Rajasthan Public Service Commission - 2016

Paper : 72-Asstt-Engineer-Mechanical

Ques # :1

The velocity components in a two-dimensional steady incompressible flow are: $u = 2x^2 - axy$, $v = y^2 - 4xy$. What should be the value of 'a' so that the equation of continuity is satisfied?

1) 3
2) 2
3) 1
4) Any positive integer

Ques # :2

For a steady compressible flow, the hydraulic grade line is represented by sum of the following heads:

1) Pressure head and elevation head
2) Velocity head and pressure head
3) Velocity head and elevation head
4) Velocity head, pressure head and elevation head

Ques # :3

The Bernoulli's equation will be applicable for steady flow of an ideal fluid. What is the correct condition for type of fluid and flow for its applicability?

1) Compressible or incompressible fluid and irrotational flow.
2) Compressible or incompressible fluid and rotational flow.

3) Incompressible fluid and irrotational or rotational flow.

4) Incompressible fluid and irrotational flow.

Ques # :4

Simple or Plain Couette flow is characterized by

1) Positive pressure gradient and linear velocity distribution.

2) Negative pressure gradient and parabolic velocity distribution.

3) Negative pressure gradient and linear velocity distribution.

4) Zero pressure gradient and linear velocity distribution.

Ques # :5

In a fully developed laminar flow in a circular pipe of radius R, the velocity of fluid equals the average velocity at

1) the centre of the pipe.

2) a distance of 0.707R from the centre of the pipe.

3) a distance of 0.5R from the centre of pipe.

4) every point.

Ques # :6

A fluid is flowing at velocity of 2 m/s in a 1 km long pipe of 0.2 m diameter. The Darcy's coefficient of friction is 0.0025. What will be the head lost in friction in the pipe? (Take g = 10 m/s^2)

1) 2.5m

2) 5 m

3) 7 m

4) 9 m

Ques # :7

The nominal thickness of the hydrodynamic boundary layer is generally taken equal to the distance from the surface to a point

1) where the shear stress becomes constant.
2) where the velocity of fluid attains value equal to the average velocity.
3) where the velocity of fluid attains 99% value of the free stream velocity.
4) of the centroid of the velocity profile.

Ques # :8

In the question, ε denotes the average height of surface irregularities, y_w is the thickness of laminar sub-layer and y is the thickness of turbulent boundary layer.

A pipe is termed as hydraulically smooth, if

1) $\frac{\varepsilon}{y} < 0.35$

2) $\frac{\varepsilon}{y} < 0.05$

3) $\frac{\varepsilon}{y_w} < 0.35$

4) $\frac{\varepsilon}{y_w} < 0.25$

Ques # :9

If the space under the nappe is only partially ventilated, then

1) the discharge will be less than the theoretical discharge.
2) the discharge will be more than the theoretical discharge.
3) the discharge will be same as the theoretical discharge but there will be problems in taking measurements.
4) the discharge will be completely shutoff due to vacuum.

Ques # :10

Which of the following may be employed for measuring flow in a closed conduit (i.e., continuous pipe)?

1) Orifice
2) Mouthpiece
3) Venturimeter
4) Internal mouthpiece

Ques # :11

Pick the wrong statement about the normal shock:

1) The plane of the shock wave is normal to the direction of the flow.
2) The flow changes from supersonic upstream the shock to subsonic downstream the shock.
3) The pressure decreases downstream the shock.
4) The temperature increases downstream the shock.

Ques # :12

The term 'run away speed' for a Pelton turbine means that speed of the turbine at which

1) the turbine just starts to rotate.
2) the velocity of bucket at mean radius equals to the velocity of the jet.
3) the buckets will break off due to centrifugal force.
4) the efficiency of the turbine will be maximum.

Ques # :13

Which of the following types of draft tubes is most efficient?

1) Straight conical type draft tube
2) Simple elbow type draft tube with circular cross section
3) Elbow type draft tube with circular cross section at entrance and square cross section at exit.
4) None of these

Ques # :14

Pick the wrong statement about the Kaplan turbine:

1) It is purely axial flow turbine.
2) It is mostly employed with the shaft kept in vertical position only.
3) In this only guide vanes are adjustable.
4) It has smaller number of vanes as compared to a Francis turbine.

Ques # :15

A turbine develops 100 kW at a head of 25 m. What will be the power output of the same turbine when the head is reduced to 16 m?

