PROVISIONAL ANSWER KEY

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Question1:-

For pipe flow, turbulent flow occurs when Reynolds number

A:-less than 4000

B:-more than 4000

C:-between 2000 and 4000

D:-less than 2000

Correct Answer:- Option-B

Question2:-The time of oscillation of a floating body with increase in metacentric height will be

A:-decreases

B:-increases

C:-unaltered

D:-lower of higher depending on weight of body

Correct Answer:- Option-A

Question3:-The value of the compressibility of an ideal fluid is

A:-infinity

B:-zero

C:-unity

D:-more than that of a real fluid

Correct Answer:- Option-B

Question4:-Which device is popularly used for measuring difference of low pressure?

A:-Vertical Single column manometer

B:-Inclined Single column manometer

C:-U-tube Differential Manometer

D:-Inverted U-tube Differential Manometer

Correct Answer:- Option-D

Question5:-Euler number is defined as the ratio of inertia force to

A:-elastic force

B:-viscous force

C:-gravity force

D:-pressure force

Correct Answer:- Option-D

Question6:-Cavitation usually occurs due to the changes in

A:-Pressure

B:-Temperature

C:-Volume

D:-Heat

Correct Answer:- Option-A

Question7:-The lowest temperature at which the oils gives enough vapour

A:-Fire point

B:-Cloud point

C:-Pour point

D:-Flash point

Correct Answer:- Option-D

Question8:-Centrifugal pump gives maximum efficiency when its blades are

A:-Straight

B:-bent forward

C:-bent backward

D:-wave shaped

Correct Answer:- Option-C

Question9:-The hydraulic efficiency of Pelton turbine will be maximum when blade velocity is equal to

A:-V/2

B:-V/3

C:-V/6

D:-V/4

Correct Answer:- Option-A

Question10:-Geometric similarity between model and prototype means similarity of?

A:-disccharge

B:-motion

C:-forces

D:-linear dimensions

Correct Answer:- Option-D

Question11:-For a Carnot engine, if the source temperature increases while sink temperature remains constant, the efficiency will

A:-Decrease

B:-Increase

C:-Remain Constant

D:-First increase then decrease

Correct Answer:- Option-B

Question12:-The main purpose of a scavenging process in a 2-stroke diesel engine is

A:-Cooling the engine

B:-Removing burnt gases and filling fresh air

C:-Increasing compression ratio

D:-Improving lubrication

Correct Answer:- Option-B

Question13:-In a single-stage reciprocating compressor, the volumetric efficiency decreases mainly due to

A:-Clearance volume

B:-Increase in suction pressure

C:-Intercooling

D:-Higher stroke length

Correct Answer:- Option-A

Question14:-In heat transfer, thermal conductivity (k) depends primarily on

A:-Temperature gradient

B:-Material properties

C:-Cross-sectional area

D:-Thickness of the wall

Correct Answer:- Option-B

Question15:-In the Otto cycle, if the compression ratio is increased from 6 to 9, the theoretical efficiency change is primarily governed by

A:-Specific heat at constant pressure

B:-Ratio of specific heats (γ)

C:-Maximum cycle pressure

D:-Temperature after heat addition

Correct Answer:- Option-B

Question16:-During the Morse test, the fall in brake power when one cylinder is cut off represents

A:-Brake power of that cylinder

B:-Friction power of that cylinder

C:-Indicated power of that cylinder

D:-Mechanical efficiency of that cylinder

Correct Answer:- Option-C

Question17:-In a multi-stage air compressor with perfect intercooling, the optimum intermediate pressure is

A:-Arithmetic mean of inlet and outlet pressure

B:-Geometric mean of inlet and outlet pressure

C:-Harmonic mean of inlet and outlet pressure

D:-Equal to outlet pressure

Correct Answer:- Option-B

Question18:-For a gas turbine working on the Brayton cycle, if the pressure ratio is increased, the thermal efficiency increases only up to a certain limit and then starts decreasing. This behavior is primarily due to:

