PROVISIONAL ANSWER KEY

Question 105/2023/OL

Paper Code:

Category 250/2022

Code:

Exam:

Lecturer in Automobile Engineering

Date of Test 05-07-2023

Department Technical Education Govt. Polytechnics

Question1:-Flag bits of which of the following registers are affected when the microcontroller executes some arithmetic operations?

A:-DPTR

B:-PSW

C:-PC

D:-SP

Correct Answer:- Option-B

Question2:-Which language processor is used to convert a high level language into an object program in one go?

A:-Loader

B:-Interpreter

C:-Compiler

D:-Assembler

Correct Answer:- Option-C

Question3:-Which microcontroller offers embedded safety characteristics and functional security for advanced automotive applications?

A:-Renesas microcontroller

B:-Atmel AVR microcontroller

C:-Intel 8051 microcontroller

D:-Infineon Tricore microcontroller

Correct Answer:- Option-A

Question4:-Pick the odd one among the following

A:-polyglot IDE

B:-PyCharm IDE

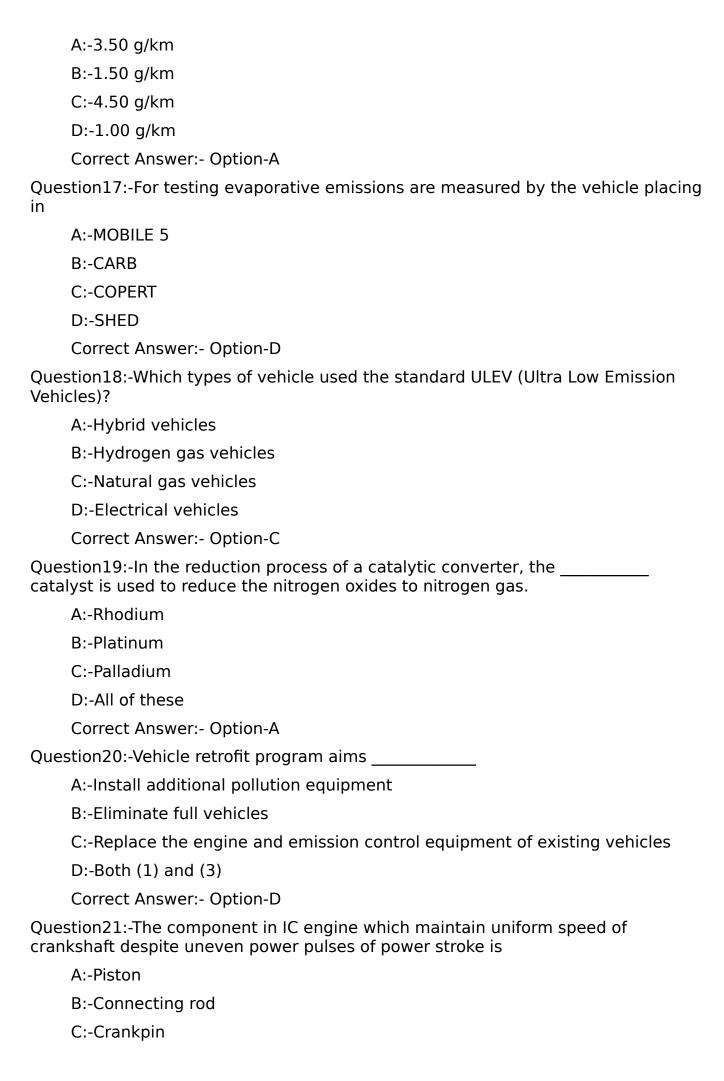
C:-Selenium IDE

D:-TMS client IDE

Correct Answer:- Option-B

Question5:-The 8051 microcontroller invented by Intel in the year 1981 whose foundation was based on Harvard architecture, is widely used in the automobile