1) 51.2 kW
2) 64 kW
3) 80 kW
4) 26.2 kW

Ques # :16

Which of the following turbines is more efficient at highly part load (upto 20-25% of full load)?

1) Francis turbine
2) Propeller Turbine

3) Pelton turbine
4) Both Pelton and Francis turbines.

Ques # :17

A turbine is working under a head of 20 m. It has been installed at a power plant where the atmospheric pressure is 10 m of water and vapour pressure is 0.20 m of water. If the Thoma's cavitation factor is 0.25, what can be the maximum height of the discharge end of the runner from the tail race?

1) 9.8 m
2) 4.8 m
3) 2.4 m
4) 4.4 m

Ques # :18

In which of the following types of impeller blades or vanes, theoretically, the head remains constant with varying discharge?

1) Radial blades
2) Backward curved blades
3) Forward curved blades
4) None of these

Ques # :19

Which of the following is a wrong statement about the effect of inertia of reciprocating parts in a reciprocating pump?

1) It causes variation in pressure.
2) It limits the suction height.
3) It puts an upper limit on the speed at which the pump can be run to obtain higher discharge.
4) It increases the input work required.

Ques # :20

Axial flow pumps are suitable for

1) Large discharge with low head
2) Large discharge with high head
3) Low discharge with low head
4) Low discharge with high head

Ques # :21

A heat flux of 40 kW/m² is passing through a plate of thickness 0.2 m and thermal conductivity 100 W/m.K. If the temperature of the hot side is 100°C, what will be the temperature of the cooler side?

1) 20°C
2) 40°C
3) 10°C
4) 0°C

Ques # :22

A 0.6 m thick wall is made of a material with thermal conductivity of 1.2 W/m.K . This wall is to be insulated with a material of thermal conductivity 0.2 W/m.K so that the heat loss per m² area of the wall does not exceed 1200 W. If the inner and outer temperatures of the composite wall are 930°C and 30°C respectively, determine the thickness of the insulation required?

1) 7.5 cm
2) 10 cm
3) 5 cm
4) None of these

Ques # :23

A pipe of external diameter of 20 mm is carrying hot fluid. It is required to provide a lagging of insulating material of thermal conductivity 0.1 W/m.K to reduce the heat loss from the pipe. The heat transfer coefficient with the ambient air is assumed to remain same at 10 W/m².K with or without the lagging. Pick the correct statement:

1) The insulation will increase heat loss in this case.
2) Any thickness of insulation will reduce heat loss.
3) The heat loss will be reduced only if the thickness of insulation is more than the critical thickness of insulation.
4) For reducing heat loss, the thickness of insulation will have to be less than critical thickness.

Ques # :24

The condition for heat dissipation in a parabolic fin to be independent of the distance from the base of the fin is (where δ is the thickness of the fin, b is the width of the fin at the base, L is the length of the fin and B_i is the Biot number)

1) $$\frac{\delta/2}{L} = \frac{B_i}{2}$$

2) $$\frac{\delta/2}{L} = \sqrt{\frac{B_i}{2}}$$

3) $$\frac{\delta/2}{b} = \sqrt{\frac{B_i}{2}}$$

4) $$\frac{b}{L} = \sqrt{B_i}$$

Ques # :25

The effectiveness of an infinitely long rectangular fin is NOT increased by

1) increasing thermal conductivity of the fin material
2) increasing heat transfer coefficient
3) decreasing heat transfer coefficient
4) decreasing area of cross section of the fin

Ques # :26

The hydrodynamic and thermal boundary layers will have equal thickness when

1) Prandtl Number = 1
2) Nusselt Number = 1
3) Prandtl Number = Nusselt Number for any Prandtl Number
4) Prandtl Number = 10

Ques # :27

For free convection in laminar region on vertical plates, the correlation is given by (Nu = Nusselt Number, Pr = Prandtl Number and Gr = Grashof Number):

1) $Nu = 0.13\,(Gr.Pr)$
2) $Nu = 0.59\,(Gr.Pr)^{0.25}$
3) $Nu = 0.15\,(Gr.Pr)^{0.33}$
4) $Nu = 0.27\,(Gr.Pr)^{0.25}$

Ques # :28

Prandtl number is the ratio of

1) kinematic viscosity to thermal diffusivity
2) inertia force to viscous force
3) buoyant force to viscous force
4) None of these

Ques # :29

If θ_1 and θ_2 are the temperatures at the inlet and outlet of a heat exchanger respectively, then the logarithmic mean temperature difference (LMTD) is equal to :-

