent
4. Comparable with the wavelength of light

20. When double refraction occurs, extraordinary ray and ordinary rays will have vibrations in the planes _____ to one another

1. Parallel
2. Independent
3. Perpendicular
4. At 45^{o}

21. Maxwell's electromagnetic theory could explain

1. Photo electric effect
2. Interference of light
3. Compton effect
4. Black body radiation

22. The contrast between bright and dark bands of an interference pattern is

1. Low
2. High
3. No change
4. Gradually decreases

23. A non-electrolyte solution is

1. Sugar solution
2. Salt solution
3. Water
4. Copper sulphate solution

24. In alkalies the concentration of OH^- ions is

1. More than 10^{-7}g ions / litre
2. Less than 10^{-7}g ions / litre
3. Equal to 10^{-7}g ions / litre
4. More than 10^{7}g ions / litre

Space For Rough Work

25. An example of derived unit is

1. Meter 2. Second 3. Netwon 4. Candela

26. The prefix used for 10^{-15} is

1. Femto 2. Pico 3. Peta 4. Nano

27. An example of dimensionless constant is

1. Strain 2. Efficiency 3. Force 4. Pi

28. A main scale is divided into half mm and having a Vernier containing 10 divisions has a least count of _____cm.

1. 0.05 2. 0.005 3. 0.02 4. 0.025

29. According to Newton's second law of motion F = Kma. The value of K is

1. 0.1 2. 0 3. 10 4. 1

30. The velocity of a freely falling body is maximum

1. At the beginning 2. Just before it touches ground
3. Exactly half way 4. After it touches ground

31. Wet clothes are dried in washing machine by the property of

1. Inertia of rest 2. Inertia of direction
3. Inertia of motion 4. Inertia of time

32. A force of 1.2×10^{-2} N acts for 3 seconds on a body of mass 0.04kg at rest. The velocity gained by the body is

1. 0.9 m/s 2. 9 m/s 3. 0.09 m/s 4. 9.2 m/s

33. An example of vector quantity is

1. Volume 2. Energy 3. Density 4. Force

Space For Rough Work

34. Handle of the door is fixed away from the end where it is fixed with hinges to

1. Increase the moment of force
2. Decrease the moment of force
3. Keep the door firm
4. Lock it easily

35. Resultant of two equal forces perpendicular to each other acts at an angle _____ to first force

1. 90°
2. 180°
3. 30°
4. 45°

36. The resultant of two forces acting on a body cannot be

1. Greater than first force
2. Zero
3. Lesser than first force
4. Lesser than the difference between two forces

37. Towing of a boat by two forces is an illustration of

1. Lami's theorem
2. Law of triangle of forces
3. Law of parallelogram of forces
4. Law of polygon of forces

38. Shock absorber is an example for

1. Compressive stress
2. Tensile stress
3. Shear stress
4. Shear strain

39. Factor of safety of a structure is

1. Within 2
2. Equal to zero
3. Vary between 5 and 10
4. More than 10

40. In case of liquids as the temperature increases, the viscosity of liquid decreases due to

1. Increase in the rate of diffusion of gases
2. Decrease in the rate of diffusion of gases
3. Increase in the potential energy of molecules
4. Increase in the kinetic energy of molecules

Space For Rough Work

PART - B

APPLIED MATHEMATICS

41. If $x \sin 30^\circ - Sec\ 30^\circ \tan 30^\circ = \tan^2 60^\circ$, then the value of x is

1. $\frac{22}{3}$ 2. $\frac{-22}{3}$ 3. $\frac{11}{6}$ 4. $\frac{3}{22}$

42. The value of $\sin 225^\circ + \cos(-135^\circ)$ is

1. $\sqrt{2}$ 2. $-\sqrt{2}$ 3. $\frac{1}{\sqrt{2}}$ 4. $\frac{-1}{\sqrt{2}}$

43. The simplified value of $\frac{\sin(180^\circ - A)\cot(90^\circ - A)\cos(360^\circ - A)}{\tan(180^\circ + A)\tan(90^\circ + A)\sin(-A)}$ is

