



QUESTION BOOKLET

B

Exam. Code : 08

Subject Code : 08-ME-2

Number of Pages in Booklet : 16

Number of Questions in Booklet : 100

Time : 1 Hour 15 Minutes

Maximum Marks : 100

INSTRUCTIONS

1. Answer all questions.
2. All questions carry equal marks.
3. Only one answer is to be given for each question.
4. If more than one answers are marked, it would be treated as wrong answer.
5. Each question has four alternative responses marked serially as (A), (B), (C), (D). You have to darken only one circle or bubble indicating the correct answer on the Answer Sheet using **BLUE BALL POINT PEN**.
6. The candidate should ensure that Series Code of the Question Paper Booklet and Answer Sheet must be same. In case they are different, a candidate must obtain another Question Paper of the same series. Candidate himself shall be responsible for ensuring this.
7. Mobile Phone or any other electronic gadget in the examination hall is strictly prohibited. A candidate found with any of such objectionable material with him/her will be strictly dealt as per rules.
8. End of Examination, Candidates carry out this booklet, with them.

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1

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1. The unit of dynamic viscosity in S.I. units is
(A) $\text{N}\cdot\text{m}/\text{s}^2$ (B) $\text{N}\cdot\text{s}/\text{m}^2$
(C) poise (D) stoke
2. The absolute pressure is equal to
(A) gauge pressure + atmospheric pressure
(B) gauge pressure - atmospheric pressure
(C) atmospheric pressure - gauge pressure
(D) gauge pressure - vacuum pressure
3. The hammer blow in pipes occurs when
(A) there is excessive leakage in the pipe
(B) the pipe bursts under high pressure of fluid
(C) the flow of fluid through the pipe is suddenly brought to rest by closing of the valve
(D) the flow of fluid through the pipe is gradually brought to rest by closing of the valve
4. The pressure measured with the help of a pressure gauge is called
(A) atmospheric pressure (B) gauge pressure
(C) absolute pressure (D) mean pressure
5. Falling drops of water become spheres due to the property of
(A) surface tension of water (B) compressibility of water
(C) capillarity of water (D) viscosity of water
6. Venturimeter is used to
(A) measure the velocity of a flowing liquid
(B) measure the pressure of a flowing liquid
(C) measure the pressure difference of liquid flowing between two points in a pipe line
(D) measure the discharge of liquid flowing in a pipe
7. Specific heat is the amount of heat required to raise the temperature
(A) By unit degree of a substance
(B) By unit degree of a unit mass
(C) Of a unit mass by 10°
(D) None of the above
8. Internal energy of a perfect gas depends upon
(A) Temperature only
(B) Temperature and pressure
(C) Temperature, pressure and specific heats
(D) None of the above

- 9 In 100 CC -4 stroke engine, what does CC means?
(A) Cubic centimeter (B) Cooled cylinder
(C) Compound centimeter (D) Casted cylinder
- 10 When two bodies are in thermal equilibrium with a third body, they are also in thermal equilibrium with each other This statement is
(A) First law of thermodynamics
(B) Second law of thermodynamics
(C) Zeroth law of thermodynamics
(D) None of the above
- 11 The gas constant (R) is equal to the _____ of two specific heats.
(A) sum (B) difference
(C) ratio (D) product
- 12 A bimetal plate consists of two materials of different coefficients of thermal expansion. The coefficient of thermal expansion of the top part of the plate is less than the bottom part. If the temperature of the entire plate increases, what happens to the plate ?
(A) Expands (B) Contracts
(C) Bends down (D) Bends up
- 13 This allows the designer to conceptualize objects more easily without having to make costly illustrations, models, or prototypes:
(A) Computer-aided manufacturing
(B) Computer-aided engineering
(C) Computer-aided design
(D) Computer-aided prototyping
- 14 Which one of the following methods produces gear by generating process ?
(A) Hobbing (B) Casting
(C) Punching (D) Milling
- 15 Tool life of the cutting tool is most affected by
(A) Tool geometry (B) Cutting speed
(C) Cutting feed and depth (D) Microstructure of material being cut