| D:-KOx |
|--|
| Correct Answer:- Option-C |
| Question11:-The Network is serial communication protocol suited for networking sensors, actuators and other electronic devices in vehicles |
| A:-CAN |
| B:-MAN |
| C:-LAN |
| D:-WAN |
| Correct Answer:- Option-A |
| Question12:-How many bits in standard CAN Base Frame format? |
| A:-8 bits identifier |
| B:-16 bits identifier |
| C:-29 bits identifier |
| D:-11 bits identifier |
| Correct Answer:- Option-D |
| Question13:-The US Navy's Timation satellite system, which carried payloads with standards used for time keeping and time transfer applications. |
| A:-Antenna Time |
| B:-Atomic Time |
| C:-Standard Time |
| D:-Geostationary Time |
| Correct Answer:- Option-B |
| Question14:-How many major segments in the NAVSTAR GPS System |
| A:-1 |
| B:-2 |
| C:-3 |
| D:-4 |
| Correct Answer:- Option-C |
| Question 15:-Which one of the following position techniques is used by the GPS to pinpoint a user's position? |
| A:-Autonomous positioning |
| B:-Differential Positioning |
| C:-Server-Assisted Positioning |
| D:-All of these |
| Correct Answer:- Option-D |
| Question16:-An Indian Pollution Revised Law in April 1, 1996, the value of carbon monoxide (CO) of two stroke motor cycle is |



D:-Flywheel

Correct Answer:- Option-D

Question22:-The minimum number of compression rings needed in an engine piston is

A:-Four

B:-Three

C:-Two

D:-One

Correct Answer:- Option-C

Question23:-The engine component required for the effective functioning of valves in an internal combustion engine is

A:-Cam shaft

B:-Flywheel

C:-Piston

D:-Connecting rod

Correct Answer:- Option-A

Question24:-The float component in carburettor is used for controlling which aspect of following

A:-Fuel-air mixture rate

B:-Fuel discharge rate

C:-Air flow

D:-Level of fuel

Correct Answer:- Option-D

Question25:-The connection of the big end bearing part of the connecting rod is to

A:-Piston

B:-Camshaft

C:-Crankshaft

D:-Gudgeon pin

Correct Answer:- Option-C

Question 26:- The placement of the pushrod in valve operation is between

A:-Valve and valve springs

B:-Rocker arm and spring

C:-Camshaft and tappet

D:-Tappet and rocker arm

Correct Answer: - Option-D

Question27:-The component that typically supplies the drive for a mechanical fuel pump in an engine is

- A:-Camshaft
- B:-crankshaft
- C:-Timing belt
- D:-Distributor

Correct Answer: - Option-A

Question28:-The function of a glow plug in a diesel engine is

- A:-To ignite the air-fuel mixture
- B:-To control the timing of fuel injection
- C:-To preheat the combustion chamber for easier cold starts
- D:-To regulate the flow of exhaust gases

Correct Answer:- Option-C

Question29:-The component that is responsible for controlling the timing and duration of fuel injection in a Multi-Point Fuel Injection (MPFI) engine is

- A:-Fuel pump
- B:-Fuel rail
- C:-Injector(s)
- D:-Engine Control Unit (ECU)

Correct Answer: - Option-D

Question 30:-Turbo lag in a turbocharged engine refers to

- A:-The delay in power delivery that occurs when the driver presses the accelerator
 - B:-The noise produced by the turbocharger during its operation
 - C:-The reduction in fuel efficiency caused by turbocharging
 - D:-The heightened risk of engine overheating in a turbocharged engine

Correct Answer:- Option-A

Question31:-The purpose of a pintaux nozzle in a diesel engine is

- A:-To control the fuel flow rate
- B:-To control the air-fuel mixture
- C:-To improve cold starting performance
- D:-To increase the engine power

Correct Answer:- Option-C

Question32:-In Internal combustion engines, librication oil is distributed throughtout the components by means of

- A:-Roots blower
- B:-Centrifugal pump
- C:-Positive displacement pump
- D:-Thermosiphon systems

Correct Answer:- Option-C

Question33:-The primary advantage of a dry sump lubrication system over a wet sump system is

A:-Increased oil capacity

B:-Reduced oil pump size

C:-Improved cooling efficiency

D:-Enhanced lubrication under high-speed conditions

Correct Answer:- Option-D

Question34:-The use of thermostat in IC engine cooling system is to

A:-Filter the coolant

B:-Cool down the engine oil

C:-Regulate the flow and temperature of the coolant

D:-Increase the coolant pressure

Correct Answer:- Option-C

Question35:-The release of burnt gases from the combustion chamber, traversing the pistons, and entering the crankcase is commonly known as

A:-Gas leakage

B:-Expel gas

C:-Blow-by

D:-Bypass

Correct Answer:- Option-C

Question36:-The function of antifreeze used in IC engine cooling system application is to

