ONGC Exam Paper-2010 for Mechanical Engineer

Please find below **ONGC Exam Paper-2010 for Mechanical Engineer**
********Year 2010-ONGC Exam Paper-2010 for Mechanical Engineer**********************

1 During the execution of a CNC part program block NO20 GO2 X45.0 Y25.0 R5.0 the type of tool motion will be
A) circular Interpolation — clockwise
B) circular Interpolation — counterclockwise
C) linear Interpolation
D) rapid feed
Answer : (A)

2 A component can be produced by any of the four processes I, II, III and IV. Process I has a fixed cost of Rs. 20 and variable cost of Rs. 3 per piece. Process II has a fixed cost Rs. 50 and variable cost of Re. 1 per piece. Process III has a fixed cost of Rs. 40 and variable cost of Rs. 2 per piece. Process IV has a fixed cost of Rs. 10 and variable cost of Rs. 4 per piece. If the company wishes to produce 100 pieces of the component, from economic point of view it should choose
A) Process I
B) Process II
C) Process III
D) Process IV
Answer : (B)

3 In an interchangeable assembly, shafts of size 25.000+0.040mm mate with holes of size 25.000+0.020 mm. The maximum possible clearance in the assembly will be
A) 10 microns
B) 20 microns
C) 30 microns
D) 60 microns
Answer : (D)

4 A company has two factories S1, S2 and two warehouses D1, D2. The supplies from S1 and S2 are 50 and 40 units respectively. Warehouse D1 requires a minimum of 20 units and a maximum of 40 units. Warehouse D2 requires a minimum of 20 units and, over and above, it can take as much as can be supplied. A balanced transportation problem is to be formulated for the above situation. The number of supply points, the number of demand points, and the total supply (or total demand) in the balanced transportation problem respectively are
A) 2, 4, 90
B) 2, 4, 110
C) 3, 4, 90
D) 3, 4, 110
Answer : (C)

5 An incompressible fluid (kinematic viscosity, 7.4 x 10-7 m2/s, specific gravity, 0.88) is held between two parallel plates. If the top plate is moved with a velocity of 0.5 m/s while the bottom one is held stationary, the fluid attains a linear velocity profile in the gap of 0.5 mm between these plates; the shear stress in Pascals on the surface of top plate is
A) 0.651 x 10-3
B) 0.651
C) 6.51

D) 0.651 x 103
Answer : (B)

6 The tool of an NC machine has to move along a circular arc from (5,5) to (10,10) while performing an operation. The centre of the arc is at (10,5). Which one of the following NC tool path commands performs the above mentioned operation?
A) N010 G02 X10 Y10 X5 Y5 R5
B) N010 G03 X10 Y10 X5 Y5 R5
C) N010 G01 X5 Y5 X10 Y10 R5
D) N010 G02 X5 Y5 X10 Y10 R5
Answer : (D)

7 During a Morse test on a 4 cylinder engine, the following measurements of brake power were taken at constant speed.
All cylinders firing 3037 kW
Number 1 cylinder not firing 2102 kW
Number 2 cylinder not firing 2102 kW
Number 3 cylinder not firing 2100 kW
Number 4 cylinder not firing 2098 kW
The mechanical efficiency of the engine is
A) 91.53%
B) 85.07%
C) 81.07%
D) 61.22%
Answer : (C)

8 In terms of theoretical stress concentration factor (Kt) and fatigue stress concentration factor (Kf), the notch sensitivity 'q' is expressed as
A) (Kf -1) (Kt -1)
B) (Kf -1) (Kt +1)
C) (Kt -1) (Kf -1)
D) (Kf +1) (Kt +1)
Answer : (A)

9 Starting from $x0 = 1$, one step of Newton-Raphson method in solving the equation $x3 + 3x -7 = 0$ gives the next value ($x1$) as
A) $x1 = 0.5$
B) $x1= 1.406$
C) $x1= 1.5$
D) $x1 = 2$
Answer : (C)

10 The S-N curve for steel becomes asymptotic nearly at
A) 103 cycles
B) 104 cycles
C) 10 6 cycles
D) 10 9 cycles
Answer : (C)

11. In PERT analysis a critical activity has
A) maximum Float
B) zero Float
C) maximum Cost
D) minimum Cost
Answer : (B)

12 Environment friendly refrigerant R134a is used inthe new generation domestic refrigerators. Itschemical formula is

A) CH $C1$ $F2$

B) $C2$ $C13$ $F3$

C) $C2$ $C12$ $F4$

D) $C2$ $H2$ $F4$

Answer : (D)

13 A solid cylinder (surface 2) is located at the centreof a hollow sphere (surface 1). The diameter of the sphere is 1m, while the cylinder has a diameter and length of 0.5 m each. The radiation configuration factor $F11$ is

A) 0.375

B) 0.625

C) 0.75

D) 1

Answer : (C)

14 For a fluid flow through a divergent pipe of length L having inlet and outlet radii of R1 and R2 respectively and a constant flow rate of Q, assuming the velocity to be axial and uniform at any cross-section, the acceleration at the exit is

