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**CCE RF
CCE RR
Revised & Unrevised**

NSQF LEVEL-2

**KARNATAKA SECONDARY EDUCATION EXAMINATION BOARD, MALLESWARAM,
BANGALORE - 560 003**

NSQF LEVEL-2 EXAMINATION, MARCH/APRIL, 2019

MODEL ANSWERS

Date : 04. 04. 2019]

CODE NO. : **88-EK**

Subject : Automobile
(Regular Fresh & Regular Repeater)

[Max. Marks : 60

Qn. Nos.	Value Points		Total
I.	<i>Four alternatives are given for each of the following questions / incomplete statements. Choose the correct alternative and write the complete answer along with its question number and alphabet : $10 \times 1 = 10$</i>		
1.	The actual power delivered at the crankshaft is (A) brake horsepower (B) indicated horsepower (C) friction horsepower (D) horsepower Ans : A — brake horsepower		1
2.	Resistance of the lubricating oil to flow is (A) resistance against corrosion (B) physical stability (C) flash point (D) viscosity Ans : D — viscosity		1

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[Turn over

Qn. Nos.	Value Points		Total
3.	<p>The initial curvature provided in a leaf spring is called</p> <p>(A) dipping (B) yawing (C) pitching (D) spring camber</p> <p>Ans : D — spring camber</p>		1
4.	<p>6 × 2 drive chassis vehicle means</p> <p>(A) consists of 6 wheels out of which 6 wheels are the driving wheels (B) consists of 6 wheels out of which 2 wheels are the driving wheels (C) consists of 12 wheels out of which 6 wheels are driving wheels (D) consists of 2 wheels out of which 2 wheels are driving wheels.</p> <p>Ans : B — consists of 6 wheels out of which 2 wheels are the driving wheels</p>		1
5.	<p>A stub axle is used for</p> <p>(A) tightening the bolt (B) opening the nut (C) rotating wheel (D) folding the nut</p> <p>Ans : C — rotating wheel</p>		1
6.	<p>The colour of the fog lamp is</p> <p>(A) amber (B) green (C) red (D) white</p> <p>Ans : A — amber</p>		1
7.	<p>Mallet is made of</p> <p>(A) iron (B) wood (C) steel (D) aluminium</p> <p>Ans : B — wood</p>		1
8.	<p>Thermal imaging cameras are used in the following innovations of car safety technology</p> <p>(A) Night vision assist (B) Sensitive air bag system (C) Blind spot detection (D) Rollover prevention</p> <p>Ans : A — Night vision assist</p>		1

Qn. Nos.	Value Points		Total
9.	Change of air filter is generally recommended when a vehicle travels a distance of (A) 50,000 km (B) 60,000 km (C) 30,000 km (D) 20,000 km Ans : A — 50,000 km		1
10.	The material(s)/tool which is/are NOT used for changing the engine oil and oil filter is/are (A) engine oil (B) paper, towel and a rag (C) carjack and stand (D) coolant Ans : D — coolant		1
II.	Fill in the blanks with suitable answer : $4 \times 1 = 4$		
11.	The instrument used to measure the specific gravity is Ans : Hydrometer		1
12.	The brake is a creating device which causes speed reduction of the vehicle. Ans : friction		1
13.	The tubeless and tube tyres are called tyres. Ans : Pneumatic		1
14.	The first company to introduce passive keyless entry system in vehicle is Ans : chevys		1

Gn. Nos.	Value Points		Total																
III.	Automobile service tools are given in Column-A and their uses are given in Column-B . Match them : $4 \times 1 = 4$																		
15.	<p>Match the following :</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: center;">Column-A</th> <th style="text-align: center;">Column-B</th> </tr> </thead> <tbody> <tr> <td>i) Chisel</td> <td>a) removes sharp edges</td> </tr> <tr> <td>ii) Snips</td> <td>b) for lubrication</td> </tr> <tr> <td>iii) Punch</td> <td>c) cuts metals</td> </tr> <tr> <td>iv) File</td> <td>d) cuts sheet metals</td> </tr> <tr> <td></td> <td>e) for softer blows</td> </tr> <tr> <td></td> <td>f) holds small object</td> </tr> <tr> <td></td> <td>g) drives objects.</td> </tr> </tbody> </table> <p>Ans :</p> <p>i) c) — cuts metals</p> <p>ii) d) — cuts sheet metals</p> <p>iii) g) — drives objects</p> <p>iv) a) — removes sharp edges.</p>	Column-A	Column-B	i) Chisel	a) removes sharp edges	ii) Snips	b) for lubrication	iii) Punch	c) cuts metals	iv) File	d) cuts sheet metals		e) for softer blows		f) holds small object		g) drives objects.	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	4
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IV.	Answer the following questions : $6 \times 1 = 6$																		
16.	<p>Classify the lubricants on the basis of their state.</p> <p>Ans :</p> <p>i) Solid lubricants</p> <p>ii) liquid lubricants</p> <p>iii) semi-solid lubricants (Any two)</p>	<p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>	1																
17.	<p>Write the functions of an alternator.</p> <p>Ans :</p> <p>i) it produces alternating current when the engine is running</p> <p>ii) converts alternating current into direct current</p> <p>iii) it is the source of electricity in automobile when the engine is running</p> <p>iv) when the engine is running alternator charges the battery. (Any two)</p>	<p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>	1																

