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NSQF LEVEL-2

KARNATAKA SECONDARY EDUCATION EXAMINATION BOARD, MALLESHWARAM, BANGALORE – 560 003

NSQF LEVEL-2 EXAMINATION, JUNE/JULY, 2022

MODEL ANSWERS

Date : 01. 07. 2022] **CODE NO. : 88-EK**

Subject : Automobile

(English Medium)

(Regular Repeater)

[Max. Marks : 60

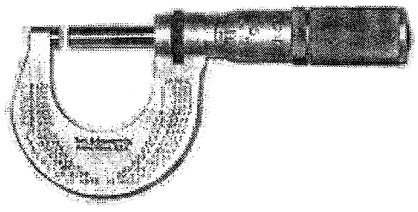
Qn. Nos.	Value Points		Total
I.	*Four* choices are given for each of the following questions / incomplete statements. Choose the correct answer and write the complete answer along with its question number and its letter of alphabet :		
1.	In a vehicle the channel section is made of (A) Iron (B) Steel (C) Aluminium (D) Wood **Ans :** (B) Steel		1
2.	The type of engine in which combustion takes place outside the engine cylinder is (A) Diesel engine (B) Petrol engine (C) Jet engine (D) Steam engine **Ans :** (D) Steam engine		1

Qn. Nos.	Value Points		Total
3.	F.H.P. (Friction Horse Power) = ... (A) I.H.P. – B.H.P (B) B.H.P. + I.H.P (C) I.H.P. + B.H.P (D) B.H.P – I.H.P **Ans :** (A) I.H.P. – B.H.P.		1
4.	The relationship between current (I), voltage (V) and resistance (R) is (A) $V=\frac{I}{R}$ (B) $V=IR$ (C) $V=\frac{R}{I}$ (D) $V=I^2R$ **Ans :** B — V = IR		1
5.	Natural lubricants are made of (A) Mineral Oil (B) Castor Oil (C) Monograde Oil (D) Aluminium **Ans :** (A) Mineral Oil		1
6.	Which of the following is a component of coding system in vehicle ? (A) Distributor (B) Cylinder (C) Spark plug (D) Water pump **Ans :** (D) Water pump		1
7.	The material used in a vehicle to manufacture the Chassis is (A) Wood (B) Metal (C) Aluminium (D) Plastic **Ans :** (B) Metal		1
8.	Vehicle air filter should be changed after every (A) 30,000 km (B) 35,000 km (C) 50,000 km (D) 45,000 km **Ans :** (C) 50,000 km		1
9.	The material used to wipe the roof of the car while washing the car is (A) Sponge (B) Paper (C) Plastic brush (D) Tissue paper **Ans :** (A) Sponge		1
10.	If there is no coolant system in the car then (A) engine cools quickly (B) engine starts quickly (C) the speed of the engine increases (D) the temperature of the engine increases **Ans :** (D) the temperature of the engine increases		1

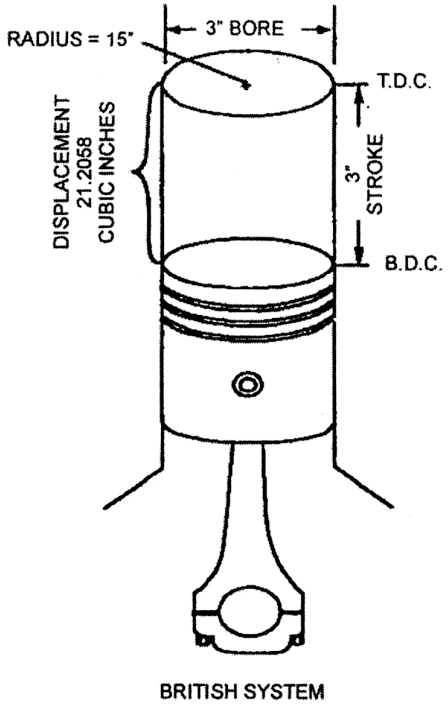
Qn. Nos.	Value Points		Total
II.	Fill in the blank with suitable answer : 4 × 1 = 4		
11.	Diameter of the engine cylinder is known as ..... . **Ans :** Bore		1
12.	The device used to create cylindrical hole is ..... . **Ans :** Drill bit		1
13.	Tachometer is used to measure ..... of the engine. **Ans :** To measure Speed (or) Engine Speed		1
14.	The device used to measure the engine oil in a vehicle is ..... . **Ans :** Dipstick		1
III.	Uses of automobile service devices are given in **Column-A** and automobile services devices are given in **Column-B**. Match them and write the answer along with its letter of alphabet. 4 × 1 = 4		
15.	Match the following : **Column-A** / **Column-B** i) The device is to measure the specific gravity — a) Calipers ii) The device is to measure the voltage, current and resistance — b) Hydrometer iii) The device is to measure the distance between two opposing sides — c) Wrenches iv) The device is to measure precise measurement — d) Multimeter e) Tachometer f) Wheel balancer g) Screw gauge		