1) $\dfrac{\theta_1 + \theta_2}{\log_e(\theta_1 / \theta_2)}$

2) $\log_e\left(\dfrac{\theta_1 + \theta_2}{2}\right)$

3) $\log_e\left(\dfrac{\theta_1 - \theta_2}{2}\right)$

4)

$$\frac{\theta_1 - \theta_2}{\log_e(\theta_1 / \theta_2)}$$

Ques # :30

In a counter flow heat exchanger, the thermal capacities of both the hot and cold fluids are the same. If NTU of the heat exchanger is 1, then the effectiveness of the heat exchanger is

1) 0.5
2) 2
3) 0.75
4) None of these

Ques # :31

Cylindrical parabolic solar concentrators can give temperatures in the range of

1) less than 50°C
2) 50°C to 100°C
3) 100°C to 200°C
4) 300°C to 400°C

Ques # :32

What is the theoretical cycle on which the SI engines work?

1) Otto cycle
2) Diesel cycle
3) Ericson cycle
4) Carnot cycle

Ques # :33

Which of the following is associated with the valve operating mechanism?

1) Gudgeon pin
2) Crown
3) Tappet
4) Distributor

Ques # :34

Pick the wrong statement about CI engines:

1) They operate at higher compression ratio.
2) The charge sucked in suction stroke consists of air only.
3) They have lower thermal efficiency than SI engines of comparable size.
4) They are more suitable for two-stroke operation.

Ques # :35

Consider the following statements about SI engines: (a) The air is sucked in the suction stroke and fuel is injected into the cylinder to obtain a homogenous mixture of air and fuel. (b) A homogeneous mixture of air and fuel is prepared externally and sucked in the cylinder during suction stroke. (c) Ignition is by a spark plug exactly at the end of compression stroke. (d) Ignition is by a spark plug little before the end of the compression stroke. Which of the above statement(s) are correct?

1) Both (a) and (c)
2) Both (b) and (c)
3) (a), (b) and (c)
4) Both (b) and (d)

Ques # :36

Which of the following will help in reducing the tendency of knocking in petrol engines?

1) Increasing air temperature
2) Advancing spark timing
3) Reducing engine speed
4) Increasing compression ratio

Ques # :37

Which of the following statement about two-stroke engines is wrong?

1) Valves are absent.
2) The cycle is completed in two strokes or one revolution of crankshaft.
3) Lighter than a four-stroke engine of same power.
4) Due to absence of valves, a complex mechanism for admission of charge and discharge of burnt gases is required.

Ques # :38

Which of the following is NOT a disadvantage of two stroke engines as compared to four stroke engines?

1) More cooling requirement
2) Heavier flywheel required
3) More wear and tear
4) Lower thermal efficiency

Ques # :39

Which of the following cost is not considered in basic EOQ Model ?

1) Ordering Cost
2) Stockout Cost
3) Holding Cost
4) None of these

Ques # :40

For a diesel engine, the maximum efficiency occurs at

1) very low loads
2) around 50% load
3) around 80% load
4) full load

Ques # :41

Which of the following will reduce knocking in diesel engines?

1) High compression ratio and short delay period of fuel.
2) High compression ratio and long delay period of fuel.
3) Low compression ratio and short delay period of fuel.
4) Low compression ratio and long delay period of fuel.

Ques # :42

A cylinder of internal diameter 200 mm is subjected to internal pressure of 15 MPa. Determine the thickness of the cylinder if the material has a yield strength of 300 MPa. Take Factor of safety=2.

1) 10 mm
2) 5 mm
3) 7.5 mm
4) None of these

Ques # :43

A knuckle joint with a fork of thickness of each eye as 10 mm and the outside diameter as 20 mm is subjected to a load of 15 kN. The diameter of the pin is 10 mm. What will be the magnitude of tensile stress in the fork?

1) 100 MPa
2) 75 MPa

3) 50 MPa
4) None of these

Ques # :44

The size factor is employed to find out the endurance limit of a part from the endurance limit of the material (as determined from the standard rotating beam specimen). For sizes greater than 50 mm, this factor is

1) 0.85
2) 0.75
3) 0.9
4) 1.25

Ques # :45

The shock and fatigue factors used in the design of shafts as per ASME for the case of gradually applied load are respectively

1) 1.0 and 1.0
2) 1.0 and 1.5
3) 1.25 and 1.0
4) 1.5 and 1.0

Ques # :46

The bending stress in full length leaves of a laminated spring is

1) same as in graduated leaves
2) 50% more than that in graduated leaves
3) 50% less than that in graduated leaves
4) 25% more than that in graduated leaves

Ques # :47

A component has a cross section area of 100 mm² and section modulus of 5x10 mm³. It is subjected to an eccentric axial tensile load of 10 kN with an eccentricity of 10 mm. What will be the maximum and minimum stresses developed in the member?