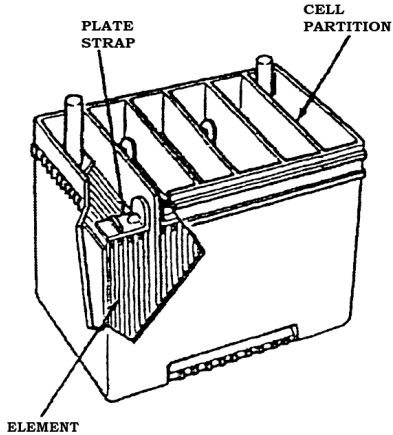
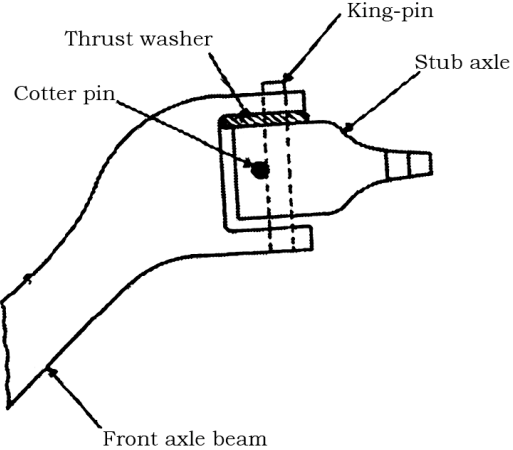
Qn. Nos.	Value Points		Total
18.	Ball-peen hammer is called an engineer's hammer. Why ? Ans : The hammers made of hardened steel used for working with steel components		1
19.	Mention the uses of grinding machine. Ans : i) Finish the work pieces ii) Sharpen the tools iii) To produce high accuracy of shape and dimension. (Any two)	$\frac{1}{2}$ $\frac{1}{2}$	1
20.	Mention the uses of the following electrical tools : i) Tachometer ii) Multimeter. Ans : i) Measures the working speed of the engine ii) Measures voltage, current and resistance.	$\frac{1}{2}$ $\frac{1}{2}$	1
21.	Changing of engine oil is important. Why ? Ans : Oil is important material in a vehicle, incorrect oil level causes serious damage to the vehicle engine.		1
V.	Answer the following questions : $6 \times 2 = 12$		
22.	Explain the following technical terms used in engine : a) Top dead centre b) Stroke. Ans : a) Refers to position of the crank shaft when the piston is in its top most position is in its top most position. The position closest to the cylinder head. b) Distance travelled by the piston moving from T.D.C. to B.D.C.	 1 1	 2
OR			

Qn. Nos.	Value Points		Total
	Explain the following technical terms used in engine : a) Compression ratio b) Clearance volume. Ans : a) Indicates the extent to which the charge of the engine is compressed, ratio of volume above the piston at B.D.C. b) The volume of cylinder above the piston when it is in the T.D.C.	1 1	2
23.	Write a short note on liquid cooling. Ans : Sometimes instead of water other liquids having higher boiling points are used for engine cooling higher boiling point increases the capacity of the liquid to carry heat and consequently weight of the coolant and hence that the radiator is decreased.		2
	OR		
	Write a short note on pressure sealed cooling. Ans : The boiling point of water is raised at higher pressures with consequent reduction in coolant and the radiator weights and greater thermal efficiency of the engine due to higher operating temperatures. To achieve this special pressure a sealed radiator cap is used.		2
24.	Draw the diagram of channel section frame and box section frame. Ans : <div style="text-align: center;">  CHANNEL SECTION </div> <div style="text-align: center;">  BOX SECTION </div>	1 1	2

Qn. Nos.	Value Points		Total
25.	Write precautions to be taken during washing a vehicle. Ans : i) Wear old clothes for the job ii) Soap dries fast wash one side at a time to keep the soap from drying on your car's print iii) Wet and rinsing out your clothes before you dry iv) Do not use detergent, use car wash soap only.	 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	2
26.	List the important aspects of customer service. Ans : i) Know your product ii) Body language/communication iii) Anticipate guest needs. (Any two)	 1 1	2
27.	Explain blind spot detection. Ans : Now there is a system for alerting us, if we attempt to make a turn and an object OR car is in our blind spot. This technology responds as soon as the driver puts on the turn signal thereby preventing a collision caused by the drivers blind spot.		2
VI.	Answer the following questions : 4 × 3 = 12		
28.	Differentiate between universal clutch holding tool and flywheel puller. Ans : The universal clutch holding tool is a special tool. Used for holding the compressor clutch when removing or installing the center nut. Fly wheel puller is a special tool. A proper fly wheel puller is the only correct and safe way to remove 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.	 $1\frac{1}{2}$ $1\frac{1}{2}$	3
	OR		