A:-Enhance the engine's power output

B:-Lubricate the various engine components

C:-Minimizing friction and wear between the moving parts of the engine

D:-Raise the boiling point of the coolant and lower the freezing point

Correct Answer:- Option-D

Question37:-The battery capacity is defined as

A:-The amount of power it can deliver

B:-The amount of current it can deliver

C:-The amount of voltage it can deliver

D:-None of the above

Correct Answer:- Option-B

Question38:-The condition of a battery can be checked by

A:-Specific gravity test

B:-Open voltage test

C:-High discharge test D:-All of the above tests Correct Answer:- Option-D Question39:-The maintenance free battery has A:-Lead-antimony plate grid B:-Lead-calcium plate grid C:-Does not contain the acid D:-Does not contain water Correct Answer:- Option-B Question40:-The specific gravity of electrolyte in a battery is with increase in temperature A:-Increases B:-First increases then decreases C:-Decreases D:-Stay the same Correct Answer:- Option-C Question41:-The battery over-charging damages the A:-Positive plates B:-Negative plates C:-Electrolyte D:-The battery casing Correct Answer:- Option-A Question42:-In an alternator the magnetic field is produced at the A:-Rotor B:-Stator C:-Frame D:-None of the above Correct Answer:- Option-A Question43:-The alternator output in a charging unit is controlled by A:-Cut out relay B:-Cut out regulator C:-Current regulator D:-Voltage regulator Correct Answer:- Option-D Question44:-The starting motors in automobiles are

A:-Series wound

B:-Series-shunt wound C:-Shunt wound D:-Both (1) and (2) above Correct Answer:- Option-D Question45:-The "Dwell" is defined as A:-The time for which the points remains closed B:-The distance between the cam lobes C:-The angle at which the heat contacts the cam D:-None of the above Correct Answer: - Option-A Question46:-The spark plug used in an engine having white insulator tip indicates that A:-Over advanced ignition B:-Retarded ignition C:-Leaded fuel D:-Gas leak Correct Answer:- Option-A Question47:-The number of ignition coils in a distributor less ignition system for a six cylinder engine is A:-1 B:-2 C:-3D:-6 Correct Answer:- Option-C Question 48:- In a rotating armature type magneto ignition system the magnet is A:-Electro magnet B:-Rotating C:-Permanent D:-All of the above Correct Answer:- Option-C Question49:-The metal shield in a head lamp is placed below A:-The dipper beams B:-The main beam C:-Both the beam D:-None of the above

Correct Answer:- Option-A

Question 50:- The flashing indicator switch is usually mounted on A:-Steering column B:-Dash board C:-Central console D:-None of the above Correct Answer: - Option-A Question51:-In a direction indicator, the frequency of flashing light per minute is A:-8 B:-800 C:-80 D:-None of these answers Correct Answer: - Option-C Ouestion52:-The tachometer in an automobile is used for A:-Indicate engine speed B:-Indicates vehicle speed C:-Measure the oil temperature D:-None of the above answers Correct Answer:- Option-B Question53:-The component that is not part of the chassis system is A:-Frame B:-Electrical system C:-Suspension D:-Brakes Correct Answer:- Option-A Question54:-In four wheel drive there is (are) A:-One live axle and one dead axle B:-four live axles C:-three live axles D:-two live axles Correct Answer:- Option-D Question55:-The front suspension system must do the following jobs Support the weight of the front end of the vehicle (i) (ii) Maintain the steering control during severe braking (iii) Causes the pinion and differential carrier to move upward (iv) Provide steering control and wheel alignment Which of the following is correct

A:-(i) and (ii) only

B:-(i), (ii) and (iii) only

C:-(i), (ii) and (iv) only

D:-(i), (ii), (iii) and (iv)

Correct Answer:- Option-C

Question56:-MacPherson strut combines the shock absorber with

A:-Coil spring

B:-Differential

C:-Steering Knuckle

D:-Leaf spring

Correct Answer:- Option-A

Question57:-The type of steering gear box that is most widely used in passenger cars is

A:-Recirculating ball type

B:-Rack and pinion

C:-Worm and nut

D:-Worm and wheel

Correct Answer:- Option-B

Question 58:-If the front of front wheels is inside and rear of front wheels in apart when the vehicle is at rest, it is

A:-Positive camber

B:-Positive castor

C:-Toe out

D:-Toe-in

Correct Answer: - Option-D

Question59:-Which one of the following is required for the operation of ABS?