A) $2Q(R1 - R2)$ p $LR23$

B) $2Q2$ $(R1 - R2)$ p $LR23$

C) $2Q2$ $(R1 - R2)$ $p2LR25$

D) $2Q2$ $(R2 - R1)$ $p2LR25$

Answer : (C)

15 An incompressible fluid (kinematic viscosity, 7.4×10^{-7} $m2/s$, specific gravity, 0.88) is held between two parallel plates. If the top plate is moved with a velocity of 0.5 m/s while the bottom one is held stationary, the fluid attains a linear velocity profile in the gap of 0.5 mm between these plates; the shear stress in Pascals on the surface of top plate is

A) 0.651×10^{-3}

B) 0.651

C) 6.51

D) 0.651×103

Answer : (B)

16 The tool of an NC machine has to move along a circular arc from (5,5) to (10,10) while performing an operation. The centre of the arc is at (10,5). Which one of the following NC tool path commands performs the above mentioned operation?

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B) N010 G03 X10 Y10 X5 Y5 R5

C) N010 G01 X5 Y5 X10 Y10 R5

D) N010 G02 X5 Y5 X10 Y10 R5

Answer : (D)

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18 In terms of theoretical stress concentration factor(Kt) and fatigue stress concentration factor (Kf), the notch sensitivity 'q' is expressed as

A) (Kf -1) (Kt -1)

B) (Kf -1) (Kt +1)

C) (Kt -1) (Kf -1)

D) (Kf +1) (Kt +1)

Answer : (A)

19 Starting from x0 = 1, one step of Newton-Raphson method in solving the equation x3 + 3x -7 = 0 gives the next value (x1) as

A) x1 = 0.5

B) x1= 1.406

C) x1= 1.5

D) x1 = 2

Answer : (C)

20 A maintenance service facility has Poisson arrival rates, negative exponential service time and operates on a 'first come first served' queue discipline. Break downs occur on an average of 3 per day with a range of zero to eight. The maintenance crew can service an average of 6 machines per day with a range of zero to seven. The mean waiting time for an item to be serviced would be

A) 16 day

B) 13 day

C) 1 day

D) 3 days

Answer : (A)

21 The S-N curve for steel becomes asymptotic nearly at

A) 103 cycles

B) 104 cycles

C) 106 cycles

D) 109 cycles

Answer : (C)

22 In a rolling process, sheet of 25 mm thickness is rolled to 20 mm thickness. Roll is of diameter 600 mm and it rotates at 100 rpm. The roll strip contact length will be

A) 5 mm

B) 39 mm

C) 78mm

D) 120mm

Answer : (A)

23 Water at 42°C is sprayed into a stream of air at atmospheric pressure, dry bulb temperature of 40°C and a wet bulb temperature of 20°C. The air leaving the spray humidifier is not saturated. Which of the following statements is true?

A) Air gets cooled and humidified

B) Air gets heated and humidified

C) Air gets heated and dehumidified

D) Air gets cooled and dehumidified

Answer : (B)

24 The angle between two unit-magnitude coplanar vectors P(0.866, 0.500,0) and Q(0.259, 0.966,0) will be

A) 0°
B) -30°
C) 45°
D) 60°
Answer : (C)

25 A lot has 10% defective items. Ten items are chosen randomly from this lot. The probability that exactly 2 of the chosen items are defective is
A) 0.0036
B) 0.1937
C) 0.2234
D) 0.3874
Answer : (B)

26 Stokes theorem connects
A) a line integral and a surface integral
B) a surface integral and a volume integral
C) a line integral and a volume integral
D) gradient of a function and its surface integral
Answer : (A)

27 A solar collector receiving solar radiation at the rate of 0.6 k W/m2 transforms it to the internal energy of a fluid at an overall efficiency of 50%. The fluid heated to 350 K is used to run a heat engine which rejects heat at 313 K. If the heat engine is to deliver 2.5 kW power, the minimum area of the solar collector required would be
A) 8.33m2
B) 16.66m2
C) 39.68m2
D) 79.36m2
Answer : (D)

28 When the temperature of a solid metal increases,
A) strength of the metal decreaes but ductility increases
B) both strength and ductility of the metal decrease
C) both strength and ductility of the metal increase
D) strength of the metal increases but ductility decreases
Answer : (A)

29 A company produces two types of toys: P and Q. Production time of Q is twice that of P and the company has a maximum of 2000 time units per day. The supply of raw material is just sufficient to produce 1500 toys (of any type) per day. Toy type Q requires an electric switch which is available @ 600 pieces per day only. The company makes a profit of Rs. 3 and Rs. 5 on type P and Q respectively. For maximization of profits, the daily production quantities of P and Q toys should respectively be
A) 100, 500
B) 500, 1000
C) 800, 600
D) 1000, 1000
Answer : (C)

30 A spherical thermocouple junction of diameter 0.706 mm is to be used for the measurement Aof temperature of a gas stream. The convective heat transfer co-efficient on the bead surface is 400 W/m2K. Thermophysical properties of thermocouple material are k = 20 W/mK, C = 400 J/kg K and r = 8500 kg/m3. If the thermocouple initially tot 30°C is placed in a hot stream of 300°C, the time taken by the bead to reach 298°C, is
A) 2.35 s

B) 4.9 s

C) 14.7 s

D) 29.4 s

Answer : (B)

31 In a spring-mass system, the mass is 0.1 kg and the stiffness of the spring is 1 kN/m. By introducing a damper, the frequency of oscillation is found to be 90% of the original value. What is the damping coefficient of the damper?