A:-Increase in compressor work dominating turbine work

B:-Reduction in specific heat at constant pressure

C:-Decrease in turbine inlet temperature

D:-Increase in regenerator effectiveness

Correct Answer:- Option-A

Question19:-In a Diesel cycle, if the cut-off ratio increases while compression ratio remains constant, the efficiency

A:-Increases

B:-Decreases

C:-Remains constant

D:-Becomes equal to Otto cycle

Correct Answer:- Option-B

Question20:-The specific fuel consumption (SFC) of a diesel engine increases when

A:-When EGR started working

B:-Higher inlet boost pressure

C:-Higher CRDI rail pressure at higher loads

D:-Engine operated on ambient temperature

Correct Answer:- Option-A

Question21:-When the resistance offered by a section of the rod is against an increase in length, the section is said to offer a

A:-Tensile stress

B:-Compressive stress

C:-Tensile strain

D:-Compressive strain

Correct Answer:- Option-A

Question22:-A rod tapers uniformly from 30 mm to 15 mm diameter in a length of 600 mm. If the rod be subjected to an axial load of 6000N, find the extension of the rod.

Take $E = 2 \times 10^5$ N/mm^2

A:-0.03 mm

B:-0.04 mm

C:-0.05 mm

D:-1.3 mm

Correct Answer:- Option-C

Question23:-Maximum shear stress on oblique section of a bar carrying axial load occurs on

A:-Plane at 45º with the normal cross section

B:-Plane at 135º with the normal cross section

C:-Planes at 45º or 135º with the normal cross section

D:-Plane at 90° with the normal cross section

Correct Answer:- Option-C

Question24:-A material has a Young's Modulus of 1.5 x 10^5 N/mm^2 and a Poisson's ratio of 0.25. Bulk Modulus of this material is

A:-0.75 x 10^5 N/mm^2

B:-10^5 N/mm^2

C:-1.25 x 10^5 N/mm^2

D:-0.85 x 10^5 N/mm^2

Correct Answer:- Option-B

Question25:-When a member is free to expand due to the rise of temperature, stress induced will be

A:-Tensile stress

B:-Compressive stress

C:-Hoop stress

D:-Zero stress

Correct Answer:- Option-D

Question26:-Bending Moment in a cantilever of length 'l ' carrying a uniformly distributed load '*w*' per unit run over the whole length and a concentrated load W at the free end follows

A:-Linear law

B:-Parabolic law

C:-Cubic law

D:-Triangular law

Correct Answer:- Option-B

Question27:-Point of contra flexure occurs in beams that experience

A:-Sagging moment

B:-Hogging moment

C:-Both sagging and hogging moment

D:-None of the above

Correct Answer:- Option-C

Question28:-A body of weight 100N is placed on a rough horizontal plane. Determine the coefficient of friction if a horizontal force of 80 N just causes the body to slide over the horizontal plane

A:-0.6

B:-0.8

C:-0.7

D:-0.5

Correct Answer:- Option-B

Question29:-Type of rivet head mainly used for ship building is

A:-Snap head

B:-Counter sunk head

C:-Conical head

D:-Pan head

Correct Answer:- Option-B

Question30:-Permissible load for the single V shaped butt welded joint of Tie bar 120 mm x 8 mm dimensions with the safe stress in weld 140 N/mm^2 is

A:-90000 N

B:-86000 N

C:-85000 N

D:-84000 N

Correct Answer:- Option-D

Question31:-Which of the following is the function of a bearing in a machinery?

A:-Transmit power

B:-Provide support and reduce friction for rotating shafts

C:-Store kinetic energy

D:-Maintain the speed of operation

Correct Answer:- Option-B

Question32:-What does the term 'μ' in bearing characteristic numbers refers to?

A:-Co-efficient of friction

B:-Bearing pressure

C:-Dynamic viscosity of the lubricant

D:-Speed of the journal

Correct Answer:- Option-C

Question33:-Which of the following ferrous metals has the highest percentage of carbon?

