2B5N25007 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOMOBILE Degree Examination, November 2025

GEC5PS23 - Life Skill Application

(2021 Admission onwards)

Time: 2 hours Max. Marks : 60

SECTION -A

Answer in Two or three sentences. Each carry 2 marks.
There shall be ceiling of 20 marks in this section

1. Define life skills.
2. Define critical thinking
3. What is meant by coping with stress.
4. Define Empathy
5. What role do life skills play in academic success?
6. Describe three strategies an individual can use to improve self-awareness.
7. State two benefits of empathy in relationships.
8. Define listening.
9. Name any two barriers to effective communication.
10. Define negotiation
11. Define career planning.
12. Define assertiveness

(Maximum 20 marks)

SECTION -B

Answer in a paragraph of about half a page to one page.
Each question carries 5 marks. There shall be ceiling of 30 marks in this section

13. Explain the need for life skill education.
14. Discuss its importance life skill in personal and social development.
15. Explain the main steps of problem solving

16. Define interpersonal relationship. Briefly explain different skills needed for developing good inter personal relations
17. Discuss the major components of communication and barriers associated with it.
18. Explain the importance of decision making process
19. Discuss how life skills can be employed to prevent addiction among adolescents

(Maximum 30 Marks)

SECTION –C
Essay Type Questions
Answer Any one of the following. Each Carries 10 Marks.

20. Explain the concept of self-awareness. Evaluate its benefits in real life
21. Explain how life skills can promote the mental well-being of women

(1x10=10 Marks)

8

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOBOBILE Degree Examination, November 2025

SDC5AU24 –Internet of Things (IOT)

(2022 Admission onwards)

Time: 2 hours Max. Marks : 60

PART – A

Answer ***all*** questions.
Each question carries **Two** mark.
Ceiling -20 Marks

1. Differentiate between IoT and traditional internet?
2. Differentiate M2M and IoTWF
3. What is the role of Tx and Rx pins?
4. Mention any two applications of ultrasonic distance measurement
5. What is an IR LED pair used for?.
6. Explain the basic working of a temperature sensor
7. Define servo motor rotation angles
8. Analyze the features of Raspberry PI..
9. Explain how to check IP address in Raspberry Pi.
10. Define LED dimming
11. List any two web control applications in Raspberry Pi.
12. Explain how distance can be displayed on a web page.

PART – B

Answer ***all*** questions.
Each question carries **Five** marks.
Ceiling -30 Marks

13. Explain the evolution of IoT with suitable examples..
14. Compare IoT World Forum architecture with simplified IoT architecture
15. Analyze the calibration process for accurate ultrasonic readings.
16. Describe LED indications for over and lower temperature monitoring..

17. Analyze the advantages of Raspberry Pi in IoT projects

18. Explain the process of setting up Bottle on Raspberry Pi.

19. Explain how Pi connect to a network and check the IP address.

PART - C

Answer any ***One*** question.
Each question carries **Ten** marks.

20. Analyze various sensor interfacing techniques with Arduino

21. Explain the process of setting up Bottle on Raspberry Pi.

1 x 10 = 10 Marks

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOMOBILE Degree Examination, November 2025

SDC5AU25 – Automotive Electrical System

(2021 Admission onwards)