A) 1.2 N.s/m

B) 3.4 N.s/m

C) 8.7 N.s/m

D) 12.0 N.s/m

Answer : (C)

32.In a machining operation, doubling the cutting speed reduces the tool life to 1/8 of the original value. The exponent n in Taylor

A) 1/8

B) 1/4

C) 1/3

D) 1/2

Answer : (C)

33.In a rolling process, sheet of 25 mm thickness is rolled to 20 mm thickness. Roll is of diameter 600 mm and it rotates at 100 rpm. The roll strip contact length will be

A) 5 mm

B) 39 mm

C) 78 mm

D) 120 mm

Answer : (A)

34.A soldering operation was work-sampled over two days (16 hours) during which an employee soldered 108 joints. Actual working time was 90% of the total time and the performance rating was estimated to be 120 percent. If the contract provides allowance of 20 percent of the total time available, the standard time for the operation would be

A) 8 min

B) 8.9 min

C) 10 min

D) 12 min

Answer : (D)

35. A welding operation is time-studied during which an operator was pace-rated as 120%. The operator took, on an average, 8 minutes for producing the weld-joint. If a total of 10% allowances are allowed for this operation, the expected standard production rate of the weld-joint (in units per 8 hour day) is

A) 45

B) 50

C) 55

D) 60

Answer : (A)

36. In PERT analysis a critical activity has

A) maximum Float

B) zero Float

C) maximum Cost

D) minimum Cost

Answer : (B)

37.Environment friendly refrigerant R134a is used in the new generation domestic refrigerators. Its chemical formula is

A) CH C1 F2

B) C2 C13 F3

C) C2 C12 F4

D) C2 H2 F4

Answer : (D)

38. The parabolic arc $y = x$, $1 \leq x \leq 2$ is revolved around the x-axis. The volume of

the solid of revolution is

(A)

4

π

(B)

2

π

(C)

3

4

π

(D)

3

2

Π

39. A moist air sample has dry bulb temperature of 30ºC and specific humidity of

11.5g water vapour per kg dry air. Assume molecular weight of air as 28.93. If

the saturation vapour pressure of water at 30ºC is 4.24kPa and the total pressure

is 90kPa, then the relative humidity (in %) of air sample is

(A) 50.5 (B) 38.5 (C) 56.5 (D) 68.5

40. The value of the integral 2

dx

1 x

∞

$-\infty + \int$ is

(A) −π (B)

2

π

− (C)

2

π

(D) π

41. The modulus of the complex number

3 4i

1 2i

(+)

| − | ( )

is

(A) 5 (B) 5 (C)

1

5

(D)

1

5

42. The function y = 2 − 3x

(A) is continuous ∀x ∈ R and differentiable ∀x ∈ R

(B) is continuous ∀x ∈ R and differentiable ∀x ∈ R except at x=3/2

(C) is continuous ∀x ∈ R and differentiable ∀x ∈ R except at x=2/3

(D) is continuous ∀x ∈ R except at x=3 and differentiable ∀x ∈ R

6. Mobility of a statically indeterminate structure is

(A) ≤ −1 (B) 0 (C) 1 (D) ≥ 2

43. There are two points P and Q on a planar rigid body. The relative velocity

between the two points

(A) should always be along PQ

(B) Can be oriented along any direction

(C) should always be perpendicular to PQ

(D) should be along QP when the body undergoes pure translation

44. The state of plane-stress at a point is given by

$\sigma x = -200$MPa, $\sigma y = 100$MPa and $\tau xy = 100$MPa. The maximum shear stress in MPa

is

(A) 111.8 (B) 150.1 (C) 180.3 (D) 223.6

45. Which of the following statements is INCORRECT?

(A) Grashof's rule states that for a planar crank-rocker four bar mechanism, the

sum of the shortest and longest link lengths cannot be less than the sum of

the remaining two link lengths.

(B) Inversions of a mechanism are created by fixing different links one at a time.

(C) Geneva mechanism is an intermittent motion device

(D) Gruebler's criterion assumes mobility of a planar mechanism to be one.