A:-Wrought Iron

B:-Mild Steel

C:-Cast Iron

D:-Alloy Steel

Correct Answer:- Option-C

Question34:-Flywheels are mainly used in an engine for:

A:-Reducing the weight

B:-Storing energy to minimize fluctuations in speed

C:-Improving the static and dynamic balancing

D:-Reducing the moment of inertia

Correct Answer:- Option-B

Question35:-In a spur gear, the velocity ratio is correctly defined as the ratio of:

A:-Pitch circle diameter to addendum

B:-Number of teeth on the follower to number of teeth on the driver

C:-Number of teeth on the driver to number of teeth on the follower

D:-Circular pitch to module

Correct Answer:- Option-C

Question36:-In a simple gear train, which of the following statement is correct regarding the idler gear?

A:-It changes the gear ratio of the drive.

B:-It changes the direction of rotation of the Last driven gear.

C:-It causes a loss of power and must always be avoided.

D:-The speed of the idler gear is always half of the driver gear.

Correct Answer:- Option-B

Question37:-Herringbone gears are mainly used for:

A:-Changing shaft direction at angles

B:-Transmitting power between parallel shafts

C:-High-speed helical motion

D:-Thrust load support

Correct Answer:- Option-B

Question38:-The primary function of a blow off cock in a boiler is to:

A:-Measure the temperature of flue gases.

B:-To ensure continuous outflow of steam.

C:-To continuously supply feed water.

D:-To remove accumulated sludge and sediments from the boiler.

Correct Answer:- Option-D

Question39:-The process of tempering is primarily performed on steel to:

A:-Increase the hardness and wear resistance

B:-Improve machinability

C:-Reduce the brittleness and increase the toughness after hardening

D:-Increase the critical temperature.

Correct Answer:- Option-C

Question40:-A governor is considered stable if:

A:-For every speed within its operating range, there is a definite sleeve position.

B:-The sleeve movement is too slow for the change in speed.

C:-The equilibrium speed is constant for all positions of the sleeve.

D:-The governor runs continuously up and down when in operation.

Correct Answer:- Option-A

Question41:-The relationship between stroke and crank throw of an engine is

A:-Stroke is half of crank throw

B:-Stroke is twice the crank throw

C:-Stroke is four times the crank throw

D:-Stroke is equal to crank throw

Correct Answer:- Option-B

Question42:-Most turbochargers have a waste gate; it helps to

A:-Cool the air-fuel mixture

B:-Allow higher engine speed

C:-Produce overboost

D:-Prevent overboost

Correct Answer:- Option-D

Question43:-Which of the following is incorrect about cooling system

A:-thermostat controls the minimum operating temperature of the engine.

B:-water pump is driven by the crankshaft

C:-radiator transfer heat from engine to the air

D:-the inlet of the water pump connects to the engine block

Correct Answer:- Option-D

Question44:-The purpose of venturi in a carburettor is to

A:-Increase air velocity

B:-Decrease air velocity

C:-Decrease fuel flow

D:-Increase manifold vacuum

Correct Answer:- Option-A

Question45:-Which of the following statement is / are correct about thermo-syphon cooling system

(i) Cooling depends only on the coolant temperature

(ii) Cooling is independent of engine speed

(iii) The rate of circulation is fast and sufficient

A:-Only (i) and (iii)

B:-Only (ii)

C:-Only (i) and (ii)

D:-All of the above (i), (ii) and (iii)

Correct Answer:- Option-C

Question46:-Which of the following is not the function of flywheel?

A:-smooths out cylinder firing pulsations

B:-meshes with the starter drive gear

C:-reduces friction on the engine

D:-provides a mounting place for the clutch assembly

Correct Answer:- Option-C

Question47:-In autothermic pistons, steel inserts are used at the piston pin bosses to

A:-reduce piston weight

B:-control the direction of piston expansion

C:-reduce piston expansion

D:-increase the strength of piston

Correct Answer:- Option-B

Question48:-A four stroke engine is running at 1500 rpm, how many times in a minute does each valve open and close?