A:-Torque

B:-Temperature

C:-Camber

D:-Wheel speed

Correct Answer:- Option-D

Question60:-When driver brakes , the equivalent braking force that acts as a reaction force at the centre of gravity V of the vehicle as a whole is the product of

A:-Coefficient of friction times the acceleration

B:-Coefficient of friction times the weight force

C:-Coefficient of friction times the engine power

D:-Coefficient of friction times the engine torque

Correct Answer:- Option-B

Question61:-In a master cylinder of a hydraulic brake system, the primary piston is the piston that is

A:-Near the front end of the car

B:-Directly operated by the push rod

C:-Hydraulically operated by the secondary piston

D:-Operated by the Return springs

Correct Answer:- Option-B

Question62:-A single plate clutch has outer and inner diameters as 300 mm and 200 mm respectively. The total force acting on the friction surface is 6000 N if the coefficient of friction is 0.2, the power transmitted by the clutch at an angular speed of 300 rad/s is

A:-4.5 kW

B:-45 kW

C:-450 kW

D:-4.5 W

Correct Answer:- Option-B

Question63:-In a friction clutch assembly the flywheel is located between the

A:-driven shaft and transmission

B:-transmission and propeller shaft

C:-driven and driver shaft

D:-engine and driven shaft

Correct Answer:- Option-C

Question64:-In a gear set

- (i) Speed reduction means torque increase
- (ii) Torque increase means speed reduction

Which one is correct

A:-(i) only

B:-(ii) only

C:-Both (i) and (ii)

D:-Neither (i) nor (ii)

Correct Answer:- Option-C

Question65:-In a planetary gear set the following condition provides reverse gear

A:-Sun gear is turned, ring gear is driven and planet carrier is held stationary

B:-ring gear is turned, sun gear is stationary, and planet carrier is driven

C:-planet carrier is turned, ring gear is stationary and sun gear is driven

D:-None of the above

Correct Answer: - Option-A

Question66:-The difference in the driving angle as the rear axle moves up and

down is taken care by the propeller shaft that has one or more A:-Universal joints B:-Slip joint C:-Release joint D:-Ball joint Correct Answer:- Option-A Question67:-The hole in the rim for accommodating the valve for the inflation of tyre is called A:-Valve well B:-Valve flange C:-Ball valve D:-Valve aperture Correct Answer: - Option-D Question68:-When underinflated, the tyre will wear the thread most A:-Near the centre B:-In the cross direction C:-Near the edge D:-In the lateral direction Correct Answer:- Option-C Question69:-Utilization of gaseous fuels in I.C. Engines A:-Increase the rate of combustion B:-Enhance the smoke level C:-Reduce the smoke emission D:-Both (1) and (3) Correct Answer: - Option-D Question 70:- Essential requirement of Electric Vehicle battery is A:-High Energy and power Density B:-Low cycle life C:-Poor reliability and low safety

D:-Easily not acceptable from environmental point of view

Correct Answer:- Option-A

Question71:-In spark ignition engines pre-ignition means ignition of fuel

A:-after the ignition by spark plug

B:-before the ignition by spark plug

C:-before the start of compression stroke

D:-All the above

Correct Answer:- Option-B

Question72:-In a SI engine which statement is not correct about normal combustion

A:-Strong pressure pulsations are not observed

B:-Spark is given before TDC

C:-In the ignition lag phase a self propagating nucleus of flame is formed

D:-At the completion of the after burning phase cylinder pressure reaches its maximum

Correct Answer:- Option-D

Question73:-About diesel knock in CI Engines which statement is incorrect

A:-Diesel knock is characterised by pressure pulsations

B:-Diesel knock occurs in the initial stages of combustion

C:-Chances of Diesel knock decreases as the ignition delay period increases

D:-Larger ignition delay results in more un-burnt fuel at the start of combustion

Correct Answer:- Option-C

Question74:-Phase of combustion that starts from the state of maximum cylinder pressure and ends at the point of maximum cylinder temperature in CI engine combustion is known as