1) 120 MPa (tensile) and 80 MPa (tensile)
2) 120 MPa (tensile) and 80 MPa (compressive)
3) 80 MPa (tensile) and 80 MPa (compressive)
4) None of these

Ques # :48

Which of the following is NOT the correct reason for using cast iron for components like machine bed, housings of gear boxes, etc.?

1) It has higher compressive strength
2) It has high tensile strength
3) It can be given any complex shape by casting
4) It has excellent ability to damp vibrations and has good wear resistance.

Ques # :49

Two beams of equal cross sectional area are subjected to same bending moment. The beam A is of solid circular section and the beam B is of square cross section. Which of these will be stronger in bending?

1) Beam A
2) Beam B
3) Both will be equally strong
4) Relative strength will depend upon point of application of load

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Ques # :50

What is the objective of tempering of steel after hardening?

1) To reduce hardness of core
2) To restore ductility and reduce brittleness
3) To improve surface finish

4) All of these

Ques # :51

Pick the wrong statement about various theories of failure

1) Rankine's theory is suitable for brittle materials.
2) Maximum shear stress theory is more suitable for ductile materials.
3) Distortion theory is suitable for ductile materials.
4) Distortion energy theory is easy to apply as compared to maximum shear stress theory.

Ques # :52

To take up limited mis-alignment of two coaxial shafts, which type of coupling is used?

1) Sleeve or muff coupling
2) Bushed pin flexible coupling
3) Oldham coupling
4) Universal coupling

Ques # :53

Which of the following constitute a lower pair?

1) Shaft rotating in a journal
2) Cam and follower
3) Belt and pulley
4) Toothed gears

Ques # :54

An inversion of four bar chain in which one link can make complete rotation while the output link oscillates is obtained when

1) If the link adjacent to the shortest link is fixed
2) If the shortest link is fixed
3) If the link opposite to the shortest link is fixed
4) None of these

Ques # :55

By fixing the connecting rod of a slider crank chain, the inversion obtained is called

1) Whitworth quick return mechanism
2) Rotary cylinder engine
3) Crank and slotted lever quick return mechanism
4) None of these

Ques # :56

If α is the helix angle and ϕ is the friction angle, then the efficiency of the screw jack is given by

1) $\dfrac{\tan\alpha}{\tan(\alpha+\phi)}$

2) $\dfrac{\tan\alpha+\tan\phi}{\tan(\alpha+\phi)}$

3) $\dfrac{\tan\phi}{\tan(\alpha+\phi)}$

4)

$$\frac{\tan\alpha}{\tan(\phi-\alpha)}$$

Ques # :57

If T= allowable tension and m is the mass of belt per unit length, maximum power is transmitted in a belt drive when the velocity of belt is equal to

1) $\sqrt{\frac{3T}{m}}$

2) $\sqrt{\frac{T}{3m}}$

3) $3\sqrt{\frac{T}{m}}$

4) None of these

Ques # :58

The idler pulley is employed in belt drives to

1) Take up the stretch in the belt

2) To increase the angle of lap
3) To facilitate power transmission to a number of shafts
4) All of these

Ques # :59

The path of contact in case of involute gears is

1) A straight line
2) An involute
3) A parabola
4) An arc

Ques # :60

The minimum number of teeth on an involute pinion of pressure angle ϕ which can mesh without interference with a rack is given by

1) $2 / \sin^2 \phi$
2) $2 \sin^2 \phi$
3) $2 / \sin \phi$
4) $2 / \cos \phi$

Ques # :61

A gear train in which axes of some of the gears are in motion is called

1) Compound gear train

2) Reverted gear train
3) Epicyclic gear train
4) None of these

Ques # :62

Which of the following is a guiding principle of scientific management?
1) Mathematical models for every aspect
2) One best way to do a job
3) Experimentation
4) All of these

Ques # :63

The management approach that relies heavily on analytical mathematical techniques is called
1) Quantitative approach
2) System approach
3) Contingency approach
4) Operational approach

Ques # :64

The function of management that involves identification and grouping of activities to be performed and dividing them among individuals is called
1) Planning
2) Staffing
3) Organising
4) Controlling

Ques # :65

Setting standards and measuring actual performance is an important function of management and is called

1) Controlling
2) Directing
3) Standardizing
4) Coordinating

Ques # :66

Which of the following is a maintenance or hygienic factor according to Herzberg's model of motivation?