A:-1500

B:-3000

C:-375

D:-750

Correct Answer:- Option-D

Question49:-Crankcase ventilation is provided to

A:-cool the crankcase

B:-cool the cylinder walls

C:-remove blowby gases

D:-increase crankcase dilution

Correct Answer:- Option-C

Question50:-The main advantage of pintaux nozzle is

A:-better cold starting performance

B:-ability to distribute fuel

C:-good atomisation

D:-good penetration

Correct Answer:- Option-A

Question51:-In a conventional control chassis, where is the engine located?

A:-Completely inside the driver's cabin

B:-Behind the rear axle

C:-In front of the driver's cabin

D:-Half inside and half outside the driver's cabin

Correct Answer:- Option-C

Question52:-What is the function of an electronically controlled variable-assist power steering system?

A:-It provides increased steering assistance at low vehicle speeds

B:-It decreases steering assistance as vehicle speed increases

C:-It performs both functions A and B

D:-It performs neither function A nor B

Correct Answer:- Option-C

Question53:-Which statement best describes how a stabilizer bar is connected in an independent front suspension?

A:-It is bolted between the upper control arms to reduce dive during braking.

B:-It links the lower control arms on both sides to resist body roll during cornering.

C:-It connects the steering knuckle to the subframe to improve camber control.

D:-It is mounted between the strut tops to stiffen the chassis.

Correct Answer:- Option-B

Question54:-A MacPherson strut front suspension typically uses how many ball joints per side?

A:-One

B:-Two

C:-Three

D:-None

Correct Answer:- Option-A

Question55:-Bump. steer happens mainly when?

A:-Steady cruising

B:-During suspension travel with incorrect tie-rod geometry

C:-Hard straight-line braking

D:-At full steering lock position only.

Correct Answer:- Option-B

Question56:-The unloader valve in an air brake system is typically found

A:-Integrated into the air compressor governor.

B:-Inside the main service brake chamber.

C:-At the foot brake pedal assembly.

D:-At the bottom of reservoir tank.

Correct Answer:- Option-A

Question57:-When air pressure enters the brake chamber, it pushes a diaphragm, which moves a pushrod connected to the:

A:-Brake Drum

B:-S cam

C:-brake shoes

D:-Slack Adjuster

Correct Answer:- Option-D

Question58:-In a typical twin-tube telescopic hydraulic shock absorber where is the reserve fluid stored?

A:-In the inner working cylinder

B:-In a separate external reservoir connected by a hose

C:-Between the inner and outer tubes

D:-In the dust shield casing

Correct Answer:- Option-C

Question59:-A metering valve delays front brake application until rear brake pressure builds to overcome which component?

A:-The master cylinder

B:-The caliper pistons

C:-The return springs in the rear drums

D:-The vacuum booster

Correct Answer:- Option-C

Question60:-In the recirculating ball type steering gear, the balls travel between the nut and the

A:-Gear rack

B:-Sector wheel

C:-Steering wheel shaft

D:-Worm shaft

Correct Answer:- Option-D

Question61:-Which of the following clutch facing material has the highest co-efficient of friction?

A:-Leather

B:-Cork

C:-Asbestos-base material

D:-HWK 200 (non-asbestos)

Correct Answer:- Option-D

Question62:-In fully centrifugal type of clutch, the springs are:

A:-Used only at low speeds to assist centrifugal force in engaging the clutch.

B:-Used along with centrifugal force at all speeds to keep the clutch engaged.

C:-Eliminated completely, so only centrifugal force provides the required engaging pressure.

D:-Used only to disengage the clutch when engine speed increases.

Correct Answer:- Option-C

Question63:-In a constant mesh gearbox, the main shaft is

A:-Plain round shaft

B:-Splined shaft

C:-Hollow shaft

D:-Tapered shaft

Correct Answer:- Option-B

Question64:-The driving member connected to the engine in a single stage torque converter is called the

A:-Turbine

B:-Stator

C:-Impeller

D:-Freewheel

Correct Answer:- Option-C

Question65:-In front wheel drive car, which type of constant velocity(CV) joint is generally used at the wheel end of the drive shaft?