1. $\sin A$ 2. $-\sin A$ 3. 1 4. $\operatorname{cosec} A$

44. The simplified value of $\frac{\sin 2A}{1+\cos 2A}$ is

1. $2\tan A$ 2. $\sin A$ 3. $\cot A$ 4. $\tan A$

45. If $\tan A = \frac{3}{4}$ and $\tan B = \frac{1}{7}$, then the value of (A+B) is

1. $\frac{\pi}{6}$ 2. $\frac{25}{23}$ 3. $\frac{\pi}{4}$ 4. $\frac{23}{25}$

46. The value of $\cos 20^\circ + \cos 100^\circ + \cos 140^\circ$ is

1. 0 2. $\cos 50^\circ$ 3. $\frac{1}{2}$ 4. $\sin 50^\circ$

Space For Rough Work

47. The value of $cos^{-1}\left[\tan 135^\circ\right]$ is

1. 0° 2. 180° 3. 45° 4. 90°

48. The centroid of the triangle formed by the vertices $(-10, 6)$, $(2, -2)$ and $(2, 5)$ is

1. $(-2, 3)$ 2. $(2, 3)$ 3. $\left(-3, \frac{9}{2}\right)$ 4. $(-6, 9)$

49. A point $(-4, 3)$ divides the line AB externally in the ratio of 1 : 2. Given A$(-1, -3)$ then the point B is

1. $(6, -3)$ 2. $(-10, 15)$ 3. $(2, 9)$ 4. $(2, -9)$

50. The area of triangle formed by the point, $(3, -1)$, $(2, 0)$ and $(K, 4)$ is 10 Sq. Units, then the value of K is

1. 12 2. 7 3. -22 4. 22

51. The slope of the line joining the points $(-2, 3)$ and $(4, -6)$ is

1. $\frac{3}{2}$ 2. $\frac{-3}{2}$ 3. $\frac{2}{3}$ 4. $\frac{-2}{3}$

52. The equation of straight line passing through $(4, -1)$ and having equal intercepts is

1. $x+y-1=0$ 2. $x+y-5=0$ 3. $x+y-3=0$ 4. $x+y+3=0$

53. The equation of the line passing through $(5, -2)$ and parallel to the line $3x+2y+7=0$ is

1. $3x+2y-11=0$ 2. $3x-2y+11=0$
3. $3x-2y-19=0$ 4. $2x-3y-16=0$

Space For Rough Work

54. The value of $\lim_{x \to -2} \frac{x+2}{x^5+32}$ is

1. $\frac{1}{80}$ 2. 80 3. $\frac{-1}{80}$ 4. −80

55. The value of $\lim_{x \to 0} \frac{2x - \tan 3x}{\sin 2x + 3x^2}$ is

1. $\frac{-1}{5}$ 2. 0 3. $\frac{1}{2}$ 4. $-\frac{1}{2}$

56. If $y = e^x \log x$, then $\frac{dy}{dx}$ at $x = 1$ is

1. e^x 2. e 3. 1 4. 0

57. If $y = \tan^{-1} \sqrt{\frac{1+\cos x}{1-\cos x}}$, then $\frac{dy}{dx}$ is

1. 2 2. −2 3. $\frac{-1}{2}$ 4. $\frac{1}{2}$

58. If $\sqrt{x^3} + \sqrt{y^3} = \sqrt{a^3}$, then $\frac{dy}{dx}$ is

1. $\sqrt{\frac{x}{y}}$ 2. $-\sqrt{\frac{x}{y}}$ 3. $\sqrt{\frac{y}{x}}$ 4. $-\sqrt{\frac{y}{x}}$

59. The second derivative of $y = \log(\sec x - \tan x)$ is

1. $-\sec x \tan x$ 2. $\sec x \tan x$ 3. $-\sec x$ 4. $\sec x$

Space For Rough Work

60. Water flows into the cylindrical tank of radius 7mt at the rate of 294 cubic mt/sec, then the rate of height of water rising in the tank is

1. $\frac{\pi}{6} mt/sec$
2. $\frac{6}{\pi} mt/sec$
3. $14406\ mt/sec$
4. $\frac{21}{\pi} mt/sec$

61. The maximum value of the function $y = x + \frac{1}{x}$ is

1. 0
2. 2
3. 1
4. –2

62. The value of $\int tan^2 x\ dx$ is

1. $tan\ x - x + c$
2. $x - tan\ x + c$
3. $(sec^2 x)^2 + c$
4. $-cot\ x - x + c$

63. The value of $\int \frac{cos\ x}{1 + sin\ x}\ dx$ is

1. $log(sec^2 x + sec\ x\ tan\ x) + c$
2. $log(sin\ x) + c$
3. $log(1 + sin\ x) + c$
4. $\frac{(1 + sin\ x)^2}{2} + c$