1) Wages
2) Recognition
3) Advancement
4) Responsibility

Ques # :67

Which of the following is not a characteristic of recruitment through internal sources?

1) Healthy atmosphere
2) Reduced labour turnover
3) Higher cost of training
4) Helpful in maintaining motivation

Ques # :68

Which of the following is not considered a direct advantage of training?

1) Better performance
2) Less wastage
3) Less accidents
4) Better punctuality

Ques # :69

Which of the following is NOT associated with on the job training?

1) Economic and convenient
2) Workers get trained in ideal or best way of doing the job
3) Workers get trained in an actual environment
4) No special facilities required

Ques # :70

Which of the following is not an objective of Job evaluation?

1) To determine relative worth of different jobs.
2) To develop a rational and consistent wage policy.
3) To develop a basis for wage differentials.
4) To determine the relative performance of different workers.

Ques # :71

The method of job evaluation in which job is divided into a number of factors which are further subdivided in a number of grades and each grade is assigned certain numerical weightage, is called

1) Point rating method
2) Factor comparison method
3) Grading or ranking method
4) Classification method

Ques # :72

Which of the following is a characteristic of maturity phase in life cycle of a product?

1) Volumes are decreasing

2) Competition is well established
3) Products are considered for termination
4) Product variety is large and design is evolving

Ques # :73

The method of merit rating in which each employee is compared with every other employee, is called
1) Man to man comparison method
2) Ranking method
3) Paired comparison method
4) Grading system

Ques # :74

Which of the following incentive plans does not guarantee minimum wage?
1) Gantt Task and Bonus system
2) Emerson efficiency plan
3) Merrick's differential piece rate system
4) All of the these

Ques # :75

For a manufacturing organisation which of the following is not considered fixed asset?
1) Buildings
2) Tools and equipments
3) Transport vehicles
4) Finished products

Ques # :76

Which of the following is called book of original account?

1) Ledger
2) Journal
3) Cash book
4) Main account book

Ques # :77

Which of the following ratios give an indication of short term financial position and solvency of a firm or company?

1) Acid test ratio
2) Debt service ratio
3) Debt equity ratio
4) Inventory turn over ratio

Ques # :78

Which of the following is NOT a feature of Micro-motion study?

1) Dividing the activities into small elements called “therbligs”
2) Recording the motion with a camera
3) Studying finer details with a microscope
4) Recording the motions on a SIMO chart

Ques # :79

If T is observed time in a time study and R is a performance rating in percentage, then the normal time for a job is given by

1) $\frac{T \times R}{100}$
2)

$$\frac{T \times 100}{R}$$

3) $$T\left(1+\frac{R}{100}\right)$$

4) $$T\left(1-\frac{R}{100}\right)$$

Ques # :80

In Westinghouse system of performance rating, the performance is rated in four factors. Which of the following is NOT a factor employed in this system?

1) Skill
2) Effort
3) Efficiency
4) Conditions

Ques # :81

The therblig ⌓ represents the activity of

1) releasing an object at desired location
2) holding an object
3) transportation of an object with crane
4) none of these

Ques # :82

In process charts, the symbol  means

1) Inspection
2) Transportation
3) Operation
4) Temporary storage

Ques # :83

For which of the following industries, the proximity to raw materials will be the most important consideration in selection of location of the plant?

1) Medicines
2) Televisions
3) Steel mill
4) Publishing house

Ques # :84

A company specializes in different types of machines/parts with small volumes and with uncertain demand. Which layout of the plant will be most suitable?

1) Process layout
2) Product layout
3) Fixed position layout
4) Assembly line type layout

Ques # :85

Which of the following type of plant layout chart/diagram doesn't give information about relative position or closeness of different workstations?