- 16 Metal in machining operation is removed by
(A) Distortion of metal
(B) Tearing chips
(C) Cutting the metal across a zone
(D) Shearing the metal across a zone
- 17 A feeler gauge is used to check
(A) Thickness of clearance (B) Radius
(C) Screw pitch (D) Surface roughness
- 18 For ammonia refrigerating systems, the tubes of a shell and tube condenser are made of
(A) copper (B) aluminium
(C) steel (D) brass
- 19 The difference between dry bulb temperature and wet bulb temperature, is called
(A) dew point depression (B) wet bulb depression
(C) dry bulb depression (D) degree of saturation
- 20 A closed cycle gas turbine gives _____ efficiency as compared to an open cycle gas turbine.
(A) same (B) lower
(C) zero (D) higher
- 21 Dynamic friction as compared to static friction is
(A) Same
(B) More
(C) Less
(D) May be less or more depending upon nature of surfaces and velocity
- 22 According to Dalton's law of partial pressures, (where p_b = Barometric pressure, p_a = Partial pressure of dry air, and p_v = Partial pressure of water vapor)
(A) $P_b = p_a - p_v$ (B) $P_b = p_a + p_v$
(C) $P_b = p_a \times p_v$ (D) $P_b = p_a / p_v$
- 23 The volume of air delivered by the compressor is called
(A) compressor capacity (B) free air delivery
(C) swept volume (D) none of these

- 24 Theoretically, a four stroke cycle engine should develop _____ power as that of a two stroke cycle engine.
- (A) same (B) double
(C) four times (D) half
- 25 The formation of frost on cooling coils in a refrigerator
- (A) reduces power consumption
(B) increases heat transfer
(C) increases power consumption
(D) improves C.O.P. of the system
- 26 Which tool is used to measure gap size in a rough alignment ?
- (A) inside caliper (B) Dial indicator
(C) Feeler gauge (D) measuring tape
- 27 A carburetor is used to supply
- (A) air and diesel (B) petrol and air
(C) diesel (D) petrol
- 28 The primary fuel used in nuclear power plants is
- (A) U_{235} (B) U_{238}
(C) Pu_{239} (D) Pu_{233}
- 29 The exhaust valve in a four stroke cycle petrol engine
- (A) opens at 50° after bottom dead centre and closes at 15° before top dead centre
(B) opens at bottom dead centre and closes at top dead centre
(C) may open and close anywhere
(D) opens at 50° before bottom dead centre and closes at 15° after top dead centre
- 30 The part of the coupling that actually transmits power and rotation from one shaft to the other shaft is
- (A) driver (B) hub
(C) key (D) gap

- 31 Morse test can be conducted for
- (A) multi-cylinder engines (B) petrol engines
(C) diesel engines (D) all of these
- 32 The unit of strain is
- (A) m/m (B) Kg/m
(C) Kg-mm (D) dimensionless
- 33 A simply supported beam of span L which carries over its full span a load varying uniformly from zero at either ends to W kg/m at mid span, will have zero shear force at
- (A) ends
(B) Mid span
(C) Both ends
(D) None of the above
- 34 The failure of a material under varying load, after a number of cycles of such load, is known as
- (A) Brittle failure (B) Ductile failure
(C) Impact failure (D) Fatigue failure
- 35 All of the following are the main causes of accidents in industry EXCEPT:
- (A) poor work habits
(B) alcohol or drug abuse
(C) weather
(D) unsafe acts
- 36 A body having similar properties throughout its volume is said to be
- (A) Homogenous (B) isotropic
(C) isentropic (D) Heterogeneous

- 37 When a body moves round a fixed axis it will have ?
(A) A circular motion (B) A rotary motion
(C) A translatory motion (D) A swinging motion
- 38 For self locking lifting machine, the efficiency must be
(A) 100% (B) 50%
(C) More than 50% (D) Less than 50%
- 39 Highly polished surfaces of a thermos-flask prevent heat by
(A) conduction
(B) radiation
(C) convection
(D) None of the above
- 40 At critical point the latent enthalpy of vaporization is
(A) maximum (B) minimum
(C) zero (D) None of the above
- 41 During an adiabatic process the change in entropy is
(A) positive (B) zero
(C) negative (D) positive or negative
- 42 A mixture of liquid and vapor refrigerant in a vessel is an example of
(A) Heterogeneous system (B) Homogenous system
(C) Closed system (D) Open system
- 43 Buffing is
(A) Process of electroplating
(B) An etching process
(C) The process of bringing out the luster of metal
(D) Knurling process

