

068/2017

Question Booklet  
Alpha Code

A

Question Booklet  
Serial Number

Total Number of Questions : 100

Time : 75 Minutes

Maximum Marks : 100

### INSTRUCTIONS TO CANDIDATES

1. The question paper will be given in the form of a Question Booklet. There will be four versions of question booklets with question booklet alpha code viz. A, B, C & D.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the question booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a question booklet where the alpha code does not match to the allotted alpha code in the seating position, please draw the attention of the Invigilator IMMEDIATELY.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your question booklet is un-numbered, please get it replaced by new question booklet with same alpha code.
6. The question booklet will be sealed at the middle of the right margin. Candidate should not open the question booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the question booklet supplied to him contains all the 100 questions in serial order. The question booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same alpha code. This is most important.
8. A blank sheet of paper is attached to the question booklet. This may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

068/2017

1. Who expressed the view that the constitution of India "is workable, it is flexible and it is strong enough to hold the country together both in peace time and in war time" ?  
(A) Dr.B.R. Ambedkar (B) Jawaharlal Nehru  
(C) K.M. Munshi (D) B.N. Basu
2. Who among the following was not a member of *The States Reorganization Commission* set up in 1953 ?  
(A) Fazal Ali (B) K.M. Panikkar  
(C) H.N. Kunzru (D) Pattabhi Sitaramayya
3. The Lok Sabha passed *The Rights of Persons with Disabilities Bill-2016* on :  
(A) 16 January, 2017 (B) 16 December, 2016  
(C) 20 December, 2016 (D) 20 January, 2017
4. The 44<sup>th</sup> Chief Justice of India is :  
(A) T.S. Thakur (B) H.L. Dattu (C) J.S. Khehar (D) R.M. Lodha
5. The *Sadhu Jana Paripalana Yogam* was founded in :  
(A) 1901 (B) 1905 (C) 1927 (D) 1907
6. The first All Kerala Political Conference was held in 1921 at :  
(A) Ottappalam (B) Tirur (C) Kozhikode (D) Manjeri
7. *Sahodara Sangham* was founded in 1917 by :  
(A) K. Kelappan (B) K. Ayyappan  
(C) Ayyankali (D) C.V. Kunhiraman
8. The editor of the newspaper *Mitavadi* was :  
(A) T.K. Madhavan (B) A.K. Gopalan  
(C) C. Krishnan (D) P. Krishna Pillai
9. In which case the Supreme Court of India opined that the Preamble of the Indian Constitution is not a part of the Constitution ?  
(A) LIC of India Case (B) Berubari Union Case  
(C) Kesavananda Bharati Case (D) Nanavati Case

A

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{P.T.O.}

10. Who was selected as the "Person of the Year 2016" by the Time Magazine ?  
(A) Donald Trump (B) Narendra Modi (C) Vladimir Putin (D) Hillary Clinton
11. Who described the 'Preamble of the Indian Constitution' as the 'Key-note' ?  
(A) Lord Mountbatten (B) Dr.B.R. Ambedkar  
(C) Jawaharlal Nehru (D) Ernest Barker
12. Who criticised the 'Objective Resolution' moved by Jawaharlal Nehru in the Constituent Assembly as "wrong, illegal, premature, disastrous and dangerous" ?  
(A) Hazrat Mohani (B) Muhammed Ali Jinna  
(C) M.R. Jayakar (D) Dr.B.R. Ambedkar
13. The present Speaker of the Bangladesh Parliament is :  
(A) Shamsul Huda Chowdhury (B) Shah Abdul Hamid  
(C) Dr. Shirin Sharmin Chaudhury (D) Humayun Rasheed Chowdhury
14. The second Ezhava Memorial was submitted to :  
(A) Lord Curzon (B) Sri Mulam Tirunal Rama Varma  
(C) Rama Varma Visakam Tirunal (D) Lord Mountbatten
15. The Secretary General of UNO is :  
(A) Ban ki-moon (B) Antonio Guterres  
(C) Kofi Annan (D) Amina Mohammed
16. The Supreme Court of India issued for the first time a contempt of court notice against the sitting judge, Justice C.S. Karnan who is presently serving in :  
(A) Delhi High Court (B) Madras High Court  
(C) Kerala High Court (D) Calcutta High Court
17. The organization called the *Samyukta Rashtriya Samiti* was formed in connection with :  
(A) Aikya Kerala Movement (B) Abstention Movement  
(C) Guruvayur Satyagraha (D) Vaikom Satyagraha
18. *Samatava Samajam* was established in :  
(A) 1836 (B) 1846 (C) 1826 (D) 1850