Qn. Nos.	Value Points		Total
	<p>Differentiate between outside calipers and inside calipers.</p> <p>Ans :</p> <p><u>Outside calipers :</u></p> <p>i) it is a two legged steel instrument with it legs bent in wards</p> <p>ii) used for measuring or comparing the thickness, diameters and other outside dimensons</p> <p>iii) steel rule must be used in conjunction with them if direct reading is required. (Any two)</p> <p>iv) specified by the greatest distance it can be opened at the tips of the legs</p> <p><u>Inside calipers :</u></p> <p>i) similar to outside caliper leg bent outward</p> <p>ii) this is used for compairing or measuring hole diameters, distance between shoulders or other parallel surfaces of any inside dimension</p> <p>iii) to obtain a specific reading steel rule must be used.</p>	<p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>	<p>3</p>
29.	<p>How to prepare your car for changing the engine oil ?</p> <p>Ans :</p> <p>i) car should be parked on level surface</p> <p>ii) parking brake on</p> <p>iii) engine off</p> <p>iv) leaving the oil to cool for few minutes</p> <p>v) jack it up and use jack stand to support</p> <p>vi) put something underneath the engine to prevent spilling oil on to the grand.</p>	<p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>	<p>3</p>
30.	<p>Explain the functions of air filter.</p> <p>Ans :</p> <p>Vehicle needs air just as much as it needs fuel. The main function of the air filter is to keep the engine free of dust and insects. Replacing or cleaning air filter at the recommended interval to keep the air flowing freely, helps the vehicle run well. Air filters are in expensive and quick to replace, so we can do this routine maintenance ourselves.</p>		<p>3</p>

Qn. Nos.	Value Points		Total
31.	<p>List any six duties performed by the automobile sales person.</p> <p>Ans :</p> <p>i) Sells/leases and delivers a minimum number of vehicle per month (target given by shopowner)</p> <p>ii) Approaches, greets and offer assistance</p> <p>iii) Assist customer in selecting a vehicle</p> <p>iv) explains fully the product performance, application and benefits</p> <p>v) offers test drives to all prospects</p> <p>vi) utilizes dealership sales control and follow up system</p> <p>vii) schedules first service appointment</p> <p>viii) Attend sales meeting</p> <p>ix) Maintains a well groomed and professional appearance and other relevant answers. (Any six)</p>	<p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>	3
VII.	Answer the following questions : $3 \times 4 = 12$		
32.	<p>Explain the following automobile service workshop equipment :</p> <p>a) Reciprocating air compressor</p> <p>b) Wheel balancer.</p> <p>Ans :</p> <p><i>Reciprocating air compressors</i> : Designed for heavy shop or industrial use ingersoll rand two stage electric air compressors provide the quality and performance that are ideal for most applications and users including automotive service and body shops fleet maintenance. Machine shops production and manufacturing lines, car washes, maintenance and repair shops and farms.</p> <p><i>Wheel balancer</i> : Wheel balancing helps in minimizing tyre vibrations and bounce by wheel balancing tractions. Steering control improves and life of tyres increases. Automatic wheel balancer is designed for the tyre shop and workshop, it is very simple and easy to operate.</p>	<p>2</p> <p>2</p>	4
OR			

Qn. Nos.	Value Points		Total
	<p>Suggest the tips while handling and maintaining general tools.</p> <p>Ans :</p> <ul style="list-style-type: none"> i) Should properly handled ii) Proper Procedure should be adopted iii) Kept in proper place after use iv) wornout tools should be replace with new tools v) Kept in tool box or display board vi) proper safety procedure should be adopted vii) Proper dress should be wear by trainees during work shop practical. (Any four) 	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>4</p>
<p>33.</p>	<p>Draw the diagram of battery case and label the parts.</p> <p>Ans :</p>  <p style="text-align: right;">Sketch Parts</p>	<p>3</p> <p>1</p>	<p>4</p>
OR			
	<p>Draw the diagram of Elliot type stub axle and label the parts.</p> <p>Ans :</p>  <p style="text-align: right;">Sketch Parts</p>	<p>2</p> <p>2</p>	<p>4</p>

Qn. Nos.	Value Points		Total
34.	What are the steps to be followed for changing the air filter ? Ans : i) Obtain the correct replacement filter ii) Secure the vehicle iii) Open the bonnet iv) Locate the air filter v) Take out the air filter vi) Clean up air filter housing vii) Replace the filter viii) Replace the cover ix) Change the air filter every 50,000 km or about once a year. (Any eight)	 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	 4