- 44 A sprue hole is
(A) An eccentric hole
(B) An opening in a mould into which the molten is poured
(C) An air vent
(D) None of the above
- 45 A half nut of lathe is
(A) Damaged nut
(B) Nut manufactured in parts
(C) nut with half the standard pitch
(D) Mechanism that locks the lathe carriage to the lead screw for thread cutting
- 46 In which operation on a work-piece on lathe the spindle speed will be lowest ?
(A) Parting off (B) Taper turning
(C) Thread cutting (D) Plain turning
- 47 Shank of taper drills are provided standard taper known as
(A) Chapman taper (B) Seller taper
(C) Sharpe taper (D) Morse taper
- 48 While using HSS tools on a lathe, cutting speed will be maximum when machining
(A) aluminium (B) C.I
(C) M.S (D) High carbon steel
- 49 In metal cutting operations continuous chips are produced while machining
(A) Brittle material (B) Ductile material
(C) Hard material (D) None of the above
- 50 The function of chip breaker in a cutting tool is
(A) To break the chips into short segments
(B) To get the long curled chip
(C) To provide smooth path for long chips
(D) None of the above

- 51 Core prints are provided to
- (A) To increase surface finish of casting
 - (B) To direct flow of molten metal in to mould
 - (C) Form seat to support and hold the core
 - (D) None of the above
- 52 Which does not fit with rest in the following ?
- (A) reamer
 - (B) Drill
 - (C) Hammer
 - (D) Milling cutter
- 53 Precision is
- (A) Piercing process
 - (B) The repeatability of a measurement process
 - (C) Agreement of the result of a measurement with true value of measured quantity
 - (D) Error of judgment in reading on observations
- 54 A sine bar is used to measure
- (A) Surface finish
 - (B) Surface roughness
 - (C) Internal taper
 - (D) External taper
- 55 Which one of the following is not a shearing process ?
- (A) embossing
 - (B) Blanking
 - (C) Lancing
 - (D) notching

- 56 An ideal fluid is
- (A) Similar to perfect a gas (B) Frictionless and incompressible
(C) compressible (D) None of the above
- 57 The velocity of a fluid particle at the centre of the pipe section is
- (A) minimum (B) average
(C) maximum (D) zero
- 58 Hidden lines are drawn as
- (A) dashed narrow lines
(B) dashed wide lines
(C) long-dashed dotted wide line
(D) long-dashed double dotted wide line
- 59 When an object is cut by a section plane parallel to H.P and perpendicular to V.P, then the sectional view of the object is obtained in ?
- (A) front view (B) top view
(C) left side view (D) right side view
- 60 Lettering on a drawing sheet should have
- (A) all alphabets in capital letters
(B) all alphabets in small letters
(C) In a sentence only first alphabet in capital letter
(D) In a sentence only abbreviations are capital letter
- 61 The profile of a gear teeth is in the form of
- (A) parabola (B) involutes
(C) spiral (D) Helix
- 62 The curve generated by a point on the circumference of a circle, which rolls without slipping along outside of another circle is known as
- (A) Hypocycloid (B) Epicycloids
(C) Cycloid (D) Trochoid

- 63 In orthographic projections, the rays are assumed to
(A) diverge from station point (B) converge from station point
(C) be parallel (D) None of these.
- 64 If an object lies in third quadrant, its position with respect to reference planes will be
(A) in front of V.P., above H.P.
(B) behind V.P., above H.P.
(C) in front of V.P., below H.P.
(D) behind V.P., below H.P.
- 65 Pulley in a belt drive acts as
(A) Cylindrical pair (B) Turning pair
(C) Rolling pair (D) Sliding pair
- 66 Pitch point on a cam is
(A) any point on a cam is
(B) the point on cam pitch curve having the maximum pressure angle
(C) any point on pitch circle
(D) none of the above
- 67 A mechanism is an assemblage of
(A) four links or more than four links
(B) two links
(C) three links or less than three links
(D) none of the above
- 68 The tendency of a body to resist change from rest or motion is known as
(A) mass (B) friction
(C) inertia (D) resisting force
- 69 The ratio of brake power to indicated power of an I.C.Engine is called
(A) Mechanical efficiency (B) Thermal efficiency
(C) Volumetric efficiency (D) Relative efficiency

70. In a four stroke cycle petrol engine, during suction
- (A) only air is sucked
 - (B) only petrol is sucked in
 - (C) mixture of petrol and air is sucked in
 - (D) none of the above
71. The kinematic viscosity is the
- (A) ratio of density of the liquid to the absolute viscosity
 - (B) product of absolute viscosity and density of the liquid
 - (C) product of absolute viscosity and mass of the liquid
 - (D) ratio of absolute viscosity to the density of the liquid
72. Coefficient of contraction is the ratio of
- (A) actual velocity of jet at vena contracta to the theoretical velocity
 - (B) actual discharge through an orifice to the theoretical discharge
 - (C) loss of head in the orifice to the head of water available at the exit of the orifice
 - (D) area of jet at vena contracta to the area of orifice
73. According to equation of continuity,
- (A) $w_1 a_1 = w_2 a_2$
 - (B) $w_1 v_1 = w_2 v_2$
 - (C) $a_1 v_1 = a_2 v_2$
 - (D) $a_1 / v_1 = a_2 / v_2$
74. Which of the following is an example of laminar flow ?
- (A) Underground flow
 - (B) Flow past tiny bodies
 - (C) Flow of oil in measuring instruments
 - (D) all of these
75. Reynold's number is the ratio of inertia force to
- (A) viscous force
 - (B) elastic force
 - (C) gravity force
 - (D) pressure force