Time: 2 ½ hours Max. Marks : 80

PART – A

Answer *all* questions.
Each question carries **Two** marks.
Ceiling -25 Marks

1 Define an electrical harness in the context of vehicle systems.

2 What does a red wire typically indicate in vehicle color coding?

3 List any two types of electrical switches used in automotive systems.

4 What is the main limitation of a conventional wiring system in modern vehicles?

5 Name any two features of the Controller Area Network (CAN).

6 What type of data transmission does FlexRay support?

7 Describe two advantages of smart traffic systems in connected cars.

8 Explain the term Generic Electronic Module (GEM).

9 What are the common sources of electromagnetic interference in vehicles?

10 Explain the purpose of headlight beam setting.

11 Write any two functions of a central lighting control system in modern vehicles?

12 What are the different types of bulbs used in automotive lighting systems?

13 Explain the function of an engine cooling fan motor in preventing overheating.

14 Write a short note on the importance of hazard light circuits in vehicles.

15 State the function of headlight washers in modern automobiles.

PART – B

Answer *all* questions.
Each question carries **Five** marks.
Ceiling -35 Marks

16 Explain the importance of cable size selection in automotive electrical systems.

17 Describe various types of terminations used in vehicle electrical systems.

18 Compare and contrast the characteristics and applications of CAN bus and FlexRay in automotive networks.

19 Discuss the importance of EMC (Electromagnetic Compatibility) in automotive electrical systems

20 Explain the applications of Bluetooth technology in automotive systems.

21 Compare bending light technology with advanced lighting technology.

22 Describe the working mechanism of windscreen wipers and their importance in ensuring driving safety.

23 Describe the standard procedure for checking an auxiliary system of an automobile.

PART - C

Answer any *two* questions.
Each question carries Ten marks.

24 Describe the function and importance of fuses and circuit breakers in a vehicle's electrical system.

25 Write an essay on the role of multiplexing in modern automotive electrical systems.

26 Describe the construction and working of LED and IR lighting systems used in modern vehicles, and compare them with traditional lighting?

27 What are the common auxiliary system symptoms and possible faults of Horn, Wiper, Indicator, and Heater blower.

2 x 10 = 20 Marks

10

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOMOBILE Degree Examination, November 2025

SDC5AU26 – Electric & Hybrid Vehicles

(2021 Admission onwards)

Time: 2 ½ hours Max. Marks : 80

PART – A

Answer ***all*** questions.
Each question carries **Two** marks.
Ceiling -25 Marks

1 List out any four classifications of EV.

2 Draw the basic layout / architecture of a HEV

3 State two advantages of battery electric vehicles (BEVs) over internal combustion engine vehicles.

4 Mention any two types of hybrid drive-train topologies.

5 Define traction.

6 What is meant by *power flow* in electric drive-trains?

7 List out any four electric components used in HEV/EV.

8 List down any four types of automobile batteries used in vehicles.

9 Define the term BLDC.

10 Define driving cycle.

11 Why is range modelling important for electric vehicle development?

12 Define propulsion motor sizing.

13 What is the primary objective of an EV energy management system?

14 Name two energy management strategies used in hybrid electric vehicles

15 Define opportunity charging in electric vehicles.

PART – B

Answer ***all*** questions.
Each question carries **Five** marks.
Ceiling -35 Marks

16 Explain how battery electric vehicles differ from solar-powered vehicles in terms of energy source and applications.

17 Explain the working principle of a Fuel Cell Electric Vehicle (FCEV).

18 Explain the working of a parallel hybrid drive-train with a simple flow description.

19 Explain any five parameters of a battery used in HEV.

20 Explain the construction, working, and layout of a Switched Reluctance Motor (SRM) used in electric vehicles.

21 Compare range modeling for Battery Electric Vehicles (BEVs) and Hybrid Electric Vehicles (HEVs).

22 Discuss the factors that influence the sizing of power electronics in electric vehicle propulsion systems.

23 Describe the various charging techniques used for electric vehicles.

PART - C

Answer any ***two*** questions.
Each question carries **Ten** marks.

24 Classify the different types of electric vehicles and explain their working principles and key features

25 Classify the different types of electric drive motors. Explain the construction and working functions of any three of these motors with suitable layouts/diagrams.

