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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOMOBILE Degree Examination, November 2023

GEC5PS23 – Life Skill Application

(2021 Admission onwards)

Time: 2 hours Max. Marks: 60

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

1. Define the term addiction.
2. What are negotiating skills.
3. Distinguish between private and public self- awareness.
4. Define interpersonal attraction.
5. Mention any two communication styles.
6. State and illustrate problem solving process.
7. Differentiate between active and passive listening.
8. Explain career planning.
9. Define life skill education.
10. Explain coping skills.
11. Explain critical thinking skill.
12. Define empathy.

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

13. Briefly explain ten core life skills.
14. Why empathy is important in a healthy relationship?
15. Explain in detail the importance of effective decision making in everyday life.
16. Describe the benefits of understanding oneself.
17. What skills contribute to improving interpersonal relationships?
18. Explain the importance of life skill training in various groups.
19. How does life skill training contribute to career planning and development?

PART - C

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

20. Define life skill, explain in detail the needs and importance of life skill education.

21. What is problem solving? Illustrate the steps involved in solving a problem in everyday life.

1x 10 = 10 Marks

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOMOBILE Degree Examination, November 2023

SDC5AU24 – Internet of Things (IOT)

(2021 Admission onwards)

Time: 2 hours Max. Marks: 60

PART – A

Answer *ALL* questions. Each question carries TWO marks.

1. What do you mean by Internet of Things?
2. List the challenges of IoT.
3. What is pinMode() in Arduino?
4. What is ultrasonic sensor?
5. How can you use the serial monitor tools in IoT development?
6. What is the purpose of using an LDR (Light Dependent Resistor) in an automatic lamp design?
7. When interfacing a temperature sensor, what are the components needed for the basic circuit setup?
8. Why do we use sensors in IoT applications?
9. What is the primary purpose of using Raspberry Pi in IoT applications?
10. What is NOOBS, and why is it important for Raspberry Pi beginners?
11. Name two configuration settings you can adjust during the initial Raspberry Pi setup.
12. How do you make an LED blink using a Raspberry Pi?

(ceiling 20 marks)

PART – B

Answer *ALL questions*. Each question carries FIVE marks.

13. Briefly explain a simplified IoT architecture.
14. Give a short note on different looping statements.
15. Briefly explain basic Arduino structure.
16. Give a note on serial data pins.
17. Explain the process of interfacing a basic sensor with an Arduino and briefly mention the coding involved.

18. Describe the basics of interfacing a servo motor in IoT applications. How can you control the rotation of a servo motor at 0, 90, and 180 degrees? Provide a simple explanation.
19. Discuss two key features of Raspberry Pi and provide examples of how these features are beneficial for IoT applications.

(ceiling 30 marks)

PART – C

Answer *ANY ONE question*. Each question carries TEN marks.

20. Explain the concept of serial data transmission, what are the key components involved in serial data communication?
21. Explain the fundamental concepts related to Arduino in IoT development.

(1 x 10 = 10 Marks)

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOMOBILE Degree Examination, November 2023

SDC5AU25 – Automotive Electrical System

(2021 Admission onwards)

Time: 2 ½ hours Max. Marks: 80

PART – A
Answer *all* questions.
Each question carries Two mark.
Ceiling -25 Marks

1. What is a vehicle system?
2. What are the three types of color codes?
3. What are the different characteristics of switches?
4. What is MOST network?
5. Define FlexRay?
6. Explain LIN?
7. Describe about conventional circuit diagrams
8. What are the disadvantages of General Motor EN-V?
9. What is Vision Enhancement?
10. List out three types of Head Light Reflectors.
11. Define Luminous Intensity.
12. What is Gas Discharge Lamp?
13. Write the equation for wiper motor torque calculation.
14. List out any three features of wiper blades.
15. Prepare a short note on wiper linkage.