64. $\int sin^2 x\ sin\ 2x\ dx$ is

1. $\frac{sin^2 x}{2} + c$
2. $\frac{sin^4 x}{2} + c$
3. $sin^2 x + c$
4. $\frac{-sin^4 x}{2} + c$

Space For Rough Work

65. $\int_{-1}^{1}(2x+1)(5-x)\,dx$ is

1. 10
2. $\frac{26}{3}$
3. $\frac{-26}{3}$
4. $\frac{11}{3}$

66. $\int_{0}^{\pi/4}\tan^2 x\ \sec^2 x\ dx$ is

1. $\frac{1}{3}$
2. $\frac{4}{3}$
3. $\frac{1}{2}$
4. $\frac{-1}{3}$

67. The RMS value of $y^2 = x^2 - 2x$ over the interval [1, 3] is

1. $\sqrt{\frac{5}{3}}$
2. $\sqrt{\frac{2}{3}}$
3. $\frac{1}{3}$
4. $\frac{1}{\sqrt{3}}$

68. The differential equation of $y^3 = 5ax$ by eliminating arbitrary constant a is

1. $\frac{dy}{dx} - \frac{y}{3x} = 0$
2. $\frac{dy}{dx} + \frac{y}{3x} = 0$
3. $\frac{dy}{dx} - \frac{3y}{x} = 0$
4. $\frac{dy}{dx} - \frac{5y}{3x} = 0$

69. The integrating factor of the differential equation $x\frac{dy}{dx} - (1-x)y = x^3$ is

1. $\frac{e^x}{x}$
2. xe^x
3. $e^{\frac{x^2-2x}{2}}$
4. $e^{\frac{2x-x^2}{2}}$

Space For Rough Work

70. If $\begin{vmatrix} 2x+1 & -5x \\ 1 & 3 \end{vmatrix} = 0$, then x is

1. $\frac{3}{11}$ 2. $\frac{-3}{11}$ 3. $\frac{11}{3}$ 4. $-\frac{11}{3}$

71. For the simultaneous linear equations $2x+y+z=1$, $x+y+2z=0$ and $3x+2y-z=2$, the value of Δx is

1. 3 2. -11 3. -7 4. -3

72. If $A=\begin{bmatrix} 2 & 3 \\ 5 & 4 \end{bmatrix}$, $B=\begin{bmatrix} -1 & 7 \\ -4 & 1 \end{bmatrix}$ then $(A+B)^T$ is

1. $\begin{bmatrix} 1 & 1 \\ 10 & 5 \end{bmatrix}$ 2. $\begin{bmatrix} 1 & 10 \\ 1 & 5 \end{bmatrix}$ 3. $\begin{bmatrix} -1 & 10 \\ -1 & 5 \end{bmatrix}$ 4. $\begin{bmatrix} -1 & -1 \\ 10 & 5 \end{bmatrix}$

73. If $A=\begin{bmatrix} 1 & -3 \\ -5 & 7 \end{bmatrix}$, then adj A is

1. $\begin{bmatrix} 1 & -5 \\ -3 & 7 \end{bmatrix}$ 2. $\begin{bmatrix} 7 & -5 \\ -3 & 1 \end{bmatrix}$ 3. $\begin{bmatrix} -1 & -5 \\ -3 & -7 \end{bmatrix}$ 4. $\begin{bmatrix} 7 & 3 \\ 5 & 1 \end{bmatrix}$

74. The cofactor of O in $A=\begin{bmatrix} 3 & -2 & 5 \\ 1 & 6 & 0 \\ 2 & 7 & -4 \end{bmatrix}$ is

1. -25 2. 25 3. -17 4. 0

Space For Rough Work

75. If $\left(\sqrt{3}+1\right)^3 = 10+6\sqrt{3}$, then the value of $\left(\sqrt{3}+1\right)^3 - \left(\sqrt{3}-1\right)^3$ is