46. The natural frequency of a spring-mass system on earth is ωn. The natural

frequency of this system on the moon (gmoon = gearth / 6) is

(A) ωn (B) 0.408ωn (C) 0.204ωn (D) 0.167ωn

47. Tooth interference in an external involute spur gear pair can be reduced by

(A) decreasing center distance between gear pair

(B) decreasing module

(C) decreasing pressure angle

(D) increasing number of gear teeth

48. For the stability of a floating body, under the influence of gravity alone, which of

the following is TRUE?

(A) Metacentre should be below centre of gravity

(B) Metacentre should be above centre of gravity

(C) Metacentre and centre of gravity must lie on the same horizontal line

(D) Metacentre and centre of gravity must lie on the same vertical line

49. The maximum velocity of a one-dimensional incompressible fully developed

viscous flow, between two fixed parallel plates, is 6ms-1. The mean velocity (in

ms-1) of the flow is

(A) 2 (B) 3 (C) 4 (D) 5

50. A phenomenon is modeled using n dimensional variables with k primary

dimensions. The number of non-dimensional variables is

(A) k (B) n (C) n-k (D) n+k

51. A turbo-charged four-stroke direct injection diesel engine has a displacement

volume of 0.0259m3 (25.9litres). The engine has an output of 950kW at

2200rpm. The mean effective pressure in MPa is closest to

(A) 2 (B) 1 (C) 0.2 (D) 0.1

52. One kilogram of water at room temperature is brought into contact with a high

temperature thermal reservoir. The entropy change of the universe is

(A) equal to entropy change of the reservoir

(B) equal to entropy change of water

(C) equal to zero

(D) always positive

53. A hydraulic turbine develops 1000kW power for a head of 40m. If the head is

reduced to 20m, the power developed (in kW) is

(A) 177 (B) 354 (C) 500 (D) 707

54. The material property which depends only on the basic crystal structure is

(A) fatigue strength (B) work hardening

(C) fracture strength (D) elastic constant

55. In a gating system, the ratio 1:2:4 represents

(A) sprue base area: runner area: ingate area

(B) pouring basin area: ingate area: runner area

(C) sprue base area: ingate area: casting area

(D) runner area: ingate area: casting area

56. A shaft has a dimension, 0.009

35 0.025 −− φ. The respective values of fundamental deviation

and tolerance are

(A) −0.025, ± 0.008 (B) −0.025,0.016

(C) −0.009, ±0.008 (D) −0.009,0.016

57. In a CNC program block, N002 G02 G91 X40 Z40…, G02 AND G91 refer to

(A) circular interpolation in counterclockwise direction and incremental dimension

(B) circular interpolation in counterclockwise direction and absolute dimension

(C) circular interpolation in clockwise direction and incremental dimension

(D) circular interpolation in clockwise direction and absolute dimension

58. The demand and forecast for February are 12000 and 10275, respectively. Using single exponential smoothening method (smoothening coefficient = 0.25), forecast for the month of March is

(A) 431 (B) 9587 (C) 10706 (D) 11000

59. Little's law is relationship between

(A) stock level and lead time in an inventory system

(B) waiting time and length of the queue in a queuing system

(C) number of machines and job due dates in a scheduling problem

(D) uncertainty in the activity time and project completion time

60. Vehicle manufacturing assembly line is an example of

(A) product layout (B) process layout (C) manual layout (D) fixed layout

61. Simplex method of solving linear programming problem uses

(A) all the points in the feasible region

(B) only the corner points of the feasible region

(C) intermediate points within the infeasible region

(D) only the interior points in the feasible region.

Note: All length dimensions shown in the figures are in mm unless otherwise specified. Figures are not drawn to scale.

62. Torque exerted on a flywheel over a cycle is listed in the table. Flywheel energy (in J per unit cycle) using Simpson's rule is

Angle (degree) 0 60 120 180 240 300 360

Torque (Nm) 0 1066 -323 0 323 -355 0

(A) 542 (B) 993 (C) 1444 (D) 1986

63. A lightly loaded full journal bearing has a journal of 50mm, bush bore of 50.05mm and bush length of 20mm. if rotational speed of journal is 1200rpm and average viscosity of liquid lubricant is 0.03 Pa s, the power loss (in W) will be

(A) 37 (B) 74 (C) 118 (D) 23

64. Velocity vector of a flow field is given as V = 2xyi − x2zj.

�������� ���� ���� the velocity vector at

(1,1,1) is

(A) $4\hat{i} - \hat{j}$ (B) $4\hat{i} - \hat{k}$ (C) $\hat{i} - 4\hat{j}$ (D) $\hat{i} - 4\hat{k}$

65. The Laplace Transform of a function ( )

2 ( )

1

f t

s s 1

=

+

. The f (t) is

(A) t t 1 e− − + (B) t t 1 e−

+ + (C) −1 + e−t (D) 2t + et

66. A box contains 2 washers, 3 nuts and 4 bolts. Items are drawn from the box at random one at a time without replacement. The probability of drawing 2 washers first followed by 3 nuts and subsequently the 4 bolts is