19. The present Director General of the World Trade Organization is :  
(A) Pascal Lamy (B) Harsha Singh  
(C) Roberto Azevedo (D) Karl Brauner
20. The 20<sup>th</sup> Chief Election Commissioner of India is :  
(A) V.S. Sampath (B) H.S. Brahma  
(C) Om Prakash Rawat (D) Dr. Nasim Zaidi
21. The term modular ratio of the two materials is ratio of \_\_\_\_\_.  
(A) linear stress to lateral stress (B) their modulus of rigidities  
(C) their modulus of elasticities (D) shear stress to shear strain
22. A bolt is made to pass through a tube, both ends of them are tightly fitted with the help of washer and nuts. If the nut is tightened :  
(A) Bolt is under tension and tube is under compression  
(B) Bolt is under compression and tube is under tension  
(C) Bolt and tube are under tension  
(D) Bolt and tube are under compression
23. When a force is acting on a body through axially, the strain developed in the perpendicular direction of the force is known as :  
(A) Linear strain (B) Lateral strain (C) Shear strain (D) Volumetric strain
24. A cantilever beam is loaded with point load at free end, the bending moment at the free end is :  
(A) Zero (B) Maximum (C) Minimum (D) Unity
25. The shape of bending moment diagram for a simply supported beam loaded in its center is :  
(A) A rectangle (B) An equilateral triangle  
(C) A right angled triangle (D) An isosceles triangle
26. The purpose of springs in brakes and clutches are :  
(A) To absorb shocks (B) To store strain energy  
(C) To measure force (D) To apply force

27. The object of caulking in a riveted joint is to make the joint :  
(A) Free from stresses (B) Free from corrosion  
(C) Leak proof (D) To prevent crack
28. A column that fails due to direct stress only is called :  
(A) Short column (B) Long column (C) Weak column (D) Medium column
29. Lamé's theory is associated with :  
(A) Thin cylindrical shells (B) Thick cylindrical shells  
(C) Direct and bending stresses (D) Torsion of shafts
30. The value of compressive strength of a brittle material is \_\_\_\_\_ its tensile strength.  
(A) equal to (B) greater than (C) less than (D) reciprocal of
31. The variation in the volume of a liquid with variation of pressure is called its :  
(A) Surface tension (B) Compressibility (C) Capillarity (D) Viscosity
32. A Pitot tube is used to measure the :  
(A) velocity of flow at the required point in a pipe  
(B) pressure difference between two points in a pipe  
(C) total pressure of liquid flowing in a pipe  
(D) discharge through a pipe
33. Coefficient of contraction is the ratio of :  
(A) Actual velocity of jet at vena contracta to theoretical velocity  
(B) Loss of head in the orifice to the head of water available at the exit of the orifice  
(C) Actual discharge through an orifice to the theoretical discharge  
(D) Area of jet at vena contracta to the area of orifice
34. An orifice is said to be large if :  
(A) The size of orifice is large  
(B) The velocity of flow is large  
(C) The available head of liquid is more than five times the diameter of orifice  
(D) The available head of liquid is less than five times the diameter of orifice