1. $12\sqrt{3}$ 2. 0 3. 20 4. $20+\sqrt{3}$

76. The middle term in the expansion of $\left(x^3+\frac{1}{x^2}\right)^6$

1. $10\,x^3$ 2. $20\,x^3$ 3. $\frac{20}{x^3}$ 4. 20

77. If $\vec{a} = i+3j-2k$ and $\vec{b} = 2i-j+3k$, then $\vec{a}\,.\,\vec{b}$ is

1. –5 2. 11 3. 7 4. –7

78. The work done by the force $2i-j+6k$ when it displaces the particle from (5, 3, –2) to (7, –4, 8) is

1. 72 2. 48 3. –71 4. 71

79. The sine of the angle between the vectors $\vec{a} = i+j+k$ and $\vec{b} = 2i-3j-4k$ is

1. $\sqrt{\frac{62}{87}}$ 2. $\sqrt{\frac{87}{62}}$ 3. $\frac{-5}{\sqrt{87}}$ 4. $\sqrt{\frac{10}{63}}$

80. If $\cos\theta = \frac{5}{13}$ and θ is acute angle, then the value of $3\cos\theta - 2\sin\theta$ is

1. $\frac{9}{13}$ 2. 3 3. $\frac{-9}{13}$ 4. –3

Space For Rough Work

PART - C

AERONAUTICAL ENGINEERING

81. COANDA effect is made use of in modern aircraft

1. To get additional speed
2. To get additional lift during landing, take-off
3. During vertical climb mode for a fighter
4. For getting zero drag condition in cruising

82. Coefficient of Lift C_L for an aircraft

1. Keeps on increasing with speed
2. Becomes steady or constant in supersonic regime of operation
3. Is always constant for a type of aircraft at all speeds
4. Keeps on varying in a linear manner

83. In sky wave propogation Electromagnetic waves

1. Always pass through the ionosphere for better communication
2. Reflect, refract and always come back to place of origin
3. Reflect, refract and always come back to a distance place
4. Reflect, does not retract and reach to nearby place

84. In LOS communication, the Range is dependent on

1. Distance to be sent
2. Power of transmission
3. Obstacles on the way
4. All of these factors

Space For Rough Work

85. In modern aircraft, the most preferred type of communication used are

1. HF because the range is very big
2. VHF only due to clear communication
3. VHF and UHF both
4. VHF, UHF and SHF as all range are covered

86. The public address system in an aircraft

1. Is used to take the addresses of all passengers
2. Is a critical equipment and is not switched off in power failures
3. Is a non-critical equipment which can be switched off during power failure
4. Is used only to give speech by pilots and airhostesses

87. An ADF equipment in an aircraft gives

1. Automatic data function for pilot
2. Gives directional guidance or data in horizontal plane
3. Gives directional data in vertical and horizontal planes
4. Gives kilometer to go information to pilots

88. An ILS equipment gives the pilot information on

1. All the instrument in the aircraft
2. All the altitudes of aircraft during cruise
3. Deviation from approach elevation angle and centre of runway
4. Deviation from standard speed of approach

89. MLS equipment is better compared to ILS because

1. It is much more economical compared to ILS
2. It is much more accurate and gives better approach option for pilots
3. ILS is already obsolete, and is not supported in many countries
4. ILS equipment is too heavy and consumes a lot of power

Space For Rough Work

90. GPS navigation makes use of

1. 48 satellites in GEO orbit
2. 24 satellites in MEO orbit
3. 21 satellites in LEO orbit
4. 23 satellites in POLAR orbit

91. In an intertial Navigation System (INS), the accuracy of data

1. Degrades with altitude
2. Degrades with time
3. Degrades with time and distance from starting point
4. Improves with time and distance from starting point

92. Bonding in aircraft electrical wiring system is done

1. To have a correct fixing off full wiring
2. To have a common continuity between all portions or parts of aircraft
3. To have a correct impedance matching
4. To have least resistance in all power circuits

93. The squirrel cage induction motor is very popular and extensively used because

1. The construction is very easy
2. The cost is very economical
3. Wear and tear of parts is very low
4. Brushes can be charged easily and quickly

94. AC alternators are working in aircraft on

1. 25V AC, 50 C/S
2. 25V DC, 400 C/S
3. 115V AC, 400 C/S
4. 115V DC, 400 C/S

Space For Rough Work

95. 400C/S frequency is used in aircraft AC circuit because

1. 50 C/S frequency is not economical
2. It reduces the heating and induction losses
3. It is available in all countries
4. It reduces the weight of all AC machines

96. A carbon pile regulator is very popular in aircraft regulating circuit because

1. It reduces the total cost
2. It has no parts with move
3. It has no contact pitting problem
4. It is developed for only aircrafts