(A) 2/315 (B) 1/630 (C) 1/1260 (D) 1/2520

67. A band brake having band-width of 80mm, drum diameter of 250mm, coefficient of friction of 0.25 and angle of wrap of 270 degrees is required to exert a friction torque of 1000N-m. The maximum tension (in kN) developed in the band is

(A) 1.88 (B) 3.56 (C) 6.12 (D) 11.56

38.
D
55.
C

39.
B
56.
A

40.
D
57.
D

41.
B
58.
C

42.
C
59.
C

43.
A
60.
B

44.
C
61.
A

45.
C
62.
A

46.
A
63.
B

47.
A
64.
A

48.
D
65.
D

49.
B
66.
A

50.
C
67.
C

51.
C

52.
A

53.
D

54.
B

SECTION 2- GENERAL AWARENESS AND CURRENT AFFAIRS

1. India has signed an agreement to procure Advanced Jet

Trainer (Hawk) from which of the following countries ?

(a) USA

(b) UK

(c) France

(d) Russia

Ans: (b) UK

2. The United States has granted the status of ?major

non-NATO ally? to which of the following countries recently ?

(a) Pakistan

(b) India

(c) Afghanistan

(d) Myanmar

Ans: (a) Pakistan

3. Who among the following persons bought the sword of Tipu

Sultan in London and brought it back to India ?

(a) Ratan Tata

(b) Mukesh Ambani

(c) Vijay Mallya

(d) Aditya Birla

Ans: (c) Vijay Mallya

4. Which of the following companies became India?s first

listed IT firm to have crossed $1 billion turnover ?

(a) Satyam

(b) HCL

(c) Wipro

(d) Infosys Technologies

Ans: (d) Infosys Technologies

5. Who among the following women has become the highest

individual scorer in an innings in Tests ?

(a) Mithali Raj

(b) Kiran Baloch

(c) Diana Eduljee

(d) None of these

Ans: (b) Kiran Baloch

6. Who is the new Prime Minister of Sri Lanka ?

(a) Chandrika Kumaratunga

(b) Ranil Wickremesinghe

(c) Mahinda Rajapakse

(d) None of these

Ans: (c) Mahinda Rajapakse

7. Hamas is a militant organization fighting against which

of the following countries ?

(a) Sudan

(b) Israel

(c) Brazil

(d) Syria

Ans: (b) Israel

8. Who among the following has become the first Indian to

score a triple century in Tests ?

(a) Rahul Dravid

(b) Sachin Tendulkar

(c) V.V.S. Laxman

(d) Virender Sehwag

Ans: (d) Virender Sehwag

9. Who among the following has won the Femina Miss India

Universe 2004 title ?

(a) Lakshmi Pandit

(b) Sayali Bhagat

(c) Tanushree Dutta

(d) Jyoti Brahmin

Ans: (c) Tanushree Dutta

10. The 9th South Asian Federation Games were held recently

in which of the following cities ?

(a) Islamabad

(b) Hyderabad

(c) Kathmandu

(d) Colombo

Ans: (a) Islamabad

11. Which of the following parts of the poppy plant is used

for the extraction of opium ?

(a) Capsules

(b) Flowers

(c) Leaves

(d) Roots

Ans: (b) Flowers

12. Who is the Chairman of the Twelfth Finance Commission ?

(a) C. Rangarajan

(b) N. N. Vohra

(c) Bimal Jalan

(d) Vijay Kelkar

Ans: (a) C. Rangarajan

13. The first feature film (talkie) produced in India was

(a) Hatimtai

(b) Alamm Ara

(c) Pundalik

(d) Raja Harishchandra

Ans: (b) Alamm Ara

14. During the Indian freedom struggle, ?The Deccan

Educational Society? was founded by

(a) B.G. Tilak

(b) Dadabhai Naoroji

(c) G.K. Gokhale

(d) M.G. Ranade

Ans: (d) M.G. Ranade

15. A ?black hole? is a body in space which does not allow

any radiation to come out. This property is due to its

(a) Very small size

(b) Very large size

(c) Very high density

(d) Very low density

Ans: (c) Very high density

16. The ?Chilka Lake region? lies in between the deltas of

(a) Ganga and Mahanadi

(b) Godavari and Krishna

(c) Mahanadi and Godavari

(d) Krishna and Kaveri

Ans: (c) Mahanadi and Godavari

17. The 44th Amendment of the Indian Constitution withdrew

the Fundamental Right

(a) To freedom of religion

(b) To constitutional remedies

(c) To property

(d) Against exploitation

Ans: (c) To property

18. The Legislative Council of a State in India can be

abolished or created by

(a) The President of India in consultation with the Council

of Ministers of the State concerned

(b) The Legislative Assembly of the State concerned

(c) The Parliament at a joint sitting of both the Houses

(d) The Parliament, provided the State Legislative Assembly

passes a resolution to that effect

Ans: (d) The Parliament, provided the State Legislative

Assembly passes a resolution to that effect

19. At which stage in its life cycle does the silk work

yield the fibre of commerce ?