35. An opening in the side of a tank or vessel such that the liquid surface with the tank is below the top edge of the opening is called :
- (A) Weir                      (B) Notch                      (C) Orifice                      (D) Pipe flow
36. Reynolds number is the ratio of the inertia force to the :
- (A) Surface tension force                      (B) Viscous force  
(C) Gravity force                      (D) Elastic force
37. Which of the following pumps is suitable for small discharge and high heads ?
- (A) Centrifugal pump                      (B) Axial flow pump  
(C) Mixed flow pump                      (D) Reciprocating pump
38. Which of the following hydraulic units works on the principle of Pascal's law ?
- (A) Air lift pump                      (B) Jet pump  
(C) Hydraulic coupling                      (D) Hydraulic press
39. A hydraulic ram is a device used to :
- (A) Store the energy of water  
(B) Increase the pressure of water  
(C) To lift small quantity of water to greater height  
(D) To lift water from deep well
40. The amount of heat required to raise the temperature of \_\_\_\_\_ water through one degree is called Kilo Joule.
- (A) 1 gram                      (B) 10 gram                      (C) 100 gram                      (D) 1000 gram
41. The sum of internal energy and the product of pressure and volume is known as :
- (A) Work done                      (B) Entropy                      (C) Enthalpy                      (D) External energy
42. The heat energy stored in the gas and used for raising the temperature of the gas is known as :
- (A) Heat energy                      (B) Internal energy                      (C) Kinetic energy                      (D) Molecular energy
43. The hyper bolic process is governed by :
- (A) Boyle's Law                      (B) Charles' Law  
(C) Gay-Lussac's Law                      (D) Avogadro's Law

44. The compression ratio is the ratio of :  
(A) Swept volume to Total volume  
(B) Total volume to Swept volume  
(C) Swept volume to Clearance volume  
(D) Total volume to Clearance volume
45. The compression ratio for petrol engine is :  
(A) 3 to 6                      (B) 5 to 8                      (C) 15 to 20                      (D) 20 to 30
46. A thermodynamic cycle consisting of, one constant pressure, one constant volume and two isentropic process is known as :  
(A) Carnot Cycle    (B) Sterling Cycle    (C) Otto Cycle    (D) Diesel Cycle
47. The calorific volume of gaseous fuel is expressed in :  
(A) kJ                      (B) kJ/kg                      (C) kJ/m<sup>3</sup>                      (D) kJ/m<sup>2</sup>
48. The thermodynamic property like temperature is measured on basis of :  
(A) Zeroth law of thermodynamics    (B) First law of thermodynamic  
(C) Second law of thermodynamics    (D) Third law of thermodynamics
49. Which of the following is a water tube boiler ?  
(A) Lancashire boiler                      (B) Babcock and Wilcox boiler  
(C) Locomotive boiler                      (D) Cochran boiler
50. An economizer is installed in a boiler primarily to :  
(A) Super heat the steam                      (B) Reduce the fuel consumption  
(C) Increase the steam pressure                      (D) Indicate steam level
51. The actual power generated in the engine cylinder is called :  
(A) Brake power                      (B) Indicated power  
(C) Frictional power                      (D) Thermal power
52. The energy conversion takes place in steam nozzle is :  
(A) Heat energy of steam into Kinetic energy  
(B) Kinetic energy of steam into Heat energy  
(C) Heat energy of steam into Potential energy  
(D) Potential energy of steam into Heat energy