PART – B

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

16. What is printed circuit? Write it's construction?
17. What is Controller Area Network (CAN)
18. What are EMC problems? Provide examples.
19. List out Seven external lights of a vehicle with their Cd range.
20. Draw the circuit diagram for Brake Light.
21. What are the procedures of headlight beam setting?
22. What are the functional requirements of wiper?
23. Explain wind screen zones with the aid of a neat sketch.

PART - C

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

24. What is Harness design? What are the considerations of deciding layout of a wiring loom?
25. Prepare a note on Ultra Violet Head light technology.
26. Write eleven stage process of checking an auxiliary system circuits.
27. Write a brief note on Road Trains.

(2 x 10 = 20 Mar

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOMOBILE Degree Examination, November 2023

SDC5AU26 – Electric & Hybrid Vehicles

(2021 Admission onwards)

Time: 2 ½ hours Max. Marks: 80

PART – A
Answer *all* questions.
Each question carries Two mark.
Ceiling - 25 Marks

1. What are the different types of electric vehicles?
2. What is a BEV? Give an example.
3. What is a solar powered vehicle?
4. Define drive train.
5. Define traction.
6. Define regenerative braking.
7. Name some electric components used in HEV/EV.
8. What are battery parameters?
9. Define drive system efficiency.
10. Lithium-ion batteries are widely used in EV, explain.
11. What are the considerations for choosing energy storage technology for an EV?
12. Define driving cycle. Define range modeling.
13. What is the primary objective of an energy management system of an EV?
14. What are the energy management strategies used in HEV and EV?

PART – B

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

15. Explain the impact of modern drive train on energy supplies.
16. Explain solar powered vehicle in detail.
17. Using block diagram explain the working of BEV.
18. Differentiate between hybrid traction and electric traction.
19. Explain the configuration and control of DC motor drive.
20. Explain the energy storage requirement in hybrid and electric vehicles.
21. Explain the steps and considerations for sizing the propulsion motor.
22. Differentiate between different energy management strategies.

PART - C

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

23. Explain various forces acting on the vehicle in static and dynamic conditions.
24. With a neat figure explain the working of different types of HEV.
25. Explain different driving cycles used for EV testing and evaluation.
26. Explain the implementation issues of energy management strategies.

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOMOBILE Degree Examination, November 2023

SDC5AU27 – Automobile HVAC

(2021 Admission onwards)

Time: 2 ½ hours Max. Marks: 80

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

1 Draw Vortex Tube

2 List out the major components in VCR.

3 Explain the role of a pump in VAR

4 Explain how Cryogenic refrigeration works.

5 Define secondary refrigerants.

6 What is R718 and R764?

7 Explain how temperature affects the life of different fruits.

8 Define Humidity Ratio.

9 What are the different types of subsystems of automobile HVAC ?

10 What is a compressor clutch?

11 Explain Constant run relay.

12 Briefly explain Ambient Temperature Switch.

13 Explain Valves-In-Receiver (VIR)

14 Explain Power brake switch.

15 Explain Anti-dieseling relay.

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

16 Explain Thermoelectric refrigeration.

17 Explain the working of a Compressor and Condenser.

18 Draw and explain the working of Absorber and Generator in VAR.

19 List down and explain different psychrometric properties.

20 Draw the layout of Automobile AC systems.

21 Explain the working of automobile AC systems using orifice tubes.

22 Explain Power steering pressure switch, Power brake switch and Engine coolant high temperature switch.

23 Explain Engine coolant high temperature switch, Constant run relay and Compressor delay timer.

PART - C

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

24 Write an essay on Vapour compression refrigeration.

25 List down and explain psychrometric process and mark any five psychrometric processes in a psychrometric chart.

26 Explain the working of the Automobile Air conditioning system using orifice tubes with necessary layouts.

27 Explain ambient temperature switch , Pressure-sensing (cycling) switch (orifice tube type systems), Thermal fuse/superheat switch and Pressure-sensing (cycling) switch.

2 x 10 = 20 Marks

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC AUTOMOBILE Degree Examination, November 2023

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 Define Vehicle Body.