A:-Period of controlled combustion

B:-Ignition delay period

C:-Period of rapid combustion

D:-Period of after burning

Correct Answer: - Option-A

Question75:-Which is the limitation of supercharging

A:-Mean effective pressure increases

B:-Engine output increases for the same swept volume

C:-Intake air density increases

D:-Mechanical load on the engine components increases

Correct Answer:- Option-D

Question76:-Which is the desirable property of a refrigerant to be used in automobile air conditioning system

Friction loss

A:-High freezing point temperature

B:-Low value of COP

C:-Low boiling point temperature

D:-Low latent heat value

Correct Answer:- Option-C

Question77:-Match the following

(i) Heat Engines (a)

(ii) Refrigerator

(b) Kelvin Planck statement

(iii) Internal Energy

(c) Clausius statement

(iv) Reversibility

(d) Point function

A:-(i)-(a), (ii)-(b), (iii)-(c), (iv)-(d)

B:-(i)-(b), (ii)-(c), (iii)-(d), (iv)-(a)

C:-(i)-(b), (ii)-(c), (iii)-(a), (iv)-(d)

D:-(i)-(c), (ii)-(b), (iii)-(a), (iv)-(d)

Correct Answer:- Option-B

Question78:-A closed system received heat transfer of 130 KJ and has a work transfer of 165 KJ. The change of internal energy is

A:-35 KJ

B:--30KJ

C:--35KJ

D:-No change in internal energy

Correct Answer:- Option-C

Question79:-Which of the following relation holds good for adiabatic process

$$\mathsf{A:} \textbf{-} \tfrac{T_2}{T_1} \!=\! \left[\tfrac{V_1}{V_2} \right]^{\gamma-1} \!=\! \left[\tfrac{P_1}{P_2} \right]^{\frac{\gamma-1}{\gamma}}$$

$$\mathsf{B}: -\frac{T_2}{T_1} = \left[\frac{V_1}{V_2}\right]^{\gamma-1} = \left[\frac{P_2}{P_1}\right]^{\frac{\gamma}{\gamma-1}}$$

$$\mathsf{C}$$
:- $\frac{T_2}{T_1}$ = $\left[\frac{V_2}{V_1}\right]^{\gamma-1}$ = $\left[\frac{P_1}{P_2}\right]^{\frac{\gamma-1}{\gamma}}$

$$\mathsf{D}\text{:-}\tfrac{T_2}{T_1} \!=\! \left[\tfrac{V_1}{V_2} \right]^{\gamma-1} \!=\! \left[\tfrac{P_2}{P_1} \right]^{\frac{\gamma-1}{\gamma}}$$

Correct Answer:- Option-D

Question80:-If the compression ratio is same then

A:-Thermal efficiency of Otto cycle is less than that of Diesel cycle

B:-Thermal efficiency of Otto cycle is greater than that of Diesel cycle

C:-There is no effect of compression ratio on thermal efficiency

D:-None of these

Correct Answer:- Option-B

Question81:-An engine can develop power of 5 KW for a heat addition of 375 KJ/min. Highest working temperature of the engine is 935°C and lowest working temperature is 130°C. For this engine

A:- η carnot = η engine

B:-ηcarnot > ηengine

C:-ηcarnot < ηengine

D:-Engine is feasible

Correct Answer:- Option-C

Question82:-In a two stage reciprocating air compressor work per kg of air compressed will be minimum if

- A:-Work in the 1st stage is less than that of 2nd stage
- B:-Work in the 1st stage is more than that of 2nd stage
- C:-Work in the 2nd stage is equal to work in 1st stage
- D:-Work in 2nd stage should be negative

Correct Answer:- Option-C

Question83:-Which of the following statements about I.C. Engine is/are correct

- (i) Brake mean effective pressure = Mechanical efficiency X Indicated mean effective pressure
- (ii) Indicated thermal efficiency is less than brake thermal efficiency
- (iii) Morse test is done to find I.P. of different cylinders of the engine
- (iv) In a 2 stroke cycle internal combustion engine, power developed is one-half of that of 4-stroke cycle engine, provide other data remains same
 - A:-Both (i) and (ii) are correct
 - B:-Both (i) and (iii) are correct
 - C:-Both (ii) and (iv) are correct
 - D:-Only (i) is correct

Correct Answer:- Option-B

Question84:-In an internal combustion engine brake power is 120 KW and fuel used per hour is 15 kg, then brake specific fuel consumption will be

A:-0.125 kg/kWh

B:-0.1 kg/kWh

C:-15 kg/kWh

D:-1.125 kg/kWh

Correct Answer:- Option-A

Question85:-Which of the following is a key responsibility of an automobile dealer regarding inventory management?