(a) Egg

(b) Larva

(c) Pupa

(d) Imago

Ans: (c) Pupa

20. Persons below the poverty line in India are classified

as such based on whether

(a) They are entitled to a minimum prescribed food basket

(b) They get work for a prescribed minimum number of days

in a year

(c) They belong to agricultural labourer household and the

scheduled caste /tribe social group

(d) Their daily wages fall below the prescribed minimum wages

Ans: (a) They are entitled to a minimum prescribed food

basket

21. As per 1991 Census, which one of the following groups of

Union Territories had the highest literacy rate ?

(a) Chandigarh and Dadra & Nagar Haveli

(b) Delhi and Andaman & Nicobar Islands

(c) Andaman & Nicobar Islands and Pondicherry

(d) Pondicherry and Delhi

Ans: (b) Delhi and Andaman & Nicobar Islands

22. In order to win the Grand Slam in Tennis, a player must

win which one of the following groups of tournaments ?

(a) Australian Open, Wimbeldon, French Open, U.S. Open

(b) Wimbledon, French Open, U.S. Open, Swedish Open

(c) Wimbledon, French Open, Paegas Czec Open, U.S. Open

(d) Davis Cup, Wimbledon, French Open, Australian Open

Ans: (a) Australian Open, Wimbeldon, French Open, U.S. Open

23. ?Abhinava Bharat?, a secret society of revolutionaries,

was organized by

(a) Khudiram Bose

(b) V.D. Savarkar

(c) Prafulla Chaki

(d) Bhagat Singh

Ans: (b) V.D. Savarkar

24. Endoscopy, a technique used to explore the stomach or

other inner parts of the body, is based on the phenomenon of

(a) Total internal reflection

(b) Interference

(c) Diffraction

(d) Polarisation

Ans: (a) Total internal reflection

25. Which one of the following lakes forms and international

boundary between Tanzania and Uganda ?

(a) Chad

(b) Malawi

(c) Victoria

(d) Zambezi

Ans: (c) Victoria

26. Who among the following has been appointed the National

Security Adviser by the UPA Government ?

(a) Brajesh Mishra

(b) J. N. Daxit

(c) Soli J. Sorabjee

(d) T. K. A. Nair

Ans: (b) J. N. Daxit

27. Who among the following is the new Chief Minister of

Karnataka ?

(a) S. M. Krishna

(b) Uma Bharti

(c) Dharam Singh

(d) Y. S. Rajasekhara Reddy

Ans: (c) Dharam Singh

28. Who among the following has won the Miss Universe 2004

crown ?

(a) Jennifer Hawkins

(b) Shandi Finnessey

(c) Alba Reyes

(d) None of these

Ans: (a) Jennifer Hawkins

29. A solemn ceremony to mark the 60th Anniversary of D-Day

landings of the Allies troops during the Second World War,

was held in

(a) Pearl Harbour

(b) Normandy

(c) New York

(d) Lisbon

Ans: (b) Normandy

30. Which of the following cricketers holds the world record

of maximum number of sixes in Tests ?

(a) Chris Carins (New Zealand)

(b) Viv Richards (West Indies)

(c) Sachin Tendulkar (India)

(d) Wasim Akram (Pakistan)

Ans: (a) Chris Carins (New Zealand)

31. Who among the following has been appointed the new Chief

Justice of India ?

(a) Justice Rajendra Babu

(b) Justice V. N. Khare

(c) Justice R. C. Lahoti

(d) None of these

Ans: (c) Justice R. C. Lahoti

32. Who among the following sports persons got the honour of

lighting the Olympic flame at the Major Dhyan Chand Stadium

in New Delhi recently ?

(a) Anjali Bhagwat

(b) Abhinav Bindra

(c) Viswanathan Anand

(d) K. M. Beenamol

Ans: (a) Anjali Bhagwat

33. Who among the following has been appointed new chairman

of the National Commission for Farmers ?

(a) Ajit Singh

(b) K. C. Pant

(c) Dr. M. S. Swaminathan

(d) Sharad Pawar

Ans: (c) Dr. M. S. Swaminathan

34. Which of the following planets crossed the face of the

sun (in transit) after 122 years recently ?

(a) Mars

(b) Venus

(c) Jupiter

(d) Saturn

Ans: (b) Venus

35. Which of the following countries was readmitted to the

Commonwealth recently ?

(a) Nepal

(b) Myanmar

(c) Pakistan

(d) None of these

Ans: (c) Pakistan

36. The world governing body of which of the following

sports celebrated its 100 years in existence recently ?

(a) Football

(b) Hockey

(c) Badminton

(d) Cricket

Ans: (a) Football

37. Who among the following won the men?s singles title of

the French Open 2004 ?