97. Aircraft lighting system operates on

1. AC
2. DC
3. Both AC and DC
4. Switch mode power supply system

98. In four-stroke engine one power stroke is delivered by _____ revolution of crankshaft

1. 1
2. 4
3. 8
4. 2

99. In an aircraft piston engine propeller speed is controlled by _____

1. Reduction in pressure
2. Reduction gear box
3. Accelerator
4. Brake system

100. _____ of an IC engine converts rotary to linear motion

1. Crank shaft
2. Main shaft
3. Propeller shaft
4. Camshaft

101. Engine frictional power is defined as

1. IP + BP
2. IP / BP
3. IP - BP
4. IP X BP

102. Engine oil is usually cooled by _____

1. Ramair
2. Bleed air
3. Fuel / oil cooler
4. Hot exhaust gas

Space For Rough Work

103. The approximate percentage of the mass airflow taken in by the flame tube snout is

1. 82 %
2. 8 %
3. 50 %
4. 18 %

104. Thrust reversal on a High Bypass Engine is achieved by _____

1. Bloker Door
2. Clamshell
3. Bucket type door
4. Values

105. Normal gas turbine engine's exhaust duct is

1. Divergent
2. Convergent / Divergent
3. Convergent
4. Parallel

106. The highest turbine bearing temperature take place _____

1. All the time
2. At start up
3. At shutdown
4. At cruising

107. Kerosene will burn effectively at an air to fuel ratio of _____

1. 150 : 1
2. 15 : 1
3. 45 : 1
4. 75 : 1

108. The function of the station vane assembly at the discharge end of a typical axial flow compressor

1. To increase air swirling motion into combustion
2. To direct flow of gases into combustor
3. To strengthen airflow to eliminate turbulence
4. To increase turbulence

109. Type of Oil system usually found on Turbine engines

1. Dry sump, Dip and Splash
2. Dry sump, Pressure and Spray
3. Wet sump, Spray and Splash
4. Wet sump Dip and Splash

110. _____ Engine is used for powering helicopter

1. Turbo fan
2. Turbo jet
3. Turbo prop
4. Turbo shaft

111. Combustion chamber in which individual liner and a common aircasing is used is called

1. Can annular
2. Can
3. Annular
4. Cylinder

Space For Rough Work

112. Gas turbine engine operates on _____

1. Carnot Cycle 2. Otto Cycle 3. Brayton Cycle 4. Duel Cycle

113. Visual examination and manual checks to determine the condition of an aircraft or components is _____

1. Inspection 2. Quality control 3. SQC 4. Maintenance

114. Bird strike is sometimes called as _____

1. Aviation ingestion 2. Bird hit 3. BASH 4. All of the above

115. The pneumatic leak check is designed to check the cabin for _____

1. Air tightness 2. Pressure 3. Temperature 4. Volume

116. _____ causes uneven tread wear, loss braking efficiency, abnormal tyre growth, bulging out

1. Under inflation 2. Over inflation
3. Normal inflation 4. No inflation

117. Securing the aircraft against inadvertant movement and protecting against adverse weather condition is called _____

1. Mooring 2. Tawing 3. Taxing 4. Flying

118. Fire caused by petrol, diesel, thinner, oil is classified as _____

1. Class D 2. Class A 3. Class B 4. Class C

119. The record in which all data concerning the aircraft is recorded is called _____

1. Log book 2. Maintenance Manual
3. IPC 4. Handbook

120. The cabin air conditioning and pressurisation system supplies conditioned air for

1. Heating 2. Cooling
3. Heating and cooling 4. None of the above

Space For Rough Work

121. Life cycle refers to the period _____

1. From design to launch
2. From first launch to final withdrawal
3. From manufacturing to launch
4. From manufacturing to inpsection

122. Availability is _____

1. Item is in ready to use state
2. Breakdown
3. Correction before use
4. Failure in use

123. MDT means _____

1. Mean Doubt Time
2. Mean Delay Time
3. Mean Decay Time
4. Mean Down Time

124. Collateral assurance that certain items or services as factually stated and provides remedy in the event of failure is _____