2 What is Hood ?

3 What is forward visibility?

4 What is Bumper ?

5 Write any 4 classification of Passenger carry Bus according to the distance traveled by the Vehicle.

6 What is a Touring Bus?

7 Explain about the Type 4 Passenger Carry Bus.

8 Explain about Fixed side Truck.

9 Explain about Tanker Body Truck.

10 Write any two advantages of Light Commercial Trucks.

11 Explain role of Good mirrors in active safety.

12 List down few active safety features.

13 List down any four Modern Active safety features.

14 What is the role of high speed photography in accident testing?

15 Define severity index?

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

16 Write a note on Driver visibility angle.

17 Draw and explain Hatchback and Saloon.

18 Explain the sequence of Bus body building operations.

19 Explain about Touring and Midi bus.

20 Draw and Explain Flat platform and Drop side Trucks.

21 Explain about Seat Belt.

22 Explain HAC, ARC, and ACC.

23 Write a note on Accident Statistics.

PART - C

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

24 Explain the different vehicle body terminologies with necessary layout.

25 Classify and explain Passenger Carry Bus according to distance traveled by the vehicle and Capacity of the vehicle.

26 Draw and Explain Flat platform, Drop side, Fixed side and Tipper body Trucks.

27 Write an essay on passive safety features of vehicles?

2 x 10 = 20 Marks

13

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC SD Degree Examination, November 2023

SDC5IT23 – Big Data Analysis

(2021 Admission onwards)

Time: 2 hours Max. Marks: 60

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

1. Write down the characteristics of Big Data Applications. ?
2. Define HDFS ?
3. List out the computing resources of Big Data Storage?
4. Define k-means clustering.?
5. What is a "decision tree"?
6. Examine the use of object Attributes ?
7. State the use of Apriori algorithm in data mining ?
8. List out the applications of Association rules?
9. List out the applications of data stream ?
10. Define decaying window ?
11. Difference Between Hbase and Hive?
12. What is Schema-less Model ?

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

13. Briefly discuss about MapReduce and YARN?
14. Describe the main features of big data ?
15. Briefly discuss about K-means clustering algorithm with example?
16. Explain about Classification of Decision trees ?
17. Explain apriori algorithm for mining frequent item sets with an example ?
18. Discuss about How E-Commerce is Using Big Data to Improve Business in detail.?
19. Explain Hive Architecture ?

PART - C

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

20. Explain in detail about Naïve Bayes Classification?

21. Give a Survey on Analyzing Big data with Twitter ?

(1 x 10 = 10 Mark

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC SD Degree Examination, November 2023

SDC5IT24 – Machine Learning and Artificial Intelligence

(2021 Admission onwards)

Time: 2 hours Max. Marks: 60

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

1. What is mean by Unsupervised Learning?
2. What is Natural Language Processing?
3. Explain the term Regression.
4. What is mean by Hypothesis Class?
5. What is ROC curves ?
6. Briefly explain Decision Tree?
7. What is called Artificial Intelligence?
8. Briefly explain Support Vector Machine Algorithm.
9. What is mean by Discrete Markov Process in Machine Learning?
10. What is mean by Clustering?
11. Is it correct to assert that Machine Learning is a subset of Artificial Intelligence?
12. Briefly explain Kernal Trick.

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

13. Explain any 5 applications of Machine Learning.
14. Explain the construction of Decision Tree in detail.
15. How Information Gain helps in Feature Selection?
16. Distinguish the term
    a. Unsupervised Learning,
    b. Reinforcement Learning.
    c. Supervised learning

17. State and Prove Baye's theorem.

18. Explains any 5 Python Libraries using for Machine Learning.

19. Differentiate Linear Regression and Logistic Regression

PART - C

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

20. Explain Bayesian classifier?

21. Explain three basic problems of Hidden Markov Models (HMMs).

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC SD Degree Examination, November 2023