(a) Guillermo Coria

(b) Roger Federer

(c) Andy Roddick

(d) Gaston Gaudio

Ans: (d) Gaston Gaudio

38. Who is India?s first Woman Grand Master in Chess ?

(a) Aarthie Ramaswamy

(b) Koneru Humpy

(c) S. Meenakshi

(d) S. Vijayalakshmi

Ans: (b) Koneru Humpy

39. The age of a tree can be determined by

(a) Measuring its height

(b) Measuring its diameter

(c) Analyzing its sap

(d) Counting the annual growth rings of its stem

Ans: (d) Counting the annual growth rings of its stem

40. Which one of the following pairs is not correctly matched ?

Mountains Continents

(a) The Rocky : North America

(b) The Andes : South America

(c) The Alps : Europe

(d) The Ural : Africa

Ans: (d) The Ural : Africa

41. Which of the following pairs is correctly matched ?

(a) ?Purna Swaraj? Resolution : 1929

(b) Martyrdom of Sardar Bhagat Singh : 1931

(c) Formation of the Congress Socialist Party: 1939

(d) Simla Confeence : 1940

Ans: (b) Martyrdom of Sardar Bhagat Singh : 1931

42. The Lingaraja Temple built during the medieval period is at

(a) Bhubaneswar

(b) Khajuraho

(c) Madurai

(d) Mount Abu

Ans: (a) Bhubaneswar

43. Which one of the following is essentially a solo dance ?

(a) Kuchipudi

(b) Kathak

(c) Manipuri

(d) Mohiniattam

Ans: (d) Mohiniattam

44. The deepest oceanic trench ?Mariana? is located in

(a) Atlantic Ocean

(b) Arctic Ocean

(c) Pacific Ocean

(d) Indian Ocean

Ans: (c) Pacific Ocean

45. Although fog consists of fine drops of water, we cannot

see clearly through it because

(a) The light rays undergo total internal reflection in the

drops

(b) Fine drops of water in fog polarize the light

(c) The fine drops are opaque to the light

(d) The drops scatter most of the light

Ans: (d) The drops scatter most of the light

46. During the Mughal period, which one of the following

were the first to come to India as traders ?

(a) Portuguese

(b) Dutch

(c) Danish

(d) English

Ans: (a) Portuguese

47. Who among the following Delhi Sultans is known for

introducing market control mechanism ?

(a) Iltutmish

(b) Balban

(c) Alauddin Khalji

(d) Firoze Tughlaq

Ans: (c) Alauddin Khalji

48. Which one of the following mountain peaks of the

Himalayas is NOT in India ?

(a) Annapurna

(b) Nanda Devi

(c) Mt. Kamet

(d) Kanchenjunga

Ans: (a) Annapurna

49. A rift valley is formed mainly due to

(a) The forces of tension in the earth?s crust

(b) The subsidence of the floor of a river valley

(c) The valley formed after the formation of fold mountains

(d) The deepening of a valley by ice action

Ans: (a) The forces of tension in the earth?s crust

50. Who is the author of the book, ?The Man Who Divided India? ?

(a) Arun Shourie

(b) Dominique Lapierre

(c) Rafiq Zakaria

(d) Salman Rushdie

Ans: (c) Rafiq Zakaria

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Objective - General Awareness 40 Questions

1) Who was the political guru of Mahatma Gandhi?
2) Where will be the next climate change summit COP 16 be held?
3) Where will be the football world cup for 2010 be held?
4) Who received 17th Rajiv Gandhi Sadbhawna Puraskar?
5) Who is the president of IAEA?
6) Which river cuts tropic of capricorn at two places?
7) During 1907 Surat Split who was the president of Indian National Congress?
8) What is the minimum age limit for eligibility of Chief Justice of India?
9) Which is the highest peak of Satpura Range?
10) Where is the source of River Krishna?
11) According to census 2010 what is the number of females for 1000 males in india?
12) President of India submits his resignation to whom?
13) Mansabdari system was introduced by which ruler?
14) Where was the first Buddhist Council in India held?
15) Which is the first private organization to get CISF security?
16) Who is the chairman of scientific advisory council to the Prime Minister?
17) Naval exercise KONKAN is conducted between which 2 countries?
18) Who wrote the book 'Neel Darpan' on Indigo Revolution?
19) Which article in constitution says making children below age of 14 is a crime?
20) Where is the "National Environment Engineering Institute" situated?
21) What is the instrument for measuring blood pressure called?
22) Deficiency of which vitamin causes pellagra?
23) What is the other name for "Red Blood Corpuscles"?
24) Where is the Bear Lake situated?
25) Which is the sweetest sugar?
26) In which session of congress the issue of Fundamental Rights was first raised?
27) Where is Tipaimukh Dam located?
28) Where is Tadri Ultra Mega Power project located?
29) What is the rating of nuclear reactor in INS Arihant?
30) Grand Master Parimarjan Negi won which prize?
31) NH 15 connects which 2 cities?
32) Indian Space application centre is located at?
33) Which state of indian has the lowest decadal population growth?
34) In assembly elections of which state all seats were won by a single party?
35) In which region did the Moplah revolt happen?
36) By end of which year did Indian Solar Mission target to produce 20000 MW of solar power as per indian 5 year plan?
37) What is the term used when sun is nearest to earth?