1. Replacement 2. Repair 3. Warranty 4. Maintenance

125. If a failure of one component cannot cause related failure in other components is called _____

1. Secondary failure
2. Metallurgical failure
3. Independent failure
4. Creep failure

126. Maintenance plan for addressing any communicable disease posing serious health risk is called

1. Prophylactic maintenance
2. Conditional maintenance
3. Corrective maintenance
4. None of the above

127. FDR means _____

1. Free Data Recorder
2. Flow Data Recorder
3. Flight Data Recorder
4. Federal Data Recorder

128. Systematic and independent examination to determine whether quality activities and result comply with planned arrangement and whether these arrangement are implemented effectively and are suitable to achieve objectives is _____

1. Audit 2. Quality circle 3. TQM 4. ISO

Space For Rough Work

129. Failure which is both gradual and partial is known as _____

1. Early failure
2. Catastrophic failure
3. Degradation failure
4. Partial failure

130. All the parts of the entire aircraft is maintained with reference number, part number and systematically in _____

1. Catalogue
2. Illustrated parts catalogue
3. Log book
4. Maintenance Manual

131. Moving the control column forward, the effect is

1. Pitch up
2. Pitch down
3. Roll port
4. Roll starboard

132. Movement of aircraft above vertical axis is

1. Rolling
2. Pitching
3. Yawing
4. Diving

133. Bell crank is used in

1. Cable pulley system
2. Push pull rod system
3. Chain sproket system
4. None of the above

134. The component which stores the hydraulic fluid under pressure is

1. Reservoir
2. Selector
3. Power pump
4. Accumulator

135. Conventional undercarriage has

1. None wheel
2. Tail wheel
3. Fair undercarriage
4. None of the above

136. Turbo-coolers are used in

1. Air cycle cooling system
2. Freon gas refrigeration
3. Both are correct
4. Both are incorrect

137. Hydraulic system fluid choosen should have

1. High flash and fire point
2. Low flash and fire point
3. Medium flash and fire point
4. All of the above

Space For Rough Work

138. Mineral based hydraulic fluid colour is

1. Blue 2. Green 3. Yellow 4. Red

139. Variable restrictor is used in

1. Wiper system
2. Aircraft doors
3. Both are correct
4. Both are incorrect

140. Static pressure is utilised by

1. ASI 2. Altimeter 3. VSI 4. All of the above

141. Mark the correct statement

1. Air speed is proportional to P_T-P_S
2. Altitude is proportional to P_S
3. Air speed is inversely proportional to P_T - P_S
4. None of the above

142. Square Law compensation is achieved by

1. Dimensioning of transmitting media
2. Tuning spring
3. Profiled cams
4. All of the above

143. Hypersonic speed means

1. Less than 1 M
2. Less than 2 M
3. Less than 3 M
4. More than 5 M

144. Standard compass swinging calibration is done at

1. Four heading 2. Eight heading 3. Twelve heading 4. Six heading

145. Aircraft component log books are to be preserved for a period of _____ years after damage beyond economical repair

1. 0.5 years 2. 1.0 year 3. 1.5 years 4. 2.0 years

Space For Rough Work

146. Flight manual section – 3 contains

1. General information
2. Limitation imposed
3. Emergency procedures
4. None of the above

147. Indian registered aircraft has nationality mark starting with letter

1. VT
2. IN
3. HI
4. BH

148. Statically unstable structure is given by

1. $M = 2J - 3$
2. $M \neq 2J - 3$
3. $M < 2J - 3$
4. $M > 2J - 3$

149. Which is not a part of Truss type of fuselage construction ?

1. Frame
2. Longeron
3. Diagonal member
4. Bulkhead

150. In a rectangular wing the stall first occurs at

1. Tip
2. Root
3. Middle
4. Winglet

151. Generally, wing with _____ configuration provides longitudinal and lateral stability during all condition of flying

1. Mid wing
2. Dihedral wing
3. Low wing
4. Anhedral wing

152. Identify the lateral member placed at regular interval from root to tip and from leading edge to trailing edge of wing

1. Spar
2. Ribs
3. Stringer
4. Anti-drag wire

153. In an 'I' Beam, the maximum shear stress is carried by

1. Web
2. Flange
3. Between web and flange
4. Neutral axis

Space For Rough Work

154. Which control surface is located at the trailing edge of the horizontal stabilizer ?

1. Rudder 2. Aileron 3. Elevator 4. Spoilers

155. Winglets are fitted at the tip section of wing to reduce

1. Skin friction drag
2. Profile drag
3. Induced drag
4. Wave drag

156. Air safety organisation prevents failure through regulation, _____ and training

1. Design
2. Education
3. Modern
4. Material

157. What is the full form of DGCA ?

1. Direct General of Civil Aviation
2. Director General of Civil Aviation
3. Director General of Commercial Aviation
4. Direct General of Commercial Aviation