- A:-Ordering and replenishing spare parts and accessories
- B:-Conducting market research to identify popular vehicle models
- C:-Maintaining an accurate record of vehicle sales
- D:-Managing the dealership's advertising and promotional activities

Correct Answer:- Option-A

Question86:-Chapter XII of the motor vehicles Act, 1988 deal with

- A:-State transport undertakings
- B:-Control of traffic
- C:-Claims tribunals
- D:-Registration of motor vehicle

Correct Answer:- Option-C

Question87:-According to the motor vehicles Act, 1988, what is the legal blood alcohol concentration (BAC) limit for drivers in India?

A:-10mg/100ml of blood

B:-30mg/100ml of blood

C:-50mg/100ml of blood

D:-80mg/100ml of blood

Correct Answer:- Option-B

Question88:-Which of the following is an advantage of using Automatic Guided vehicles (AGVs)?

A:-Increased productivity and efficiency

B:-Reduced operational costs

C:-Enhanced workplace safety

D:-All of the above

Correct Answer:- Option-D

Question89:-What is the most probable cause for the fluctuation between high and low readings of the intake manifold vacuum needle on an engine vacuum test

A:-Normal engine condition

B:-Air leak at the intake manifold

C:-Blown head gasket between side-by-side cylinders

D:-Restricted exhaust system

Correct Answer:- Option-C

Question 90:- A wet compression test can be performed on a

A:-diesel Engine

B:-Petrol engine

C:-Both petrol and diesel engines

D:-Neither petrol nor diesel engines

Correct Answer:- Option-B

Question91:-Assertion - A car has no brake problem but pulls to one side during braking

Reason 1 - improper toe

Reason 2 - worn bushing in a control arm

A:-Reason 1 is true

B:-Reason 2 is true

C:-But reasons are true

D:-Both reasons are false

Correct Answer:- Option-B

Question92:-Choose the purpose for which a shop crane is used

A:-Lift the car to change oil

B:-Lift the engine out of the car

C:-Suspend parts so you can work on them

D:-all the above

Correct Answer:- Option-B

Question93:-Which of the following statement is correct

- (i) carriages way width includes the shoulder of road the road
- (ii) right of way is the area on the two sides of the road up to road land boundary reserved for road purpose
- (iii) right of way is the distance between building line on both sides of road
- (iv) shoulder is intended for accommodation of stopped vehicles, emergency use and lateral support of base

A:-Only (iv)

B:-Both (i) and (iv)

C:-Both (ii) and (iv)

D:-Only (i)

Correct Answer:- Option-C

Question94:-Which of the following factors primarily influence the design of road gradient and sight distances

A:-Traffic volume

B:-Road surface condition

C:-Vehicle speed limits

D:-All the above

Correct Answer:- Option-C

Question95:-The friction disc of clutch is splined to the

A:-transmission input shaft

B:-pressure plate

C:-flywheel

D:-crank shaft

Correct Answer: - Option-A

Question 96:-Before dismantling the differential, which of the following should be done?

A:-Measure pinion bearing preload

B:-Measure Ring gear backlash

C:-Check ring gear tooth contact

D:-All the above

Correct Answer: - Option-D

Question97:-Which type of body construction is followed in modern passenger car design

A:-Tubular

B:-Ladder frame

C:-Backbone

D:-Monocoque

Correct Answer:- Option-D

Question 98: The amendment of motor vehicle act 1988 that authorized the use of LPG as an auto fuel

A:-Amendment 2000

B:-Amendment 2001

C:-Amendment 2004

D:-Amendment 1994

Correct Answer:- Option-A

Question99:-In a typical signal cycle, which phase follows the amber phase

A:-red phase

B:-green phase

C:-pedestrian crossing phase

D:-flashing yellow phase

Correct Answer:- Option-A

Question100:-Excessive fuel consumption in carbureted fuel system can be due to

A:-Low float level in carburetor

B:-High float level in carburetor

C:-dirt clogging the fuel nozzle

D:-air leaks into mechanical fuel pump due to holes in flex hose

Correct Answer:- Option-B