A:-Inboard plunging type joint

B:-Outboard fixed type joint

C:-Inboard universal joint

D:-Outboard sliding yoke joint

Correct Answer:- Option-B

Question66:-The spherical end of the torque tube in torque tube drive fits into a cup that is fixed to the:

A:-Gearbox shaft

B:-Propeller shaft

C:-Frame or Cross member of frame

D:-Rear axle shaft

Correct Answer:- Option-C

Question67:-The tapered nut used to pull a spoke tight in a wire wheel is called

A:-Collar

B:-Nipple

C:-Bush

D:-Ferrule

Correct Answer:- Option-B

Question68:-Where is the third brush placed in a third-brush generator?

A:-At the same position as the main positive brush.

B:-90° electrical ahead of the main brushes.

C:-Somewhere where the flux becomes weaker at higher speeds.

D:-Exactly midway between the poles.

Correct Answer:- Option-C

Question69:-In which Bendix drive does the pinion move away from the starting motor to engage the flywheel?

A:-Inboard type

B:-Outboard type

C:-Pre-engaged type

D:-Overrunning clutch type

Correct Answer:- Option-B

Question70:-If the contact breaker gap is too small:

A:-Points open for too long and spark becomes stronger.

B:-Points do not remain open long enough and engine may misfire.

C:-Coil will not get any current.

D:-Engine speed increases suddenly.

Correct Answer:- Option-B

Question71:-Under the Motor Vehicles Act, 1988, the term “Transport Vehicle” refers to:

A:-Any vehicle used for personal travel

B:-A public service vehicle, goods carriage, educational institution bus or private service vehicle

C:-Only buses owned by the government

D:-Any vehicle driven for commercial purpose only

Correct Answer:- Option-B

Question72:-The main purpose of providing superelevation on horizontal curves is to:

A:-Increase road width

B:-Improve appearance

C:-Counteract centrifugal force

D:-Prevent water stagnation

Correct Answer:- Option-C

Question73:-Which of the following reduces crankcase emission?

A:-EGR

B:-PCV

C:-Catalytic converter

D:-Air filter

Correct Answer:- Option-B

Question74:-Which unit is called the “brain of the fuel injection system”?

A:-Fuel injector

B:-Throttle body

C:-ECM (Engine Control Module)

D:-Fuel tank

Correct Answer:- Option-C

Question75:-Which sensor informs the ECM about engine load?

A:-Oxygen sensor

B:-MAP sensor

C:-Knock sensor

D:-Coolant temperature sensor

Correct Answer:- Option-B

Question76:-In an airbag system, which sensor detects sudden deceleration during a crash?

A:-Oxygen sensor

B:-Knock sensor

C:-Impact (Crash) sensor

D:-MAP sensor

Correct Answer:- Option-C

Question77:-Which type of hybrid vehicle uses both engine and motor at the same time to drive wheels?

A:-Series hybrid

B:-Parallel hybrid

C:-Plug-in hybrid

D:-Mild hybrid

Correct Answer:- Option-B

Question78:-Which part of ABS prevents pressure locking by releasing brake fluid during sudden braking?

A:-Master cylinder

B:-Modulator valve

C:-Disc brake

D:-Wheel cylinder

Correct Answer:- Option-B

Question79:-Catalytic converter mainly converts which harmful gases?

A:-CO, HC, NOx

B:-N_2, O_2, CO_2

C:-Smoke only

D:-Steam only

Correct Answer:- Option-A

Question80:-Which factor has the greatest negative impact on EV driving range?

A:-Motor efficiency

B:-Regenerative braking

C:-Aerodynamic drag

D:-Battery charger efficiency

Correct Answer:- Option-C

Question81:-Under what circumstances, one person can drive a Motor vehicle on a public place without valid driving licence?