SDC5IT25 – Cloud Computing

(2021 Admission onwards)

Time: 2 hours Max. Marks: 60

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

1. What advantages do they offer over traditional deployment methods?
2. What are the characteristics of cloud architecture that separates it from traditional one?
3. What are the issues in cluster design? How can they be resolved
4. What is paravirtualization, and how does it impact the internals of a hypervisor?
5. What is the fundamental architecture of HDFS
6. What are the challenges associated with monitoring and measuring SLA compliance?
7. What are the extensions of MapReduce to Cloud Computing
8. How do you Build Private/Hybrid Cloud using open source tools?
9. Explain Resource Management?
10. What is Capacity Management to meet Load Balancing?
11. What are the algorithms commonly used for load balancing?
12. What is Virtual Machine Level Security

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

13. What is Distributed Computing?
14. How do AWS and GCP offer managed MapReduce services?
15. Explain the Issues with virtualization?
16. What are the potential pitfalls and security concerns to be aware of when implementing these Micro services and APIs?
17. Explain MapReduce and its extensions to Cloud Computing.
18. What are Scheduling Techniques for Advance Reservation?
19. Explain Kubernetes

PART - C

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

20. Explain deployment models and service models in cloud

21. What strategies and technologies can be employed to ensure cost-effective resource management in IT infrastructure for a cloud?

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC SD Degree Examination, November 2023

SDC5IT26 – Android App Development

(2021 Admission onwards)

Time: 2 hours Max. Marks: 60

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

1. Why we use SQLite database in Android ?
2. What is map view control in Android ?
3. What is AVD and Emulator ?
4. What is start Activity() ?
5. How to get data from Content provider in Android?
6. What is the resource file in Android studio?
7. What is the purpose of Layout resource ?
8. What is ADT ?
9. What are the elements of Android software stack ?
10. What is ID in Android ?
11. What is Android Cursor ?
12. Name four Android Versions?

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

13. Define the structure of Android application ?
14. Explain Android software Stack ?
15. What are the attributes of Radio Button control ? Explain with code ?
16. Write short note on Adapters and Adapter views ?
17. Explain the Activity life cycle in Android ?
18. Briefly explain the working of intent in android with example.
19. What is Android toast? Explain in detail with example ?

PART - C

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

20 What is Android control ? Explain about any *five* Android common controls ?

21 Write short notes any *five* Android menus ?

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BVOC SD Degree Examination, November 2023

SDC5IT27 – E3 : Internet of things (IOT)

(2021 Admission onwards)

Time: 2 hours Max. Marks: 60

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

1. List layers of IoT protocol stack.
2. What is the structure of a URL?
3. How to create an HTTPS server?
4. What are mostly used IoT protocols?
5. What is Z-Wave?
6. Differentiate between Arduino and Raspberry pi.
7. How we access the serial port on Raspberry Pi?
8. Write the advantages of CoAP protocol.
9. What is a microcontroller, and what are its typical components?
10. List mostly used sensors types in IoT
11. What are some of the key features of Django that make it popular among web developers?
12. List available models in Raspberry Pi.

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

13. Explain the concept of the Internet of Things (IoT) and its significance in the modern world.
14. Describe some of the key communication protocols used in IoT and their respective advantages.
15. Explain the role of Machine Learning in IoT applications.
16. Advantages of NoSQL Databases in IoT
17. List and briefly describe some key components of the Hadoop ecosystem.
18. Describe the role of Xively Cloud in IoT applications.
19. Explain the MQTT and CoAP protocols used in the Application layer of IoT.

PART - C

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

20. a) Explain with an example, a basic structure of Arduino programming. (5)

    b) How Arduino Uno is different from the other available microcontrollers? (5)

21. a) Why is the User Datagram Protocol (UDP) commonly used at the Transport layer for IoT communication?

    b) What is 6LoWPAN protocol, and how does it enable IPv6 communication in IoT networks?

(1x10=10Mar