Qn. Nos.	Value Points		Total
	Ans :		
	i) b) — Hydrometer	1	
	ii) d) — Multimeter	1	
	iii) a) — Calipers	1	
	iv) g) — Screw gauge	1	4
IV.	Answer the following questions : 6 × 1 = 6		
16.	Define stroke. **Ans :** Distance travelled by the piston in moving from T.D.C. to B.D.C. is called 'Stroke'.		1
17.	List the types of stub axle. **Ans :** i) Elliot type **½** ii) Reversed Elliot type **½** iii) Lamoine type **½** iv) Reversed Lamoine type (Any *two*) **½**	2× ½	1
18.	What is the function of chisel ? **Ans :** i) It is one type hand tool. ii) It is used for cutting, shearing and chipping of metals. iii) Most widely used chisels are flat, cross cut, round nose and diamond point. (Any *two*)	**½** **½**	1
19.	Name the tools that are required for changing the engine oil in a vehicle. **Ans :** i) Engine oil (4 - 5 litres) ii) Safety glasses and rubber gloves iii) Plastic container and funnel iv) Car jack and Jack stands v) Drain plug socket wrench vi) Paper towels and a rag vii) Oil filter wrench. (Any *two*) 2 × **½**		1

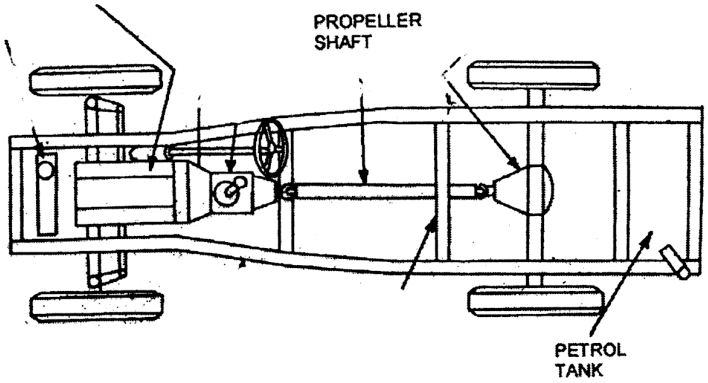
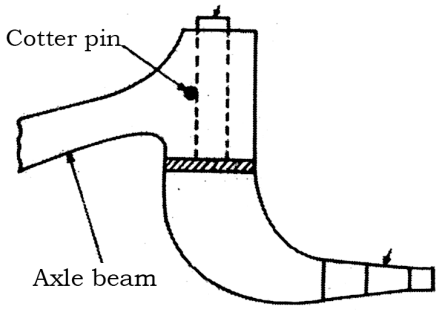
Qn. Nos.	Value Points		Total
20.	What is the function of Blind spot detection ? **Ans :** (i) Blind spot detection is a system for alerting us if we attempt to make a turn and an object or car is in our blind spot. (ii) This technology responds as soon as the driver puts on the turn signal, there by preventing a collision caused by the driver's blind spot. (Any *one*)	1×1=	1
21.	Who introduced the navigation system in cars for the first time ? **Ans :** Honda		1
V.	Answer the following questions : 6 × 2 = 12		
22.	Explain flash point. ***OR*** Write the requirements of propeller shaft. **Ans :** i) Flash point of the oil should be sufficiently high so as to avoid flashing vapours at temperatures occurring in common use. 1 ii) A flash point higher than the minimum desired value will not serve any useful purpose. 1		2
	OR		
	Ans: i) High torsional strength. ii) Toughened and hardened. iii) Efficiently Welded. iv) Dynamically balanced. v) Least stress concentration. vi) Reduced thrust loads under high torque. vii) Higher fatigue life. (Any *four*) 4 × ½ =		2

Qn. Nos.	Value Points		Total
23.	Explain the following related to suspension system : (i) Yawing (ii) Dipping. **OR** Write any *four* advantages of tubeless tyres. **Ans :** *Yawing* : A phenomeon in which the highly cambered leaf springs exhibit movement about the vertical axis is known as Yawing. 1 *Dipping :* Tendency of vehicle to dive in its front an application of brake is called dipping. 1		2
	OR		
	Ans : i) Lighter, run cooler than tube tyre. ii) Retains air for a long period. iii) Any hole in the tubeless tyre can be repaired simply by rubber plugging. iv) It can retreated in the same manner as the tube tyre. v) Ordinary punctures can be repaired with removing the tyre from wheel. (Any *four*) $4 \times \frac{1}{2}$ =		2
24.	Draw the diagram of screw gauge. **Ans :**  **Diagram of Screw gauge**		2