A:-Medical Emergency

B:-Flood relief Activity

C:-On Village road

D:-None of the above

Correct Answer:- Option-D

Question82:-The Learner's Licence holder can drive a vehicle,

A:-Within the boundaries of the R.T.O. Office, from where, the Learner's Licence is issued

B:-Within the district of that R.T.O. Office

C:-Within the State

D:-Throughout India.

Correct Answer:- Option-D

Question83:-A person has taken his Motor driving licence at the age of 51 years. The Validity of the licence is for,

A:-9 years

B:-10 years

C:-5 years

D:-3 years

Correct Answer:- Option-A

Question84:-The minimum age of a person, who can drive a transport vehicle in a public place is

A:-18

B:-20

C:-22

D:-25

Correct Answer:- Option-B

Question85:-Which form number is shown in a Motor driving licence?

A:-Form 5

B:-Form 6

C:-Form 7

D:-Form 8

Correct Answer:- Option-C

Question86:-Which traffic sign is indicated by an Octagonal shaped one?

A:-Sharp bend

B:-Stop

C:-Turn Left

D:-Turn Right

Correct Answer:- Option-B

Question87:-Choose the correct priority of the following vehicles

A:-Fire service, Ambulance, Police

B:-Ambulance, Fire Service, Police

C:-Police, Ambulance, Fireforce

D:-Police, Fire Service, Ambulance

Correct Answer:- Option-A

Question88:-Speed limit of a towing vehicle is

A:-15 km/hr

B:-20 km/hr

C:-25 km/hr

D:-30 km/hr

Correct Answer:- Option-C

Question89:-A traffic sign with an inverted triangle, (apex pointing downwards) means,

A:-Hill Area

B:-Stop

C:-Entry restricted

D:-Give way

Correct Answer:- Option-D

Question90:-Which of the following statement is correct?

A:-A vehicle can move reverse direction in one-way

B:-A vehicle can move reverse direction in a tunnel

C:-A vehicle can move reverse direction at a sharp bend

D:-None of the above

Correct Answer:- Option-D

Question91:-Section 134 dealt with

A:-Good Samaritans

B:-Giving information by owner

C:-Duties in case of accident and injury

D:-Using vehicles without registration

Correct Answer:- Option-C

Question92:-Riding on running board is prohibited under

A:-Section 124

B:-Section 125

C:-Section 123

D:-Section 131

Correct Answer:- Option-C

Question93:-Section 129 applies to person above the age of

A:-2 years

B:-3 years

C:-4 years

D:-5 years

Correct Answer:- Option-C

Question94:-Which section in MV act make it mandatory for every child to be secured by a safety belt or a child restraint system?

A:-192 A

B:-193 B

C:-194 B

D:-195 D

Correct Answer:- Option-C

Question95:-Driving an un insured vehicle is punishable under which of the following section of MV act

A:-Section 146

B:-Section 196

C:-Section 192

D:-Section 194 A

Correct Answer:- Option-B

Question96:-Motor Cab means a motor vehicle carrying not more than

A:-5 passengers

B:-6 passengers

C:-12 passengers

D:-7 passengers

Correct Answer:- Option-B

Question97:-Section 112 refuses which of the following

A:-Speed Limit

B:-Vehicle weighing

C:-Overloading

D:-Fitness Certificates

Correct Answer:- Option-A

Question98:-Bharath Stage-VI implementation date in India is

A:-01.04.2017

B:-01.04.2019

C:-01.04.2020

D:-01.04.2021

Correct Answer:- Option-C

Question99:-Green tax is levied under which section of Kerala Taxation Act.

A:-Section 34

B:-Section 10

C:-Section 7

D:-Section 4

Correct Answer:- Option-A

Question100:-Power to seize or detain the motor vehicles is given under which section of Kerala MV act.

A:-Section 11

B:-Section 3

C:-Section 4

D:-Section 26

Correct Answer:- Option-A