158. In the below type of ATF which has the highest Flash Point ?

1. Jet A-1 2. Jet A 3. Jet B 4. JP-5

159. Normally, newly filled tyre is allowed to stretch for a minimum period of _____ hours

1. 10 2. 5 3. 12 4. 24

160. In case of low r.p.m engine failure the blade will bend in _____ rotation

1. In direction
2. Opposite direction
3. In perpendicular direction
4. None of the above

161. Sloping of instrument panel to _____ degree to minimise parallex error

1. 50 2. 15 3. 10 4. 25

162. In _____ type of display presents data without requiring users to look away from their usual viewpoint

1. HDD 2. Radial 3. HUD 4. Vertical

Space For Rough Work

163. _____ is used to have a non-continuous indication of pressure

1. Pressure gauge
2. Pressure switch
3. Tachometer
4. Bourdon tube

164. In Wheat-Stone Bridge, the balanced condition refers to

1. High current
2. Low current
3. Zero current
4. Opposite current

165. Measurement of RPM in engine using light is called as

1. Tachogenerator
2. Stroboscope
3. Synchronoscope
4. Tacho indicator

166. The property of material to resist penetration is called

1. Brittleness
2. Hardness
3. Ductility
4. Malleability

167. High carbon steel consists of _____% of carbon

1. 1.2 to 1.5
2. 0.5 to 1
3. 0.3 to 0.5
4. 0 to 0.2

168. The second most important constituent of stainless steel is _____

1. Tungsten
2. Carbon
3. Chromium
4. Titanium

169. Which is not the advantage of composite material?

1. High strength
2. Low cost
3. Does not corrode
4. Less weight

170. Which among the following is surface inspection technique?

1. DYE penetration
2. Eddy current
3. Ultrasonic
4. Thermal

Space For Rough Work

171. Atmospheric Air contains

1. N_2 – 78% O_2 – 21% Inert gases – 1%
2. N_2 – 80% O_2 – 19% Other gases – 1%
3. N_2 – 75% O_2 – 20% CO_2 – 2 % Other gases – 3%
4. N_2 – 80% O_2 – 20%

172. As per ISA standard temperature, pressure, relative humidity at MSL are

1. T = 15°C, P=1018.25mb Relative humidity =100%
2. T=15°C, P=1018.25mb Relative humidity = 98%
3. T=15°C, P = 1013.25mb, Relative humidity = 100%
4. T=17°C, P=1030.25mb, Relative humidity =100%

173. Lapse rate for atmospheric temperature and pressure are

1. 3°C per 100 ft climb, 1mb per 35 ft climb
2. 1.98°C per 1000ft climb, 1mb per 30 ft climb
3. 1.98°C per 100ft climb, 1mb per 100 ft climb
4. 1.98°C per 10ft climb, 1mb per 50 ft climb

174. Secondary control surface are used

1. Whenever pilot feels loss of lift
2. Only during bad weather
3. Only during cruising
4. Only during take-off and landing

175. Flaps are used by the pilot to

1. Control high speed manoeuvres
2. Control angle of attack during take-off, landing
3. Obtain lift during reduced speeds on landing and take-off
4. Get steady, cruise speed control for auto pilot mode

Space For Rough Work

176. Seats are used for

1. Getting additional control for auto pilot
2. Getting additional lift during landing, take-off at reduced speeds
3. Getting instant control of aircraft altitudes
4. Getting a very smooth cruise control

177. Slots are

1. Part of flaps
2. Additional devices for controlling boundary layer separation
3. Devices used for additional drag
4. Device used for getting additional speed in climb and dive

178. Winglets are used in aircraft wings

1. To reduce the wing tip vortices to a large extent
2. To reduce the aspect ratio of the wing
3. To reduce the area of the wing
4. To reduce the drag on leading edge

179. NACA is the short form for

1. National Aircraft Committee for Aviation
2. National Aeronautics Committee of America
3. National Aviation Council for Aeronautics
4. National Authority for Counselling Aviation

180. The wake behind a big aircraft extends to

1. Upto 2-3 kms behind the aircraft
2. Dies down within 100 metres
3. Upto 15 kms behind the aircraft
4. Upto 500 metres depending on weather conditions

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SEAL