53. The thermodynamic cycle on which the petrol engine works :  
 (A) Joule Cycle (B) Rankine Cycle (C) Otto Cycle (D) Sterling Cycle
54. The air-fuel ratio of the petrol engine is controlled by :  
 (A) Injector (B) Governor (C) Spark plug (D) Carburettor
55. The unit of thermal diffusivity is :  
 (A)  $m/hK$  (B)  $m/h$  (C)  $m^2/h$  (D)  $m^2/hK$
56. The automobile radiator is a heat exchanger of :  
 (A) Parallel flow type (B) Counter flow type  
 (C) Cross flow type (D) Regenerator type
57. Bell-Coleman cycle is a :  
 (A) Reversed Joule cycle (B) Reversed Otto cycle  
 (C) Reversed Rankine cycle (D) Reversed Carnot cycle
58. The lead screw of a lathe with nut form a \_\_\_\_\_ pair.  
 (A) Rolling pair (B) Sliding pair (C) Screw pair (D) Turning pair
59. V-belts are usually used for :  
 (A) Long drives (B) Short drives  
 (C) Long and short drives (D) Sprocket drives
60. The ratio of the number of teeth to pitch circle diameter in millimeter is called :  
 (A) Circular pitch (B) Module  
 (C) Diametrical pitch (D) Addendum
61. Which of the following is the function of a washer ?  
 (A) Fill up the axial gap (B) Provide cushioning effect  
 (C) Provide bearing area (D) Absorb shocks and vibrations
62. A bolt is designed on the basis of \_\_\_\_\_ with a large factor of safety.  
 (A) Direct tensile stress (B) Direct compressive stress  
 (C) Direct bending stress (D) Direct shear stress

63. The size of a gear is usually specified by :
- (A) Pressure angle (B) Diametrical pitch  
(C) Circular pitch (D) Pitch circle diameter
64. The fuel used in a blast furnace is :
- (A) Coal (B) Coke (C) Wood (D) Producer gas
65. The machinability of steel is improved by adding :
- (A) Nickel (B) Chromium  
(C) Nickel and Chromium (D) Sulphur, Lead and Phosphorus
66. Age hardening is related to :
- (A) Duralumin (B) Brass (C) Copper (D) Silver
67. Monel metal is an alloy of :
- (A) Nickel and Chromium (B) Copper and Chromium  
(C) Nickel and Copper (D) Nickel, Chromium and Iron
68. A mortise gauge is a :
- (A) Striking tool (B) Planing tool (C) Boring tool (D) Marking tool
69. Riddle is used for :
- (A) Smoothing and cleaning out depression in the mould  
(B) Cleaning the moulding sand  
(C) Moistening the sand around the edge before removing pattern  
(D) Reinforcement of sand in the top part of moulding box
70. The fullers are used :
- (A) For finishing flat surfaces (B) For necking down a piece of work  
(C) For punching a hole (D) To finish the punched hole
71. The operation of cutting a sheet of metal in a straight line along a length is known as :
- (A) Plunging (B) Notching (C) Slitting (D) Forming

72. Acetylene gas is stored in the cylinder in :  
(A) Solid form      (B) Gaseous form      (C) Liquid form      (D) Jelly form
73. A neutral flame is obtained by supplying :  
(A) Equal volume of oxygen and acetylene  
(B) More volume of oxygen and less volume of acetylene  
(C) More volume of acetylene and less volume of oxygen  
(D) Equal volume of oxygen and hydrogen
74. Galvanizing is the process of :  
(A) Zinc diffusion process  
(B) Making thin phosphate coating on steel  
(C) Making thin copper coating on steel  
(D) Making thin zinc coating by hot dipping
75. The cross-section of a chisel is usually :  
(A) Rectangular      (B) Square      (C) Hexagonal      (D) Octagonal
76. A hacksaw blade is specified by its :  
(A) Length      (B) Material      (C) Width      (D) Number of teeth
77. The type of file used for a wood work is :  
(A) Single cut file      (B) Double cut file      (C) Rasp cut file      (D) Smooth cut file
78. The instrument which has all the features of try-square, bevel protractor, ruler and scriber is :  
(A) Outside micrometer      (B) Combination set  
(C) Inside micrometer      (D) Depth gauge micrometer
79. A ring gauge is used to :  
(A) Check the diameter of shaft or studs  
(B) Test the accuracy of holes  
(C) Check the clearance between two mating surfaces  
(D) Check thickness of sheet