Qn. Nos.	Value Points		Total
25.	What are the steps to be followed for manual washing of a vehicle ? **Ans :** i) It is suggested that a shady spot should be choosen. ii) Preferably away from the trees. iii) All the doors and windows should be closed. iv) Take a bucket of clean water and pour one full spoon of car soap. v) Remove the dirt from the car. vi) Starting at the roof and getting down to the typres. vii) Take a Sponge (or) terry cloth piece in bucket of soapy water and sponge the roof of the car. $4 \times ½ =$		2
26.	Write the important aspects of customer service. **Ans :** i) Know your product ii) Body Language / Communication iii) Anticipate guest needs iv) Feel good factor. $4 \times ½ =$		2
27.	How are the sensitive air bag systems helpful in the safety of drivers ? **Ans :** i) Sense the difference in the size and weight of the occupants and deploys the bag technology. 1 ii) The technology detect that an individual is not wearing seat belt or that he (or) she positioned abnormally in the seat and compensate the air bag deployment to accommodate this. 1		2

Qn. Nos.	Value Points		Total
VI.	Answer the following questions : 4 × 3 = 12		
28.	List the components of the suspension system. ***OR*** Draw the diagram to show the British system of engine (Piston) displacement. Label the part of stroke. **Ans :** i) Control Arm ii) Control Arm Bushing iii) Strut Rod iv) Ball Joints v) Shock absorbers (or) struts vi) Stabilizer Bar vii) Spring. (Any *six*) 6 × ½ =		3
	OR  BRITISH SYSTEM Diagram 2 Label the part 1		3

Qn. Nos.	Value Points		Total
29.	Write a short note on air compressor. **Ans :** i) *Air Compressor* : The machine which is used to increase the pressure of air by reducing its volume. 1 ii) *Rotary Screw Air Compressors :* The rotary screw air compressor has become the most popular source of compressed air for industrial applications. 1 iii) *Reciprocating Air Compressors :* These compressors are deigned for heavy shop (or) Industries. 1		3
30.	Write the tools required for changing the fuel filter in a vehicle. **Ans :** i) Safety glasses ½ ii) Replacement filter ½ iii) Screw driver to undo clamps ½ iv) Container to catch fuel that leaks from hoses ½ v) Rags to clean up any spilled fuel, dispose of them if used ½ vi) Special tools. ½ 6 × ½		3
31.	Mention any *six* duties performed by the automobile sales-person in service centre. **Ans :** i) Sell/leases and delivers a minimum number of vehicle per month ii) Approaches, greets and offers assistance iii) Assists customers in selecting a vehicle by asking questions and listening carefully to their responses iv) Maintains a prospect development system v) Schedules first service appointment vi) Attends sales meetings vii Maintains a well groomed and professional appearance and any other relevant answers. 6 × ½		3

Qn. Nos.	Value Points		Total
VII.	Answer the following questions : 3 × 4 = 12		
32.	Draw the diagram of chassis in a vehicle. Label the following parts : i) Propeller shaft ii) Petrol tank **OR** Draw the diagram of Lamoine type of stub axle. Label the following parts : i) Axle beam ii) Cotter pin **Ans :**  Diagram = 3 Parts ½ + ½ = 1		4
	OR		
	Ans :  Diagram = 3 Parts ½ + ½ = 1		4

Qn. Nos.	Value Points		Total
33.	Explain the following tools used in automobile service : (i) Wrenches (ii) Mallet. **OR** Write a short note on (i) Universal clutch holding tool (ii) Flywheel puller. **Ans :** i) *Wrenches :* The wrenches are hand tools for tightening and loosening of nuts and bolts. The function of this automotive tool is to hold slippery or small nuts and bolts and either loosen or tighten it. There are two types of wrenches. a) Adjustable b) Non-adjustable. 2 ii) *Mallet :* A mallet is kind a of hammer. Usually of rubber (or) wood. Smaller mallets are used to softer blow. They are typically used to form sheet - metal. 2		4
	OR		
	Ans : i) *Universal clutch holding tool :* * This Universal clutch holding tool is a tool for holding the compressor Clutch when removing or installing the centre nut. 2 ii) *Fly wheel pulle :* * A proper fly wheel puller is the only correct and safe way to remove a fly wheel from engine. * Without using the recommended tool, there are chances of damaging the fly wheel which could lead to a potential reliability issue. 2		4

Qn. Nos.	Value Points		Total
34.	Mention the steps to be followed to change the coolant in a vehicle. **Ans :** i) Purchase the coolant as per manufactures specifications. ii) Prepare the vehicle. iii) Keep your car in plain space and keep engine off for few hours so that engine is cool. iv) Keep a pan below radiator. v) Open the radiator cap and see level of coolant. vi) Open the drain plug nut below radiator chamber by using wrench. vii) Coolant will start coming out. viii) All coolant will emptied. ix) Put back the drain plug at the bottom of radiator. x) Fill the radiator to the top with the coolant. $8 \times ½ =$		4