I missed only 3 questions :)

Objective - Mechanical 80 Questions

Many questions on industrial engineering. Few easy questions on thermodynamics and heat transfer. Fluids and SOM were also major constituents of the paper. Production did not come much. All in all technical wont be a pain at all for a serious attempt. It was pretty easy. No numericals only basics.

Subjective - General Awareness 2 Questions

1) Describe "Unity in Diversity" in India.
2) Explain the impacts of globalization on rural economy of India.

Subjective - Mechanical 2 Questions

1) Define a thermodynamic system. What are the different types of thermodynamic systems.
2) Explain various types of cooling systems for an IC engine.
****

Radial force acting on the outer surface of a thick cylinder subjected to internal pressure p? Ans: zero
Factor of safety at fatigue loading is Endurance limit\working stress
Venture meter used to measure – Discharge.
Ratio of Surface convection resistance to internal conduction resistance is
Fluid used in inverted manometer has (Low density, high density, low surface tension, high surface tension)
To avoid separation, the ratio of throat of venturimeter to dia of pipe is
Maximum efficiency of flow through pipe is – 67.6
Air vessel is used to
In centrifugal pump fluid enters radially.
Lathe bed is made up of …. material
Cold chisel is made up of – Cast tool steel
Hack saw blade is specified by length of blade.
No of buckets on the periphery of pelton wheel is D/(d+15)
Efficiency of reaction turbine is inversely proportional to √H.
Kelvin Planck statement states the conservation of ……
Which one is an extensive property (P, T, V, and Density)
PVn is an equation for isentropic process.
Bell Coleman cycle is Reversible…..
Entropy is related to (P, T, P& T, Heat & work).
Work done in free expansion process is Zero.
Throttling process is a non steady flow process.
Effeciency of Carnot cycle can be increased by increasing the highest temp.
Condition of fluids at the inlet of counter flow heat exchanger is
Efficiency of Diesel cycle approaches to Otto cycle when Cut off is increased.
In automobiles the heat exchanger used is Cross flow.
When absorptivity =1, reflectivity=0, transmittivity=0 the body is called Black body.
If one of the link of the kinematics chain is fixed it is called mechanism.
Centrifugal tension on the belt has no effect on the power transmitted.
Angle of approach
If inertia forces and couple acting on a body balance each other, it is Dynamic balance.
When nature of contact between the elements of a pair is such that only surface contact occurs it is
If elements of a pair is kept in contact by external forces it is forced closed pair.
Military organization follows line organization.
The load cup a screw jack is made separate from the head spindle to – prevent the rotation of the load being lifted.
Gantt chart is used for……….Production Schedule.

Minimum no of teeth on pinion which will mesh with any gear without interference for 20º full depth involute teeth will be 18.

The screw is specified by major diameter.

If the axis of first and last wheels are coaxial then the gear train is reverted gear train.

Gear is specified by pitch diameter.

Maximum shear stress theory is applicable to ductile materials.

Yield point on a static loading is …… as compared to fatigue loading.

Longitudinal stress is ½ times the circumferential stress.

Two shafts have equal strength if – twisting moment is same.

Increase in hardness due to cold working of a component is work hardness.

Resultant of two equal forces acting at an angle ø is 2P cos ø/2.

Crater wear is predominant in Tungsten carbide tools.

The value Engg technique in which experts of same rank assembled for product development is called Brain storming.

Method used for manufacturing of 2 m long seamless pipe is…..

Welding method which uses a pool of molten metal is SAW.

Welding technique which uses a non consumable electrode.

Universal gas constant R is …of two specific heats. (Difference)

The important geometrical quantity in cutting of metals which can be used as a criterion for machinability is Shear angle.

For turning small taper on long work piece suitable method is tail stock set over method.

Piezometer gives gauge pressure.

Surface finish factor for mirror finished plane is….

PERT – Programme evaluation and review technique.

Emersion Efficiency plan.

CPM requires a single time estimate.

A critical activity has zero slack.

Interchangeability can be achieved by Standization.

Production cost per unit can be reduced by – producing more units from the same input.

Job evaluation is a method for measuring relative value of a job.

In value Engg important consideration is given to cost reduction.

Simplex method is used for Linear programming.

How to check the measure the quantity of materials arrives in store. (Purchase order, Delivery chellan, Receipt voucher)

Routing function in a production system is concerned with machine utilization.

Moment of inertia of a circular section about an axis perpendicular to the section is ∏d4/32.

Principle of transmissibility of forces.

The point at which the weight of a body acts irrespective of its position is Centre of gravity.

In which of the following, flow of fluid from low pressure to high pressure takes place. (Flow of liquid in vertical pipe, Adiabatic flow in horizontal pipe,)

The strain energy stored in a body, when suddenly loaded is four times the strain energy stored when the same load is applied gradually.

If bending stress acting on a curved beam, the stress at neutral axis is

The stress developed when a member is suddenly loaded is two times the stress produced when the same load is applied gradually.

Minimizing machine facilities done by Process Layout.