80. The temperature at which the new grains are formed in the metal is called :  
(A) Lower critical temperature      (B) Upper critical temperature  
(C) Eutectic temperature      (D) Re-crystallization temperature
81. Discontinuous chips are formed during machining of :  
(A) Brittle metals    (B) Ductile metals    (C) Hard metals    (D) Soft metals
82. In a centre lathe, the cutting tool is fed in \_\_\_\_\_ with reference to the lathe axis.  
(A) Cross direction only  
(B) Longitudinal direction only  
(C) Both cross and longitudinal direction  
(D) Any direction
83. The chamfering is an operation of :  
(A) Embossing a diamond shaped pattern on the surface of the work piece  
(B) Enlarging the diameter of a hole cylindrically  
(C) Reducing the diameter of a work piece  
(D) Beveling the extreme end of a work piece
84. In drilling operation, the metal is removed by :  
(A) Shearing      (B) Extrusion  
(C) Shearing and extrusion      (D) Shearing and compression
85. The grinding operation is a :  
(A) Shaping operation      (B) Surface finishing operation  
(C) Forming operation      (D) Dressing operation
86. A process of removing metal by pushing or pulling a cutting tool is called :  
(A) Up milling    (B) Down milling    (C) Forming    (D) Broaching
87. In ultrasonic machining, the metal is removed by :  
(A) Using abrasive slurry between the tool and work  
(B) Direct contact of tool with the work  
(C) By using an electrolyte between work and tool  
(D) Spark erosion between the tool and work

88. Chemical milling operation is performed :
- (A) On universal milling machine
  - (B) In a tank containing an etching solution
  - (C) On plain milling machine
  - (D) On broaching machine
89. PERT stands for :
- (A) Programme Estimation and Reporting Technique
  - (B) Programme Estimation and Review Technique
  - (C) Programme Evaluation and Review Technique
  - (D) Planning Estimation and Resulting Technique
90. Work study is mainly aimed at :
- (A) Determining the most efficient method of performing a job
  - (B) Establishing the minimum time of completion of a job
  - (C) Developing the standard method and standard time of a job
  - (D) Economizing the motions involved on the part of the workers while doing a job
91. Which of the following wage incentive plan is applied to all workers ?
- (A) Gantt plan
  - (B) Halsey plan
  - (C) Emerson's plan
  - (D) Rowan plan
92. Production cost refers to sum of Factory cost and \_\_\_\_\_.
- (A) Administrative overheads
  - (B) Selling cost
  - (C) Distribution overheads
  - (D) Direct material cost
93. Military organization is known as :
- (A) Line organization
  - (B) Functional organization
  - (C) Line and Staff organization
  - (D) Line Staff and Functional organization
94. Gantt chart is used for :
- (A) Inventory control
  - (B) Material handling
  - (C) Production schedule
  - (D) Machine repair schedule
95. In value engineering, imported consideration is given to :
- (A) Cost reduction
  - (B) Function concept
  - (C) Profit maximization
  - (D) Customer satisfaction

96. Simplex method is the method used for :
- (A) Value engineering                      (B) Network analysis  
(C) Linear programming                  (D) Queuing theory
97. The combustion process in diesel engine is a :
- (A) Constant volume process              (B) Constant pressure process  
(C) Constant temperature process        (D) Adiabatic process
98. The aluminum alloy is used in cylinder blocks because :
- (A) It is lighter and have good heat dissipation characteristics  
(B) Material cost is low  
(C) It does not require any cylinder lining  
(D) The piston is also made of aluminum alloy
99. The connecting rod is attached to the piston by the :
- (A) Cap bolt                                      (B) Cap roller bearing  
(C) Piston pin                                    (D) Rod cap
100. In a diesel engine, the function of a fuel injector is to :
- (A) Mix the fuel and air                      (B) Ignite the air fuel mixture  
(C) Provide flame for ignition              (D) Spray atomized fuel in the cylinder

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