1) Flow diagram
2) String diagram
3) Relationship chart
4) All of these

Ques # :86

What is the most serious disadvantage of product layout?
1) High material handling
2) The movement of materials becomes highly inconvenient
3) It is not robust in the event of disruption
4) Higher cost per unit

Ques # :87

Pick the wrong statement in the context of break-even analysis:
1) Large angle of incidence in break-even chart indicates more profit rate
2) Contribution = Selling price per unit- Total cost per unit
3) Contribution per unit = Selling price per unit - Variable cost per unit
4) Margin of safety = Profit /(P/V)ratio

Ques # :88

A company is manufacturing a product which is sold for Rs.15 per unit. The fixed cost of production is Rs. 50,000 and the variable cost is Rs. 10 per unit. How many units must be produced to break-even?
1) 10000
2) 5000
3) 3333
4) 2000

Ques # :89

A company has a monthly demand of 5000 units for certain item which costs Rs. 60 per unit. The ordering cost per order is Rs. 225 and the holding or carrying cost of the inventory per year is 5% of the unit price of the item. What must be the Economic Order Quantity (EOQ), considering instantaneous replenishment of items?

1) 2600
2) 3200
3) 3000
4) 3600

Ques # :90

Consider these models of inventory Economic Ordering Quantity (EOQ) in all of which the inventory consumption is at a constant rate: (A) the replenishment is instantaneous but shortages are not permitted, (B) the replenishment is at a finite constant rate and no shortages are permitted, and (C) the replenishment is instantaneous but shortages are permitted. In which of these cases the total optimal inventory cost will be largest?

1) model A
2) model B
3) model C
4) model C or model A depending upon parameters

Ques # :91

In which of the following replacement analysis methods, the interest rate enters into calculations?

1) Payback period method
2) Annual cost method
3) Total life average method
4) Rate of return method

Ques # :92

Which of the following replacement methods take into account different types of depreciation and obsolescence?

1) MAPI method
2) Discounted rate of return method
3) Present worth method
4) None of these

Ques # :93

Select the wrongly paired option

1) CPM – emphasis on minimum project cost
2) PERT – activity oriented
3) CPM – deterministic time estimates
4) PERT – probabilistic time estimates

Ques # :94

Dummy activities are employed to

1) determine the critical path in CPM.
2) maintain the correct precedence relation between activities.
3) pump in extra resources for timely completion of the project.
4) balance the path in CPM

Ques # :95

The time by which the completion of an activity can be delayed beyond the earliest finish time without affecting the earliest start of a subsequent activity is called

1) Free float
2) Independent float
3) Total float
4) Interfering float

Ques # :96

In the context of CPM/PERT, the term crashing of network implies

1) Project has gone out of control
2) Diverting resources from non-critical activities to critical activities for timely completion
3) Short circuiting non-critical events
4) Abandoning the project

Ques # :97

For transportation of loose granular material within factory involving both horizontal and vertical displacement, the most suitable material handling device will be

1) bucket conveyor
2) roller conveyor
3) screw conveyor
4) lift

Ques # :98

Routing is most difficult in which type of production system?

1) Mass production
2) Batch production
3) Continuous production
4) Equally difficult in both the job and mass production

Ques # :99

Which of the following charts is useful in scheduling?

1) Gantt chart
2) Outline process chart
3) Flow process chart
4) SIMO chart

Ques # :100

Routing in production planning and control means

1) Monitoring the progress of job through various processes
2) Starting a particular operation on correct time
3) Specifying flow and sequence of operations for production
4) Planning best material handling route

ASSTT. ENGINEER (MECH.) (GROUND WATER DEPT. 2014)			
Exam Date 06-05-2016			
Key Issue Date-11-07-2016			
SET_A	RES	SET_A	RES
1	2	51	4
2	1	52	2
3	4	53	1
4	4	54	1
5	2	55	3
6	1	56	1
7	3	57	2
8	4	58	4
9	2	59	1
10	3	60	1
11	3	61	3
12	2	62	2
13	1	63	1
14	3	64	3
15	1	65	1
16	3	66	1
17	2	67	3
18	1	68	4
19	4	69	4
20	1	70	4
21	1	71	1
22	3	72	2
23	2	73	3
24	2	74	3
25	2	75	4
26	1	76	2
27	2	77	1
28	1	78	3
29	4	79	1
30	1	80	3
31	4	81	2
32	1	82	1
33	3	83	3
34	3	84	1
35	4	85	3
36	*	86	3
37	4	87	2
38	2	88	1
39	2	89	3
40	3	90	1
41	1	91	2
42	1	92	1
43	2	93	2
44	2	94	2
45	4	95	1
46	2	96	2
47	4	97	1
48	2	98	2
49	2	99	1
50	*	100	3

* Means deleted