- 76 The average age of husband, wife and their child 3 years ago was 27 years and that of wife and the child 5 years ago was 20 years. The present age of the husband is:
- (A) 35 years (B) 40 years
(C) 50 years (D) None of these
- 77 Find out the wrong number in the given sequence of numbers :
105, 85, 60, 30, 0, -45, -90
- (A) 0 (B) 85
(C) -45 (D) 60
- 78 Law of Inertia was given by _____
- (A) Madam Curie (B) Rutherford
(C) Galileo (D) Isaac Newton
- 79 The first Indian in space was _____
- (A) Vikram Sheth
(B) Kalpana Chawla
(C) Sunita Williams
(D) Rakesh Sharma
- 80 Gujarat have border with how many neighboring country(s) of India
- (A) 4 (B) 3
(C) 2 (D) 1
- 81 The administrative capital of Himachal Pradesh is _____
- (A) Kullu (B) Dharamshala
(C) Chamba (D) Shimla
- 82 What is the unit for measuring the amplitude of a sound?
- (A) Decibel (B) Coulomb
(C) Hum (D) Cycles

83. Who among following is the writer of "Vande Matarani" ?
(A) Rabindranath Tagore (B) Mulk Raj Anand
(C) B C Chatterje (D) Harinder Nath Chattopadhyia
84. Who won Rajiv Gandhi Khel Ratan Award for the year 2011-
(A) Zaheer Khan (B) G. Jwala
(C) Gagan Narang (D) Tejaswini Sawant
85. Who is the Chairman Cum Managing Director of Air India?
(A) Rohit Nanda (B) Aruna Roy
(C) Capt. Vijya Gupta (D) Naresh Goyal
86. Engineers Day is celebrated every year to mark birth anniversary of
(A) M. Visvesvariya (B) S C Rangwala
(C) M B Jain (D) None of them
87. IDMA was recently in news because of
(A) Film festival
(B) Handicraft Fair
(C) International Pharmaceutical Exhibition
(D) None of them
88. Who won three of the four Grand slam titles for the year 2011?
(A) Novak Djokovic (B) Rafael Nadal
(C) Roger Federer (D) None of them
89. Nandan Nilekani is a chairman of
(A) UTI (B) UIDA
(C) INFOSYS (D) None of them
90. In MS Excel, you are asked to plot a graph to show the number of seats allocated to each party/group from the election results. Select the most preferable type of chart from the followings _____
(A) Line Chart (B) Pie Chart
(C) Area Chart (D) XY Scatter Chart
91. _____ is an open source alternative to MS Office.
(A) Office 365 (B) LibreOffice
(C) Zoho Office Suite (D) ThinkFree Office
92. In MS Excel, how many arguments are necessary in VLOOKUP function?
(A) 0 (B) 1
(C) 2 (D) 3

93 Look at this series: 3, 4, 7, 8, 11, 12, ... What number should come next?

- (A) 7 (B) 10
(C) 14 (D) 15

94 44 41 38 35 32 29 26

- (A) 24 21 (B) 22 19
(C) 23 20 (D) 29 32

95 Look at this series: 83, 73, 93, 63, __, 93, 43, ... What number should fill the blank?

- (A) 33 (B) 53
(C) 73 (D) 93

96 0, 2, 3, 5, 8, 10, 15, 17, 24, 26, ?

- (A) 28 (B) 30
(C) 32 (D) 35

97 Choose the missing terms out of the given alternatives.

AB, DEF, HIJK, ?,

- (A) LMNO (B) LMNOP
(C) MNOPQ (D) QRSTU

98 R, U, X, A, D, ?

- (A) F (B) G
(C) H (D) J

99 Choose the missing term from below options: B, D, F, I, L, P, ?

- (A) R (B) S
(C) T (D) U

100 _ bbca _ bcca _ ac _ a _ cb

- (A) abeba (B) acbab
(C) bacab (D) bcaajb