26 Explain different driving cycles used for EV testing and evaluation.

27 Explain in detail the electric vehicle charging stations with neat schematic diagrams.

2 x 10 = 20 Marks

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOMOBILE Degree Examination, November 2025

SDC5AU27 – Automotive HVAC

(2021 Admission onwards)

Time: 2 ½ hours Max. Marks : 80

(Use of Steam tables and Psychrometric charts are permitted)

PART-A
Answer all questions.
Each question carries Two marks.
Ceiling - 25 Marks

1. Define refrigeration.
2. Give two examples of commonly used refrigerants.
3. What is the role of a compressor in a vapour compression system?
4. Name two eco-friendly refrigerants.
5. State any two purposes of ventilation in a vehicle.
6. Define dry bulb temperature and wet bulb temperature.
7. Write any two environmental concerns related to refrigerants.
8. Write the possible causes of ozone layer depletion.
9. What is the function of a receiver-drier in a vehicle AC system?
10. Write any two differences between fixed and variable displacement thermostatic systems.
11. What is the use of an expansion device in a refrigeration system?
12. List down two types of compressors used in vehicle AC systems.
13. What is the role of ram air ventilation?
14. Name two methods used for refrigerant leak detection.
15. Mention two safety precautions while handling refrigerants.

PART- B

Answer all questions.
Each question carries Five marks.
Ceiling - 35 Marks

16. Write a short note on the vapour absorption refrigeration system with a simple diagram.
17. Explain any five selection criteria for refrigerants.
18. Explain the importance of ventilation and air filtration in HVAC systems.
19. Define (a) Dew point temperature, (b) Relative humidity. (c) Humidity ratio.
20. Differentiate between receiver-drier and accumulator.
21. Write a short note on compressor clutch and its electrical circuit.
22. Describe the purpose of diagnostic procedures in refrigeration systems.
23. Describe the air delivery components used in automotive HVAC systems.

PART - C

Answer any two questions.
Each question carries Ten marks.

24. Describe the working of a Vapour Absorption Refrigeration System (VARS) with neat diagram and mention any two major differences with VCRS.
25. Describe with a neat diagram the schematic layout of an automobile refrigeration system. Explain each component and its function.
26. Draw and explain the electrical circuit for a compressor clutch and describe its working during AC operation.
27. Describe the methods to prevent damage to the compressor and other components in a vehicle AC system with the help of control mechanisms.

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOMOBILE Degree Examination, November 2025

SDC5AU28 – Vehicle Body Engineering

(2021 Admission onwards)

Time: 2 ½ hours Max. Marks : 80

PART-A
Answer all questions.
Each question carries Two marks.
Ceiling - 25 Marks

1. Explain any two characteristics of a limousine
2. Name any two types of racing or sports cars.
3. State the purpose of hemming in car body manufacturing.
4. Mention two key differences between a minibus and a double-decker bus.
5. What do you mean by floor height in a bus body layout?
6. Define "double skin construction"
7. What is the purpose of the Bus Body Code?
8. Mention any two features of a tipper body.
9. Name any two types of light commercial vehicle (LCV) bodies.
10. Define the term "driver's seat control relationship".
11. List any two regulatory bodies that govern crash testing.
12. What is the function of instrumentation in crash testing?
13. What is ergonomics in vehicle design?
14. Define severity index in crash analysis.
15. Mention any two restraint systems used in automobiles.

PART- B

Answer all questions.
Each question carries Five marks.
Ceiling - 35 Marks

16. Differentiate between compact, hatchback, and estate cars with examples.
17. Compare racing cars and sports cars in terms of body design.
18. Differentiate between conventional and integral type bus construction.
19. Describe the features and advantages of double skin construction.
20. Briefly explain different types of light commercial vehicle bodies.
21. List the components involved in driver's cab design and their significance.
22. Explain how ergonomics affects the location of controls in a vehicle.
23. Describe the use of crash dummies in injury analysis.

PART - C

Answer any two questions.
Each question carries Ten marks.

24. Discuss the design criteria for a passenger car body. Include safety, aerodynamics, material selection, and ergonomic factors.
25. Explain the different types of bus bodies such as mini bus, single decker, double-decker, two-level, and articulated buses with examples and applications.
26. Describe in detail the differences between active and passive safety systems, with examples.
27. Describe the significance of pedestrian safety and the design considerations for minimizing pedestrian injuries.